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## The new scientificity in historical writing around 1800

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‘Schorske is not so foolish as to declare the death of history,’ Steven Beller concedes in his review of Carl E. Schorske’s *Thinking with History*:

but Clio has certainly, in his view, fallen on hard times. The queen of the sciences in the mid-19th century, she is now in much straitened circumstances, reduced, in Schorske’s phrase, to going on ‘dates’ with any discipline that will have her. This sense of history having suffered a fall from grace is overly pessimistic. History never had quite the pre-eminence Schorske ascribes to it, except perhaps in Germany.<sup>1</sup>

Beller’s critique refers to a number of issues that form the backdrop of the following chapter. To begin with, there is the idea that history is a science and, subsequently, the uncertainty as to what exactly that means; second, the assumption that there was a golden age of history which, if it ever existed, was in 19th-century Germany; and finally, the endeavour to endow the academic discipline of history, in one way or another, with a distinctive biography. Underlying these issues is the question of what constitutes historical science (French *science historique*, German *Geschichtswissenschaft*) and its claims to objectivity, validity and truth, a recurrent theme that gives rise to controversial debates, particularly in times of paradigm shift.<sup>2</sup>

Part and parcel of these debates is the discussion about the *emergence* of scientific order in historical writing.<sup>3</sup> It is obvious that historiography as a cultural practice and true representation of the past is much older than the academic discipline of history. Even so, until the 18th century no serious attempt was made to claim for historical writing a scientific code of practice. In fact, within the pre-modern order of knowledge, *historia* and *scientia* were mutually exclusive.

However, what had seemed a contradiction in terms to the English philosopher Thomas Hobbes (1651), the German scholar Christian Wolff (1712) and, as late as 1751, the French editors of the *Encyclopédie*, d'Alembert and Diderot – namely that historiography could be viewed in science-like terms – was to be the point of departure for Johann Gustav Droysen's theory of historical science (*Historik*) only some hundred years later, in 1857.<sup>4</sup> Were 19th-century scholars, like the historian and Hegel-pupil Droysen, more astute than their seventeenth- and 18th-century counterparts? Did they detect some untapped potential in the writing of history that their predecessors had overlooked?

There is no such thing as historical science, and this is a chapter about its beginnings. Asking how it became possible to conceive of history as a science, it explores the rise of the new scientificity claimed, discussed and practised in historical writing around 1800. Since, we are usually told, it was at German universities that modern historical science took off, the German case looms large in this chapter, although this will not prevent us from reflecting on developments elsewhere and drawing some broader conclusions about history writing as a whole.

## 1.1 *Experientia aliena*

In *Leviathan* (1651) Hobbes introduces his system of knowledge by declaring emphatically that '(t)here are of knowledge two kinds, whereof one is knowledge of fact: the other knowledge of the consequence of one affirmation to another . . . The later is called Science . . . The register of knowledge of fact is called History.' Whereas science relates to 'reasoning' and 'contain(s) the demonstrations of consequences of one affirmation, to another', history represents 'nothing else but sense and memory', that is 'the knowledge required in a witness'. History consequently does not appear in Hobbes' table of sciences.<sup>5</sup>

A lot of time has passed since Hobbes wrote these lines. And yet, even to the present day it is almost impossible for a historian to speak of history as a science without provoking a smile, since whenever the topic under discussion is philosophy of science, history of science or quite simply science, historians are very likely to be the only ones to assume that their discipline belongs there too. Worse still, historians themselves have made heavy weather of this and have been at issue over whether to treat history as soft science, quasi-science, science *sui generis* (of its own kind), or even not as a science at all but as an art.<sup>6</sup>

While this line of questioning has its merits, it is not going to concern us here. I do not want to explore whether scientificity (acting along the lines of scientific rationality) is an attainable goal for historical practitioners. Nor do I intend to ask whether scientificity and its attendant categories of objectivity and truth really exist, and if they do, whether that is something desirable. This chapter is not concerned with problems of existence and legitimacy but with those of history. In

fact, what it means ‘to do things scientifically’ has changed quite dramatically over the past three centuries. The traces of this change can still be seen in our current usage of the word scientific. We glide, for example, with ease from ontological assertions about the ultimate structure of historical reality (the objective truth of a scientific claim) to statements about the procedures that ensure the validity of our empirical findings (scientific methods) and to claims about the scientific ethos of a true scholar (self-distancing, detachment, impartiality, self-effacement, or simply: objectivity). Our notion of scientificity, a blend of essentially different meanings, points to differing and often conflicting histories, which in turn refer to different intellectual traditions, cultural practices and social contexts of origin in which the various images and ideals of scientificity acquired their respective meanings. What I want to do here is to trace some aspects of this history and relate them to the history of historical writing.<sup>7</sup>

It is safe to say that from the time of the Reformation in the 16th century the array of diverse genres and practices we refer to as historical writing was firmly established in Germany, if not as *scientia* then nonetheless as an important part of *eruditio* (erudition or learned education). *Historia* figured prominently as a distinct discourse, with corresponding groups of practitioners, norms and institutions. The first *lectio historica* had already been established in 1504 at the University of Mainz. Constituting a fourth form of knowledge besides *scientia*, *prudentia* and *ars*, *cognitio historica* was recognized as *experientia* or *cognitio empirica* – that is, empirical knowledge. As such, historical knowledge was seen as an indispensable component of most branches of learning, to the extent that these branches were not only based on axiomatic principles but also on empirical concepts developed by process of induction. Within this context, history achieved particular significance as *experientia aliena*, as alien experience. Expanding the horizons of personal experience by drawing exemplary lessons from the past, history was valued as a store of moral and political maxims for the guidance of present conduct. For all its importance, however, within the epistemological framework of Aristotelianism, which was prevalent in Germany and indeed across Europe until far into the 18th century, history as a science was in principle inconceivable. How can we explain this?<sup>8</sup>

