

Enlightenment Philosophy

by Peter Jones

The term "enlightenment", as a noun or adjective, has been widely used by 20th-century historians to cover a multitude of ideas and activities in the 18th century, many of which were quite unknown to their contemporaries. The categories and taxonomies used by historians, and their normative allegiances, are not immune from revision, however, and use of the term may diminish as detailed contextual enquiries examine more carefully than hitherto the thought and action of the period. During the last two hundred years the meaning and implications of many familiar terms have changed greatly. There is no single tenet, practice or meaning to which everyone adhered, in different cultures, during the 'enlightenment period'. Although many writers advocated sceptical enquiry into the nature of knowledge, nature, society and the human condition, few held that answers were to be found by the exercise of "reason alone"; and most were influenced, at least indirectly, by technological and scientific resources and understanding of the day.

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Terminology

Although its German equivalent "Aufklärung" was apparently introduced to the German language in the 1780s, even a century later, in English the term "Enlightenment" was understood to refer to the French movement only.¹ Yet it has been used widely by 20th-century historians to cover a multitude of ideas and activities in the 18th century, many of which were not known to all of their contemporaries.² The term is generally understood to refer to the period of approximately 1750–1790 and includes many writers, thinkers and practitioners in various fields, principally in France and Germany – although, since the 1960s, efforts have been made to embrace varied activities in different regions of Europe.³ However, the differences have typically weakened the value of the classification.

▲ 1

For example, Scotland, with its weak rural economy until the 1750s, its Calvinism (→ [Media Link #ab](#)) and Roman Dutch law, was hardly comparable to commercial England, with its Anglicanism and Common law. Moreover, Scottish professors of philosophy, such as Adam Smith (1723–1790) (→ [Media Link #ad](#)), were pedagogues charged with the moral education of the young, closely watched by religious leaders. They were influenced less by John Locke (1632–1704) (→ [Media Link #ae](#)) than by continental philosophers such as Pierre Bayle (1647–1706) (→ [Media Link #af](#)) and Nicholas Malebranche (1638–1715) (→ [Media Link #ag](#)), and jurists such as Samuel Pufendorf (1632–1694) (→ [Media Link #ah](#)) and Jean Barbeyrac (1674–1744) (→ [Media Link #ai](#)): It was not their role to promote radical thought in the classroom. Secular scepticism repelled the clergy of all persuasions throughout Britain, and most practising scientists steered clear of religious controversy. In any case, in England there were no philosophers of the stature of the Scottish

thinkers David Hume (1711–1776) (→ Media Link #aj) and Adam Smith, or their French contemporaries, and there was far less discussion than elsewhere on the relative influence of reason or passion over human actions – or, indeed, on how those notions were to be understood.

▲ 2

Just as there are overlapping threads in a long rope, but no single strand, there is no single tenet or practice to which everyone adhered during the "Enlightenment" period, although many writers advocated individual freedom of thought, speech, and action – variously understood and qualified. Advocacy of "equality and justice under the law", although not widespread, increased towards the end of the 18th century, and support for limitless enquiry was qualified. Knowledge claims by some authorities were treated with scepticism – the Irish writer and statesman Edmund Burke (1729–1797) (→ Media Link #ak), considered to be the founder of modern conservatism, actually objected to the notion that "everything is to be discussed".⁴

▲ 3

It has been pointed out that very few English, French, German, Italian, Scottish, or Swiss philosophers in the 18th century were democrats, materialists or even atheists; and, almost everywhere, those who espoused enlightened ideas proceeded within the rules of the social game.⁵ A priority among leading citizens throughout the more "enlightened" parts of Europe was the appropriate and effective application of scientific (→ Media Link #al) ideas and practice to agriculture, mining, communication and health. But even the perennial concern with "how to live" was interpreted in diverse ways, and no one definition embraces the ways in which self-consciously chosen terms were used – such as "science", "scepticism", "atheist", "Newtonian", "principle", "evidence", and "theory".⁶ And although terms such as "freedom" or "liberty" were increasingly and polemically re-defined towards the end of the 18th century, other recurrent terms such as "market", "economy", and "state" inherited meanings from antiquity and religious philosophy quite alien to modern readers.⁷