Roughly speaking, the Aristotelian theory of knowledge is predicated on two principles. For one thing, only the universal and abstract can be known with certainty, while the particular and concrete allow merely for statements of probability. For another, certainty can be achieved only about constant and essentially immutable entities, whereas that which keeps changing without rules permits merely probable statements. The first category includes the universal and perennial qualities of all being and nature, covered most notably by those branches of knowledge that were grounded in mathematics and logic. The second category refers to ‘man and his actions’. The metaphysical prerequisite of these principles

is the assumption that ontological necessity (the quality of following inevitably from logical, physical or moral laws) and epistemological truth (the quality of being a verified or indisputable fact, proposition or theory) are inseparable. Within this framework, the notion of science implies absolute certainty. It means knowing the necessity of why something is so and not otherwise, i.e. the exploration of causes, aimed at the universal and perennial qualities of what exists.

What is important with respect to our question is the fact that historians were precluded from practising science, as it were, on two grounds. On the one hand, history was incompatible with science inasmuch as it explored the concrete realities of particular facts and circumstances. On the other hand, it was incompatible with standards of science inasmuch as it sought to capture the shifting ground of human affairs, an effort conspicuously flawed by the imponderables of human agency and free will.

My argument in this chapter is a triple one. To start with, I shall argue that *cognitio historica* became conceivable as historical science in Germany in the wake of a fundamental de-hierarchization of the edifice of scholarly knowledge, a process set in motion in the 16th century and accelerated during the seventeenth and eighteenth centuries by the two intellectual revolutions known as the Scientific Revolution and the Enlightenment. In other words, we have no reason to assume that at a certain historical juncture historiography successfully crossed the threshold of scientificity – an immutable, monolithic ideal – by developing certain methods that were, at long last, adequate to the study of history. Scientificity (French *scientificité*, German *Wissenschaftlichkeit*) is not a transhistorical given. Like any other concept it has itself a history.

Second, the levelling of scholarly knowledge forms was accompanied by an erosion of the plausibility and acceptance of interpretative frameworks associated with Aristotelianism. This occurred in the German setting during the second half of the 18th century, i.e. considerably later than in Britain and France. The philosophical agenda of Aristotelianism was eclipsed and in large measure superseded by other types of scientific rationality that a range of historians embraced and put to good use in the writing of history.

Third, the background of the dwindling plausibility of some modes of scientific rationality on the one hand, and the rise of new ones on the other, consisted of broad European changes in attitude towards knowledge in general, and the relations between knowledge and social order in particular. The environment for these changes was the crisis and fundamental transformation of European societies during the century between 1750 and 1850, which has often been portrayed as a ‘dual revolution’. The Industrial Revolution, however, was not only accompanied by a revolution in political practices, as embodied in the French Revolution of 1789 and its democratic legacy. The ‘dual revolution’ was paralleled, and in some measure reinforced, by profound

changes in *epistemic* practices, i.e. practices by which knowledge was secured, assessed and communicated.<sup>9</sup>

The outgoing 18th century witnessed a particularly tense debate about historical writing and its role in securing and subverting social order. The existing debates over method assumed greater significance as the capacity of historical knowledge to ensure certain desirable values and, in consequence, right conduct was thought to have a considerable impact on the outlook of society. Historical practitioners had to address some ticklish questions. What exactly was proper historical knowledge? Who was authorized to hold it and on what conditions? What degree of certainty was it appropriate to expect of it? Could differing groups of people be made to believe the same things and, if so, how could this be achieved? The recourse to notions of scientificity was to play a key role in answering these and other questions.<sup>10</sup>

I want to illustrate my argument with a brief survey of the shift from Aristotelian towards experiential conceptions of knowledge during the seventeenth and eighteenth centuries, in order to establish the exact implications of this for the province of history. Of the many aspects that a more comprehensive account would include, I have selected three main elements. I first examine the rise of useful knowledge and how that changed the map of knowledge. I then turn briefly to what the Dutch historian E.J. Dijksterhuis once called ‘the mechanization of the world picture’, to show what impulse historical thinking derived from this. From there I take a look at the rise of the experiment as a knowledge-making practice and consider how this affected the case for empirical historical studies. Finally, I conclude with some thoughts about how the above three elements had helped change the understanding of scientific knowledge by the end of the 18th century. In doing so, I shall clarify the notion of scientificity in historical writing, which I want to leave diffuse at this point, allowing its sense and implications to emerge as the inquiry proceeds.

## 1.2 The rise of useful knowledge

Perhaps the single most astonishing feature that a medieval intellectual like Umberto Eco’s Franciscan William of Baskerville would have registered in early-modern Europe was the revaluation of knowledge produced to achieve practical ends. Broadly speaking, the aspiration to shape society according to rational principles placed intellectual practices increasingly in the service of practical objectives. ‘Thinking’, in Hannah Arendt’s words, became ‘the handmaiden of doing as it had been the . . . handmaiden of contemplating divine truth in medieval philosophy.’ With the rise of useful or practical knowledge (of trade, for example, or production processes), the contemplation of eternally given truth was to lose its epistemological prerogative. As a result, ‘scientific and philosophic truth have parted company’.<sup>11</sup>

The belief that knowledge ought to be useful was not a free-floating idea, however; it was an integral part of the formation of early-modern states and the concomitant politics of knowledge. In fact, the practice of government in early-modern Europe was increasingly predicated on the systematic collection of information arranged for practical purposes such as public finances (*économie politique* or, in Russia, *kameralnaja nauka*), the mapping of the state territory (cartography) and the welfare and surveillance of the governed ('political arithmetic', statistics and, in Germany, *Polizeiwissenschaft*). Not without good reason did the sociologist Max Weber describe the rise of bureaucracy, one of the key factors in the development of early-modern states, as the 'exercise of control on the basis of knowledge'.<sup>12</sup>

The rise of useful knowledge found a variety of expressions. The burgeoning book markets, for instance, were swamped with publications like Thomas Bray's *An Essay toward promoting all Necessary and Useful Knowledge* (1697) and Johann August Schlettwein's *Von den nützlichen Wirkungen einer Universität auf den Nahrungsstand des Volkes* (1776). The Electoral Academy of Useful Sciences in Erfurt (1754), the Mining Academy in Freiberg (1765) and similar societies in Philadelphia (1758) and Virginia (1772) are but a few examples of the numerous institutions set up to promote knowledge of crafts and trades. Designed as *Staatsdienerschulen* (schools for public servants), the newly founded universities in Halle (1694) and Göttingen (1736) promoted in large measure 'useful' subjects. 'Mechanical arts' like engineering and agriculture were playing an increasingly prominent part in best-selling encyclopaedias such as Ephraim Chambers' *Cyclopaedia: or, An Universal Dictionary of Arts and Sciences* (1728) and Heinrich Zedler's *Universal-Lexicon aller Wissenschaften und Künste* (1732–54) while, a little later, the French Academy of Sciences began producing its *description des arts et des métiers* (1761–88), thus underlining the importance it had come to ascribe to the useful or practical branches of knowledge.<sup>13</sup>

Even the scholastic curriculum of European universities did not escape unscathed. Although the system of the four faculties remained by and large intact – the liberal arts (including philosophy) were still followed by the three higher faculties of medicine, law and theology – its order and inherent hierarchy was increasingly challenged by a growing range of new disciplines like chemistry, political economy and, not least, history. The ascent of history as an academic discipline during the 18th century was inextricably linked with its usefulness for the training of the growing number of lawyers, 'politicians' (to use a convenient anachronism) and administrators. Good knowledge of international history, for example, was deemed imperative for the training of diplomats at such universities as Paris and Strasbourg. The institution of the Regius chairs in history at the universities of Oxford and Cambridge at the beginning of the 18th century had a similar background.<sup>14</sup>

By the mid-18th century, useful or practical knowledge had finally become respectable. The extent to which the traditional order of knowledge had been remapped can be seen in Diderot's 'Prospectus' (1750) and d'Alembert's 'Preliminary Discourse' (1751) to the *Encyclopédie*. D'Alembert, for example, gave particular prominence to mathematics whereas theology, once queen of the four faculties, was presented as but an offshoot of philosophy. That the intellectual flagship of the French *philosophes* should allocate such an important position to the trades in general and to state-of-the-art technologies indicated, moreover, the increasingly problematic ranking of scientific and hitherto non-scientific forms of knowledge. Equally important is the fact that the entries in the *Encyclopédie* were arranged in alphabetical order, which paralleled and underpinned the general trend away from traditional hierarchies of knowledge. Francis Bacon's earlier attack on the Aristotelian classification of knowledge – his *New Organon* of 1620 was meant to replace Aristotle's *Organon* once and for all – had eventually borne fruit.<sup>15</sup>

### 1.3 Making and knowing: the world as a machine

This leads me to the second element. The revaluation of useful knowledge was connected with the increasing use of mechanical metaphors for imagining the world. The 'mechanization of the world picture', to use the title of Dijksterhuis's classic, played an important part in the shift away from Aristotelian physics. Construing matter as essentially active and motion as having developmental character, Aristotelian physics ascribed design and purpose to material nature. What is important in our context is that the historically triumphant attempts to establish an alternative theoretical framework, collectively known as mechanical philosophy, modelled nature on the characteristics of a machine. 'Disenchanting the world' (Max Weber) by construing matter as inert and nature as a causally specifiable machine, mechanical philosophers as different as René Descartes, Robert Boyle and Isaac Newton were convinced that they had found an intelligible metaphor that allowed one to understand nature and its components without having to invoke such 'occult powers' as soul-like qualities (animism) and the capacities of purpose and intention (teleology). In fact, it was a widely held belief in the seventeenth and eighteenth centuries that humans could reliably know only what they had made themselves, either manually or intellectually.<sup>16</sup>

The mechanical metaphor and its attendant conviction that humans could know only what they constructed themselves did not remain restricted to the study of nature; it pervaded all branches of knowledge, as the following passage from Thomas Hobbes exemplifies:

Geometry therefore is demonstrable, for the lines and figures from which we reason, are drawn and described by ourselves; and civil philosophy is demonstrable, because we make the commonwealth ourselves.<sup>17</sup>

The epistemological implications of this for the conceivability of a historical ‘science of man’ become apparent in Giambattista Vico’s *Scienza Nuova* (1725/44). Expecting secure knowledge exclusively from things that owed their existence to man, the Italian professor of rhetoric turned his attention away from the study of nature to history. He reasoned that since it was God who created the natural world, only God could comprehend it. Man himself, however, could expect secure knowledge only from the study of the ‘civil world’, for the latter was the product of human creativity in the same sense that nature was the creation of God. Although Vico’s notion of a new science did not attract much attention at the time, it indicates that, on purely epistemological grounds, the historiography of human affairs could be imagined as a science.<sup>18</sup>

The degree to which the mechanical metaphor had penetrated the tradition of Aristotelianism by the beginning of the 18th century can be seen from the case of the leading German Aristotelian Christian Wolff. In his theory of knowledge from 1712 he demands that history ‘be written in such a way that where men’s deeds are measured against their circumstances, one can learn the rules of divine governance therefrom’. The study of history should allow us to observe the great clockmaker in the act of clockmaking, as it were, so that we can understand the mechanics of His clockwork. ‘I understand the nature of a clock,’ Wolff specifies, ‘when I grasp clearly what kind of wheels and other accessories it is composed of, and how each is related to the other.’ Employing the clock as the favourite mechanical metaphor of his era, Wolff calls for a kind of historiography that is both didactic and useful in that it reveals history’s hidden causal structure (pragmatic historiography).<sup>19</sup>