▲ 4

Throughout the 18th century, writers, politicians and preachers reflected widely on appropriate means of communication, as did popularisers of contemporary scientific and social views, and the inherited traditions of rhetoric alerted them to the importance of identifying contexts: What could they tell or not tell, and sell effectively, to whom, when, why, and where?⁸ Such questions, although they were often only implicitly asked, prompted other considerations about interpretation, conceptual change, the relation of language to the world and, more deeply, of thought to action. In spite of such potentially unsettling reflection, almost all who sought or held political, religious, military or social power intended to hold on to it. This explains why, throughout much of Europe, political "freedom" and enquiry were regarded as subversive, whereas economic "freedom" was increasingly seen as an attractive means to commercial success.

▲ 5

Like on other contentious labels, such as "democratic", "liberal", and "scientific", modern debate has concentrated as much on the legitimacy of their application as on the issues which, sometimes quite casually, they categorised. In 1932, the German philosopher Ernst Cassirer (1874–1945) (→ Media Link #ap) sought to counter the still influential hostile verdict of the Romantic Movement on the Enlightenment. He insisted that whilst many individuals in the 18th century "rework[ed] prevailing ideas" and "continued to build" on 17th century foundations, they nevertheless provided a new perspective and gave new meaning to those ideas. According to Cassirer, the "constantly fluctuating activity of [enquiry and reflection at the time] cannot be resolved into a mere summation of individual teachings" and the character of the period could be grasped only in "the form and manner of intellectual activity in general".⁹

▲ 6

In spite of Cassirer's scholarship, subsequent historians have typically joined one of two camps – the camp of the "realists" who believe that historical periods have independent identities, with "essential" features (the candidates for which are hotly contested);¹⁰ and "conventionalists", who regard labels as convenient devices for marshalling material which are always open to revision or rejection as their use diminishes. Realists tend to ignore changing social, political,

and religious contexts or practices, in spite of the fact that recently conventionalists have underlined the diversity of cultural forms across geographical and political boundaries, thus deriving insights from tenets in the sociology of knowledge.¹¹

▲ 7

Modern historians rarely refer to the debates about "periodization" and its theoretical constraints, which occupied historians of the Renaissance from the 1930s onwards.¹² Instead, they have concentrated more on whether the protagonists can best be categorised as "men of letters", "*philosophes*", or "intellectuals",¹³ and whether the period in question is best described as "philosophical", "scientific", "literary", or "socio-political". No lessons have been drawn from the fierce debates over taxonomy since the 1740s, which originated in the fundamental disagreements between the naturalists Carolus Linnaeus (1707–1778) (→ Media Link #ar) and George-Louis Leclerc, Comte de Buffon (1707–1788) (→ Media Link #as) and which still animate geological and medical discussion.¹⁴ In other fields, eccentric efforts to identify distinctively "enlightened" features in Joseph Haydn's (1732–1809) (→ Media Link #at) quartets, Carl Philipp Emanuel Bach's (1714–1788) (→ Media Link #au) clavichord music, Allan Ramsay's (1713–1784) (→ Media Link #av) portraits, or Robert Adam's (1728–1792) (→ Media Link #aw) buildings have been unconvincing, as have attempts to label particular changes in botanical research, surgical practice, or agricultural machinery.¹⁵

▲ 8

Modern Interest

Forceful hostility to ideas associated with Enlightenment thinkers surfaced during the French Revolution (→ Media Link #ax), and over the next half century it was vigorously fanned during the Romantic Movement. The Enlightenment has been blamed for almost everything that a writer could disapprove of since the 1780s, from totalitarianism to fascism, capitalist exploitation, nihilism, rampant individualism, the collapse of values, and ecological disasters resulting from attempts to exploit and dominate nature.¹⁶ Sexism, racism (→ Media Link #az), religious intolerance, and social exclusion count among its other alleged sins.