But the use of the clock analogy has yet another side. ‘One understands the nature of a thing,’ Wolff’s passage on clocks emphasizes, ‘only when one grasps clearly how it has become what it is, or by what manner and means it is possible.’<sup>20</sup> At this point, Wolff’s notion of determining the nature of a thing through intellectual reconstruction of its constituent parts and structure turns into a genetic explanation of its coming into being. In fact, the latter is to complement the former, as is the case in Wolff’s system of knowledge where each individual discipline is divided into an abstract-rational part and an empirical-historical one. Wolff was seconded by the Erlangen theologian Johann Martin Chladenius. In his *Allgemeine Geschichtswissenschaft* of 1752 – the German counterpart of Lord Bolingbroke’s *Letters on the Study and Use of History* (1752) – Chladenius claimed:

The main event of a moral being [such as a state] is the origin of the same; which is all the more remarkable, since it supplies the reason for the subsequent events, without which these will not be understood.<sup>21</sup>

The search for regular configurations, developmental patterns and laws ('rules of divine governance') was a well-established theme throughout the 18th century. The *Ordre Naturel* of the French physiocrats, the *Staatswissenschaften* (sciences of the state) in Germany, and the rise of conjectural history in Britain are prominent examples of this.

The clock analogy thus illustrates two things. On the one hand, it shows that the emergence of a new historical consciousness in early-modern Europe owed one of its greatest impulses to the use of the mechanical metaphor and its attendant belief that humans could know securely only what they produced themselves. On the other hand, the analogy reveals the limitations of the mechanical metaphor, which confines the notion of history to the process of coming into being. Once the clockwork is in place, it is a more or less stable end product. Mechanical analogies did not lose their metaphorical appeal until the last third of the 18th century when they were superseded by other, mainly organicistic, metaphors.

## 1.4 The rise of empirical knowledge

The third element that had a profound impact on attitudes to knowledge was the rise of the experiment as a legitimate knowledge-making practice, epitomized in Francis Bacon's dictum of 'putting nature to the question'. The plausibility of the experiment as a knowledge-making activity owed much to the view discussed above that humans could comprehend only what they had made themselves. From the same view the conviction followed that, for reliable knowledge of things that were not man-made, one had to imitate or reproduce the processes through which these things had come about. Indeed, it is the nature of the experiment that it itself produces the phenomena that are to be observed. 'Give me matter,' the German philosopher Immanuel Kant exclaimed in his theory of the origin of the universe (1755), 'and I will build a world from it, that is, give me matter and I will show you how a world developed from it.'<sup>22</sup> Kant's words highlight the *mélange* of making and knowing that was so characteristic of the time. They allow us to catch a glimpse of the awareness that still existed of the link between 'fact' and 'manufacture', two words that were to become (almost) antonyms by the end of the 18th century as 'fact' drifted towards 'datum', i.e. something that is given rather than made.

The critical point in our context here is the belief that lay at the heart of experimental philosophy (and early-modern empiricism more generally), namely that

proper knowledge was and had to be derived from direct sense experience. This was an assault on yet another pillar of the Aristotelian tradition. Robert Boyle's experimentation with the air-pump, which was arguably the most prolific fact-making machine of the era, is emblematic of this attitude. Did Aristotelians fail to grasp the importance of sensory experience? Not at all. They gave, however, a different answer to two crucial questions. What part can experience play in the constitution of reliable knowledge? And, second, what kind of experience is thus to be sought? Suspicious as it was of the reliability of our sensory experience, the Aristotelian tradition privileged a type of experience that testified to general views of the workings of nature rather than providing the basis for those insights. Experience, while deemed important, was ultimately subordinated to securing an already established knowledge of a general and indubitable nature. In the Baconian tradition of experimental philosophy, by contrast, direct sense experience was to form the foundations of proper scientific knowledge. The purpose of experimentally constituted experience was thus not to illustrate some general point; instead of serving general philosophical reasoning, it was to control it. This type of experience, however, was not to be misconstrued as the mindless collection of data that Bacon likened to the activity of the ant. Rather, it was the result of the combined efforts of both collecting and digesting, as symbolized by the bee. The proposed method of inquiry was therefore inductive and empirically grounded – that is, one was to start out from observational and experimental facts ('particulars') and then rise step by step to causal knowledge and general conclusions.

Yet the experience sought in the experiment was not that of the spontaneous senses of the uninitiated ('old wives' tales'). Experimental philosophers from Christiaan Huygens to Robert Hooke held firmly to the belief that the workings of nature could be fully understood only if the constitution of experience was guided and disciplined by correct rules of method. The 'interrogation' of nature, as it were, was to be carried out 'as if by machinery' (Bacon). To put it another way, the rise of the experiment as an acceptable knowledge-making practice went hand in hand with aspirations to mechanize the production of knowledge itself, i.e. to discipline the procedures of knowledge-making through methodological directions designed to remove or, at least, control the effects of human passions and interests.<sup>23</sup>

Although experimental methods of scientific inquiry could only be applied to some branches of knowledge, their triumphant advance throughout the 18th century gave a strong impulse to empirical studies in many fields, including history. Just as the Protestant Reformation insisted on each Christian engaging directly with scripture (without having to rely on the readings of priests), and just as experimental philosophers from Bacon to Newton urged their contemporaries to study the 'divine book of nature' for themselves (without relying on time-honoured interpretations), so late 18th-century historians increasingly expected of each other that the authority of secondary works should be resorted to only when

experiential access to things was impossible. Historical writing was increasingly to be based on what we have come to call the study of ‘primary sources’ – that is, on empirically grounded research.<sup>24</sup>

The success story of historical empiricism was partly written in the streets of Paris, though not necessarily by historians. Just as Gutenberg’s invention of printing with movable type facilitated the Protestant demand to read the Bible for oneself; and just as the use of the telescope and microscope turned the rhetoric of individualistic empiricism (‘Read the book of nature for yourself!’) into a practicable idea, so ‘the forcible opening of some of Europe’s once secret chanceries and archives’<sup>25</sup> in the aftermath of the French Revolution lent impetus to the historians’ call for the critical study of primary sources.

The status of the historical experience that could be derived from the study of primary sources was, however, more than precarious. The epistemology of Immanuel Kant, one of the most prominent philosophers in late 18th-century Europe, was, for instance, incompatible with the very idea of archival records being the ‘primary sources’ of what we could know about the past.<sup>26</sup> What is more, the study of documents with the aid of historical-critical methods is skilled reading. It requires special training that teaches us what sorts of things to ‘read’ in a document and what to disregard. Yet lasting institutions for the professional training of historians that would enforce correct reading were nowhere in sight before 1800.<sup>27</sup> In fact, only in the mid-19th century were the practitioners of historical writing in a position to establish what could be sifted and evaluated from the records (‘historical facts’) as sufficiently reliable foundations of our knowledge of the past. In this process, the historical works of Leopold Ranke came to act both as awe-inspiring accounts of the past and as gauges to discipline the historiographical practices of others.<sup>28</sup>

On the whole, however, Ranke’s contribution to the rise of empirically grounded, critically researched and objectively written historiography should not be overrated. He was neither the originator of objectivity in historical writing, nor did he invent the historical-philological method of source evaluation.

In order to write and present [history] in such a way that the historical truth is not distorted, the historian must be personally impartial, must portray the events without preconceived ideas of his own, must not have a preference for any form of government, or any state; likewise, he must not regard any of the existing forms of government as the best one . . . nor draw up an ideal one and compare the existing ones with it; rather, with self-effacement and strict neutrality he must only tell what happened and how it happened (bloß erzählen, was und wie es geschehn ist).<sup>29</sup>

Although the above is reminiscent of his famous credo, it was not Ranke who wrote this but the Prussian medievalist Karl Dietrich Hüllmann, whom posterity

has taken less seriously. Ranke had just been born when, in the spring of 1796, Hüllmann published his essay on the history of the European states, which contained these rules of conduct. The ideal of impartial or impersonal knowledge, and how to achieve it, had been hotly debated throughout the 18th century. Codes of impartiality and disinterestedness prevailed in many areas, ranging from legal practices of testimony evaluation to natural philosophy.<sup>30</sup> The rhetoric of perspectival flexibility (impartiality that rises above all particular viewpoints) appears in tracts on moral philosophy as well as historical theory. Adam Smith, for example, demanded in his *Theory of Moral Sentiments* (1759) that ‘the selfish and original passions of human nature’ must be transcended and things be viewed ‘with the eyes of a third person . . . who judges with impartiality’.<sup>31</sup> Indeed, transcending individual points of view in deliberation and action appeared to many moral philosophers an important recipe for a harmonious and just society. Lorraine Daston has called this attitude to knowledge ‘aperspectival objectivity’, i.e. the attempt to ‘escape from perspective’ by eliminating individual and group idiosyncrasies in the name of public knowledge and universal communicability.<sup>32</sup>

What was symptomatic of the historiographical debates in the second half of the century was the heightened sense that viewpoint and partiality were in fact unavoidable attributes of the historian as such, which had to be dealt with effectively rather than bemoaned.<sup>33</sup> To try and eliminate the effects of perspectival distortions by calling on the historian’s moral integrity was, however, increasingly considered inadequate. The emphasis was shifting from moral notions of personal impartiality (ethical imperatives) towards a type of aperspectivity and impartiality to be guaranteed by impersonal rules of method (methodological imperatives). In Chladenius’ *Allgemeine Geschichtswissenschaft* it reads:

Should not historical truth enjoy the same right . . . of also being formulated in rules, since now almost all the motivating forces of human reason in the discovery of general truths . . . lie explained before our eyes?<sup>34</sup>

Not only were formal methodological directions to ensure the metamorphosis of the historian into a disembodied epistemological subject that rose above all particular viewpoints; the empirical credibility of 18th-century historians as a whole depended increasingly on their methodological expertise. If historical writing was to be based on an inductive and empirically grounded procedure, this groundwork had to be secure. It was in this context that the historian’s ability to sort out the genuine from the fabulous became paramount and considerations of textual criticism took centre stage. Finally, the triumph of inductive methods in historical writing was inextricably linked to the rise of the ‘footnote’.<sup>35</sup> The practice of giving reference to one’s sources was in many respects the equivalent of the minute report on an experiment, as it was meant to enable the reader to repeat

and verify the process through which the knowledge in question was constituted. This was held to be an indispensable feature of scientific rationality. The extent to which footnoting had become entrenched practice in historical writing during the 18th century can be seen from the fact that, in 1758, David Hume felt obliged to apologize for the lack of proper references in his *History of England*.<sup>36</sup>

To sum up, the discussion of specific historiographical rules of method had been well under way before history writing became a profession in the 19th century. However, in practice, formal rules of method were often far less important in ‘sifting and evaluating’ historical records than a good knowledge of what counted as acceptable and proper, i.e. the social codes of truth-telling that did not need to be spelled out. What kind of historical experience was to ground historical writing? Whose experience should count as authentic historical experience that could provide the proper foundation of historical knowledge? What exactly constituted a credible primary source? Was it the oral testimony of popular tradition or the written testimony of the elites? Answering questions like these implied judgement about where to draw the line between the genuine and the fabulous, the historical and the philosophical, the literary and the scientific, the vulgar and the sublime. In the eighteenth, no less than in the 19th century, the methodicization of historical knowledge implied a map of the social order.