▲ 9

Renewed hostility was generated after the two World Wars, when political writers sought causes of the global destruction and deprivation which afflicted most nations. It was never entirely clear, however, who precisely was seeking to explain what to whom and by reference to what, since no careful scholarly enquiry was undertaken. This can be illustrated by the influential and polemical tract *Dialektik der Aufklärung (Dialectic of Enlightenment)*, published in 1944 by two Marxist professors of sociology from Frankfurt, Theodor W. Adorno (1903–1969) (→ Media Link #b1) and Max Horkheimer (1895–1973) (→ Media Link #b2), who were then exiles in the United States. They interpreted the Enlightenment goal to be the subsumption of all particulars under "principles"; mastery of nature was to be secured only if reason was accepted as the court of judgment of calculation.¹⁷ Their main thesis was that although social freedom was "inseparable from enlightened thought", the Enlightenment contained the seeds of its own self-destruction.¹⁸ Like subsequent German and French authors, however, such as Michel Foucault (1926–1984) (→ Media Link #b3), they relied on many abstract concepts which they projected anachronistically onto 18th-century writings although these concepts could rarely be traced back to them and were unintelligible to readers without their allegiances. Moreover, Adorno and Horkheimer seemed to be ignorant of entirely different ideas and agendas proposed by influential 18th-century writers in France, England, Scotland and elsewhere.

▲ 10

Further hostility was expressed by writers in the 1960s and 1970s, mainly in France and the United States, whose views became labelled as "post-modernist".¹⁹ Once more, none of these writers engaged in deep textual or contextual studies, and none considered any links between political and moral ideas and practices on the one hand and the scientific and technological ideas and resources implemented in varying contexts on the other. Paradoxically, parallels

to their own tenets can be readily found in 18th-century writers, such as the centrality of scepticism, the relative nature of judgments and values, the limited roles of reason, and the ineradicable challenges faced, but also posed, by interpretation of evidence and language.

▲ 11

Interest in 18th-century efforts to understand the rapidly changing and seemingly complex contexts in which people lived, coupled with the question "What can we learn from this?", has animated multi-disciplinary and inter-disciplinary approaches.²⁰ These studies all reveal subtleties which serve to discourage simplistic generalisations and offer perspectives which inform modern differences. In connection with Adam Smith, for example, and his rival French economists,²¹ the relations between laissez-faire approaches and affairs of state, over the status and authority of government and legal institutions, and over the legitimate domains of commercial activities have been studied. Besides, in direct line from late 17th-century and 18th-century discoveries about, and reflections upon, cultural diversities and traditions, debates continue about the defensible temporal and geographical scope of legal, moral, religious, and political views. Claims to universal applicability, intelligibility, and truth are fundamentally challenged by the findings resulting from sceptically based enquiry in all contexts. Moreover, the importance of Aristotle's (384–322 BC) (→ Media Link #b5) warning never to ignore the scale of one's understanding, ambitions or solutions, is increasingly acknowledged.²²

▲ 12

Historical Contexts: Science and Religion

Almost all thinkers in the 18th century were influenced, however indirectly, by the scientific revolution of the previous century and the legacy of Francis Bacon (1561–1626) (→ Media Link #b6), René Descartes (1596–1650) (→ Media Link #b7) and Isaac Newton (1642–1727) (→ Media Link #b8). In addition, the political and philosophical views of Thomas Hobbes (1588–1679) (→ Media Link #b9) and John Locke generated more than a century of responses across Europe. Although these authors were active primarily in Protestant countries, Catholic France became the centre of Enlightened thinking after the 1740s, led by Voltaire (1694–1778) (→ Media Link #ba), Charles de Montesquieu (1689–1755) (→ Media Link #bb) and Denis Diderot (1713–1784) (→ Media Link #bc), all of whom admired British thought and political practice.