## 1.5 History as human science

The shift from Aristotelian towards experiential attitudes to knowledge had many other facets that had equally important implications for historiography and its conceivability as a science. The Newtonian conception of linear and uni-directional time, for example, according to which time was an absolute, real and universal entity that was experienced by everyone, everywhere, in the same way, had a dramatic impact on the convergence of historical and scientific modes of inquiry. It also facilitated the notion of time being a progressive and homogeneous continuum and, by extension, the emergence of the idea of the past being and having ‘history’. The idea of history (in the singular) as a distinct and coherent form of reality that could be analysed in entirely this-worldly and rational terms only finally crystallized in the discourses of the 18th century.

Another strong impulse to historical writing came from what – in the wake of the French historian Michel Foucault – has been called the ‘anthropological turn’ in the second half of the 18th century and the attendant rise of the ‘life sciences’ (such as anthropology, biology and psychology).<sup>37</sup> One can hardly overestimate the importance of the new paradigm of ‘vitalism’ for the aspirations to conceptualize history as a human science. Peter Hanns Reill, for example, has shown the particularly vigorous impact of the appearance in 1749 of the first three volumes of the French natural historian Georges Louis Leclerc de Buffon’s *Histoire naturelle* (1749–1804).

Buffon championed a notion of scientificity that distinguished between abstract truths (such as mathematical proofs) and real physical truths. While the former were the fruit of human invention, the latter were essentially empirical and historical in nature and required both detailed analysis and creative imagination ('divination').<sup>38</sup> Taking a similar line to Reill, Jörn Garber has argued that, around 1750, anthropology assumed the role of a lead discipline for various strands of historical studies. The most obvious manifestation of this was the thriving, if short-lived, genre of 'history of humanity', which construed history as the evolution of humanity in the double sense of the word: as the development of humankind in space and time, on the one hand, and the gradual realization of the potential quality of being humane, on the other. Johann Gottfried Herder's *Ideen zur Philosophie der Geschichte der Menschheit* (1782–91) is one of the most prominent examples of this. The link forged between historical writing and anthropological discourses, Garber suggests, not only facilitated the formation of a distinctive subject area (the history of 'man'), it also equipped historical practitioners with a set of strategies and methods, such as comparative analysis, analogical reasoning and intellectual intuition, that made it feasible for historical writing to acquire a scientific identity without recourse to an overall philosophical framework.<sup>39</sup> The fact that in this context the notions of active matter, self-generating motion and purposive development regained some of their former currency – with 'organ', 'organism' and 'organization' replacing 'machine', 'mechanism' and 'mechanization' as lead metaphors – shows that the shift from Aristotelian to experiential practices of knowledge-making was neither a clear-cut process nor one that was ever complete.

Despite this, the Aristotelian theory of knowledge had lost its intellectual pre-dominance for good in the course of the 18th century. While empirical forms of discourse had superseded deductive theories as paradigms of scientific inquiry, the Aristotelian concept of *scientia* had slowly but surely been supplanted by a new concept of scientific rationality that emphasized probability rather than certainty. Conceding that absolute certainty was beyond human grasp in all but a few areas, many advocates of the new scientificity took their bearing on John Locke's *Essay Concerning Human Understanding* (1689), which distinguished between different 'degrees of ascent'.<sup>40</sup> In sharp contrast to the demonstrative certainty demanded by the Aristotelians – and, for that matter, the Cartesians (the followers of René Descartes) – the truth-claims of this empirical concept of scientificity rested on the purely pragmatic criterion of critically tested probability. Not unlike evidence in legal practices, historical evidence was treated as a matter of relative degrees of certainty ('beyond reasonable doubt'). In his article 'Histoire' (1764), Voltaire, one of the century's leading historical thinkers, declared with laconic brevity, 'All certainty which does not consist in mathematical demonstration is nothing more than the highest probability; there is no other historical certainty.'<sup>41</sup> But then again, as the French mathematician and physicist Pierre Simon Laplace argued in

his *Essai philosophique sur les probabilités* (1814): ‘How few things are demonstrated? Proofs convince only the mind; custom makes our strongest proofs. Who has demonstrated that a new day will dawn tomorrow or that we die? And what is more universally believed?’<sup>42</sup> The passage from Laplace is indicative of probabilistic attitudes to knowledge and the intellectual confidence that went along with them.<sup>43</sup>

The ‘probabilistic turn’ is in many respects the keystone of the developments discussed in this chapter. As the 18th century drew to a close, it had become possible, on epistemological grounds, to construe historiography as a science. It was around 1800 that – in the German setting – *historia* departed from the edifice of the fine arts under which it had been subsumed along with poetry, rhetoric, painting and music.<sup>44</sup> While a growing number of textbooks, such as Johann Joachim Eschenburg’s introduction to the system of knowledge of 1792, came to count history among the sciences,<sup>45</sup> historians themselves now referred with increasing frequency to historiography as a ‘truly rational science’<sup>46</sup> that ‘justly deserved the name of science’.<sup>47</sup> One of the luminaries of historical scholarship in late 18th-century Germany, August Ludwig Schlözer wanted history even to ‘be lectured scientifically’ (*scientifisch vorgetragen werden*).<sup>48</sup> The idea of history being a science was, however, heterogeneous, fragile and by no means universally shared. After all, the underlying notion of scientificity was a mixed bag of differing concepts and beliefs, reflecting a fast-changing constellation in the turn-of-the-century politics of knowledge.

## 1.6 Some conclusions

- 1 The scientificity claimed, discussed and practised in historical writing around 1800 was new in two respects. First, the very linking of the historical and the scientific was novel in empirical historical writing. Second, the new scientificity differed fundamentally from the Aristotelian concept of *scientia* that had been prevalent in large parts of Europe until far into the 18th century.
- 2 It was not in opposition to the natural sciences that history developed into a human science. The dichotomy between the humanities on the one hand, and the natural sciences on the other, is essentially a progeny of the 19th century and its particular map of knowledge.
- 3 There is no reason to assume that at a particular historical juncture historiography successfully crossed the threshold of scientificity by developing certain methods that were, at long last, adequate to the study of history. As Irmeline Veit-Brause has put it, ‘the scientification of history’ was not ‘a linear process towards a fixed goal of “proper” scientific practice’.<sup>49</sup> Scientificity is a moving target and so is the very nature of what is considered reliable knowledge.

- 4 The notion of scientificity not only changed over time; it was also contested, with different people drawing their distinctions in different places. This, in turn, had different consequences for the practical outlook of historical writing. Just as the category of history (as object of inquiry) was understood in radically different ways by different historical practitioners, so too was the concept of scientificity.
- 5 The idea of scientificity did not float freely in conceptual space. As a code of conduct, way of knowing and set of methodological maxims, it was inextricably linked to social institutions, discourses and practices. (For more about this, see Peter Lambert's chapter in this volume.)
- 6 Finally, scientific rationality should not be confused with reason. There is no substitute for thinking, not even scientificity.

## Guide to further reading

Hannah Arendt, *The Human Condition* (Chicago, 1958).

Peter Burke, *A Social History of Knowledge: from Gutenberg to Diderot* (Cambridge, 2000).

William Clark, Jan Golinski and Simon Schaffer (eds), *The Sciences in Enlightened Europe* (Chicago, 1999).

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Anthony Grafton, *The Footnote: A Curious History* (London, 1997).

Bruce Haddock, *An Introduction to Historical Thought* (London, 1980).

Reinhart Koselleck, *Future's Past* (1979), trans. K. Tribe (Cambridge, 1985).

George H. Nadel, 'Philosophy of History before Historicism', *History and Theory* 3 (1964), pp. 291–315.

Steven Shapin, *A Social History of Truth: Civility and Science in 17th-Century England* (Chicago, 1994).

Rolf Torstendahl and Irmeline Veit-Brause (eds), *History-Making: The Intellectual and Social Formation of a Discipline* (Stockholm, 1996).

Björn Wittrock, Johan Heilbron and Lars Magnusson (eds), *The Rise of the Social Sciences and the Formation of Modernity* (Dordrecht, 1998).

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## Notes

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I would like to express my gratitude to Ute Feldner, Graeme Garrard and David Jackson whose stimulating ideas and critical comments I appreciate more than ever.

- 1 *Times Literary Supplement*, 30 July 1999.
- 2 For an introduction, see Mary Fulbrook's *Historical Theory* (London, 2002).
- 3 For a good overview, see Irmeline Veit-Brause, 'Eine Disziplin rekonstruiert ihre Geschichte: Geschichte der Geschichtswissenschaft in den 90er Jahren', *Neue Politische Literatur* 46 (2001), pp. 67–78 and 43 (1998), pp. 36–65.
- 4 Hobbes, *Leviathan* (London, 1651); Wolff, *Vernünfftige Gedancken von den Kräfte des menschlichen Verstandes* (Halle, 1712); Jean le Rond d'Alembert, *Preliminary Discourse to the Encyclopedia of Diderot* (1751), ed. Richard N. Schwab (Chicago, 1995), which also includes Diderot's *Prospectus* (1750); Droysen, *Historik* (1857), ed. Peter Leyh (Stuttgart-Bad Cannstatt, 1977); Droysen, 'Die Erhebung der Geschichte zum Range einer Wissenschaft', *Historische Zeitschrift* 9 (1863), pp. 1–22.
- 5 Hobbes, *Leviathan*, ch. ix.
- 6 See John Harvey chapter in this volume (Chapter 5).
- 7 I draw here heavily on Lorraine Daston's 'Objectivity and the Escape from Perspective', *Social Studies of Science* 22 (1992), pp. 597–618, esp. pp. 597–9.
- 8 Here and in the following, Arno Seifert, *Cognitio historica: Die Geschichte als Namengeberin frühneuzeitlicher Empirie* (Berlin, 1976) and Horst Dreitzel, 'Die Entwicklung der Historie zur Wissenschaft', *Zeitschrift für historische Forschung* 8 (1981), pp. 257–84.
- 9 See Björn Wittrock, Johan Heilbron, Lars Magnusson (eds), *The Rise of the Social Sciences and the Formation of Modernity* (Dordrecht, 1998).
- 10 For these debates and their contexts, see Christopher Fox, Roy Porter and Robert Wokler (eds), *Inventing Human Science* (Berkeley, 1995) and Daniel Fulda, *Wissenschaft aus Kunst: Die Entstehung der modernen deutschen Geschichtsschreibung 1760–1860* (Berlin, 1996).
- 11 Hannah Arendt, *The Human Condition* (Chicago, 1958), pp. 290, 292.
- 12 Max Weber, *Economy and Society* (1920), ed. G. Roth and C. Wittich, 3 vols (New York, 1968), 1, p. 339.
- 13 Peter Burke, *A Social History of Knowledge* (Cambridge, 2000), pp. 81–148, esp. pp. 110ff.; Thomas Ellwein, *Die deutsche Universität* (Wiesbaden, 1997), pp. 38–224, esp. pp. 42ff. and 47ff.; Robin Briggs, 'The Académie Royale des Sciences and the Pursuit of Utility', *Past and Present* 131 (1991), pp. 38–88, p. 40.

- 14 Burke, *History*, pp. 91f. and pp. 99ff.; Notker Hammerstein, *Jus und Historie* (Göttingen, 1972) esp. pp. 216ff.; Jürgen Voss, *Universität, Geschichtswissenschaft und Diplomatie im Zeitalter der Aufklärung* (Munich, 1979).
- 15 Burke, *History*, pp. 110, 115, and M. Malherbe, 'Bacon, Diderot et l'ordre encyclopédique', *Revue de Synthèse* 115 (1994), pp. 13–38.
- 16 The classical account on this is E.J. Dijksterhuis's *The Mechanisation of the World Picture* (1950; Princeton, 1986); more recently, Peter Dear, *Revolutionizing the Sciences* (London, 2001), esp. pp. 80–101.
- 17 Hobbes, 'Six lessons to the Savillian Professors of the Mathematics', in *The English Works of Thomas Hobbes*, ed. William Molesworth, 11 vols (London, 1839–45), 7, p. 184.
- 18 Vico, *Scienza Nuova* (final edn, Naples, 1744), esp. Section 331.
- 19 Wolff, *Gedancken*, ch. I, section 48 and ch. X, section 6.
- 20 Wolff, *Gedancken*, ch. I, section 48.
- 21 Chladenius, *Allgemeine Geschichtswissenschaft* (Leipzig, 1752), p. 64.
- 22 Kant, *Universal Natural History and Theory of the Heavens* (1755), trans. W. Hastie, ed. W. Ley (New York, 1968), p. 17.
- 23 See esp. Steven Shapin, *The Scientific Revolution* (Chicago, 1996), pp. 65–117; Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life* (Princeton, 1985); Lorraine Daston (ed.), *Biographies of Scientific Objects* (Chicago, 2000), p. 4; Burke, *History*, pp. 16f., 204ff.; Bacon, *New Organon* (1620), Aphorisms II, XVI, XIX, XXII, XCV.
- 24 Here and in the following, esp. Shapin, *Scientific Revolution*, pp. 72–80.
- 25 Anthony Grafton, *The Footnote* (London, 1997), p. 60.
- 26 See Kant's 'Prolegomena to Any Future Metaphysics that will be able to come forward as a Science' (1783), in *Immanuel Kant: Philosophy of Material Nature*, trans. J.W. Ellington (Indianapolis, 1985) and 'Conjectures on the Beginning of Human History' (1786), in *Kant: Political Writings*, ed. Hans Reiss (Cambridge, 1991), pp. 221–34.
- 27 For the institutionalization and professionalization of history in the nineteenth and twentieth centuries, see Peter Lambert's chapter in this volume (Chapter 3).
- 28 On Ranke and the Rankean tradition, see John Warren's chapter in this volume (Chapter 2).
- 29 Karl Dietrich Hüllmann, *Entwurf einer bessern Behandlung der Europäischen Staatengeschichte in akademischen Vorlesungen* (Warsaw, 1796), pp. 26f. On Hüllmann, see Heiko Feldner, *Karl Dietrich Hüllmann, 1765–1846* (Frankfurt on Main, forthcoming).
- 30 Peter Dear, 'From Truth to Disinterestedness in the 17th Century', *Social Studies of Sciences* 22 (1992), pp. 619–31.
- 31 Adam Smith, *The Theory of Moral Sentiments* (1759), eds D.D. Raphael and A.L. Macfie (Oxford, 1976), p. 135.

- 32 Daston, 'Objectivity'.
- 33 Chladenius' concept of *Sehepunckt* (theory of viewpoint) is an early example of this; see Chladenius, *Geschichtswissenschaft*.
- 34 Chladenius, *Geschichtswissenschaft*, p. xiv.
- 35 Grafton, *Footnote*.
- 36 Burke, *History*, pp. 208f.
- 37 Foucault, *The Order of Things* (1966), (London, 1970).
- 38 See esp. Reill's 'Science and the Science of History in the Spätaufklärung', in Hans Erich Bödecker *et al.* (eds), *Aufklärung und Geschichte* (Göttingen, 1986), pp. 430–52 and 'History and the Life Sciences in the Early 19th Century', in Georg G. Iggers and James M. Powell (eds), *Leopold Ranke and the Shaping of the Historical Discipline* (Syracuse, 1990), pp. 21–35. On Buffon and his reception, see Frank W.P. Dougherty, *Collected Essays on Themes from the Classical Period of Natural Philosophy* (Göttingen, 1996), pp. 59–70, 70–89.
- 39 Jörn Garber, 'Selbstreferenz und Objektivität: Organisationsmodelle von Menschheits- und Weltgeschichte in der deutschen Spätaufklärung', in Hans Erich Bödecker *et al.* (eds), *Wissenschaft als kulturelle Praxis* (Göttingen, 1999), pp. 137–87.
- 40 Locke, *An Essay Concerning Human Understanding* (London, 1689), Chapter xvi.
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- 42 Quoted in Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton, NJ, 1988), p. 221.
- 43 See esp. Daston, *Probability*; Barbara Shapiro, *Probability and Certainty in 17th-Century England* (Princeton, NJ, 1983); Shapiro, *Beyond Reasonable Doubt* (Berkeley, 1991); Ian Hacking, *The Emergence of Probability* (Cambridge, 1975).
- 44 See Werner Strube, 'Die Geschichte des Begriffs "Schöne Wissenschaften"', *Archiv für Begriffsgeschichte* 33 (1990), pp. 136–216.
- 45 Eschenburg, *Lehrbuch der Wissenschaftskunde* (Berlin, 1792), pp. 3–11, 39–88.
- 46 Jacob Dominikus, *Über Weltgeschichte und ihr Prinzip* (Erfurt, 1790), p. 29.
- 47 Augustin Schelle, *Abriß der Universalhistorie*, 2 vols (Salzburg, 1780–1), 1, p. 10.
- 48 August Ludwig Schlözer, *Vorstellung seiner Universalhistorie* (1772–3), ed. H.W. Blanke, 2 vols (Hagen, 1990) 2, p. 235.
- 49 Irmline Veit-Brause, 'The Disciplining of History', in Rolf Torstendahl and Irmline Veit-Brause (eds), *History-Making* (Stockholm, 1996), p. 19.