▲ 13

Since English at that time was understood by few outside Britain, translations (→ Media Link #bd) were essential if information was to be shared, and these intensified awareness of the complexities of language, meaning, and interpretation which already occupied Biblical scholars. French was the lingua franca among both the intelligentsia and the upper classes, although Latin, unlike Greek, was known to almost all scholars. German, however, was unfamiliar to most outside German territories.²³ Nevertheless, the new audiences generated new modes of publication and new modes of reading, ranging from close study to utilitarian modification. Uniform response became increasingly improbable. Socially and politically, it was not new technologies associated with scientific enquiries which caused most anxiety among rulers and ruled alike, it was the scale and rates of change. After all, little had forearmed anyone either to maximize the potential benefits of change, or minimize their potentially harmful consequences.

▲ 14

From the 1690s onwards, sceptics revelled in showing how, in religious contexts, concepts had been stretched to the point of unintelligibility. Their relentless challenges had profound implications. What criteria govern the legitimate modification of a concept? Everyone agreed with Thomas Hobbes that the use of imagination was necessary in framing hypotheses to explain the past or predict the future, but neither task could be separated from appropriately describing and interpreting the present. Yet how could the profligacy of imagination be checked and the advantages of speculation be monitored? Even with appeal to general rules as guide-lines and analogies with previous cases, no general rule decisively settles a new, apparently anomalous case, and no experience warrants a universal claim. Moreover, Hobbes

insisted, the *ceteris paribus* clauses which qualified all legal judgments applied equally in all other branches of enquiry: we never know all the assumptions being made, and the interests of (and technologies available to) a laboratory (→ Media Link #bf) experimenter are as important as those influencing a translator.²⁴

▲ 15

However, once all this was conceded, the threatening scepticism buried within ancient questions of casuistry could not be avoided: to what extent can generalisations, rules, classifications, or principles be either epistemologically or morally justified? And if appeal to analogy is thereby unavoidable, how are its implications to be assessed? If our structured memories of the past necessarily constrain our understanding of the present, does this have the unpalatable consequence that the past is not a continuously enriched source of reference and comparison, but a progressively obscuring template through which what is new and different can never be grasped?

▲ 16

Censorship (→ Media Link #bg), implicit or explicit, was widespread throughout Europe, and unorthodox views were often regarded as seditious – Bacon's observation that knowledge is power was tacitly accepted by those who sought to secure or retain power. The disguise of discussing one subject whilst meaning another was commonplace, but knowingly made interpretation difficult.²⁵ Some writers further dissembled by following the polemical tradition of referring only to predecessors, whilst remaining silent about contemporaries. In this way, selected works by Montaigne, Descartes, Malebranche or Bernard le Bovier de Fontenelle (1657–1757) (→ Media Link #bh) received continuous attention up to the 1750s although new challenges had risen with the works of Montesquieu, Étienne Bonnot de Condillac (1714–1780) (→ Media Link #bi), the Encyclopaedists and Jean-Jacques Rousseau (1712–1778) (→ Media Link #bj). All of these continental scholars, and their English predecessors (whose works they openly celebrated), were concerned with method: central topics were evidence, testimony, probability, causation and conceptual change, not least because views about these concepts crucially determined opinions about historical investigation and understanding, alongside those of scepticism, relativism and pragmatism in the investigation of society.²⁶

▲ 17

From the late 17th century onwards, deists and others insisted that the ordinary people's understanding of religious, scientific, and political views differed widely from that of the original proponents or philosophical commentators.²⁷ The influence of abstract ideas or theories on individual actions was difficult to determine, and those ideas were as likely as others to mutate over time and in ever-changing contexts. The vast majority of European people had never heard of their contemporary intellectuals and encountered their impact, if at all, in such indirect ways as to nullify credit to their originators. It is thus important to determine who valued whom, when, and why. A preacher who forcefully vilified Baruch Spinoza (1632–1677) (→ Media Link #bk), without having read a word by him, to a congregation for whom the name was unknown, could nevertheless excite lasting negative memories. In the polemical arguments of the period, the use of an author's name, such as "Cicero" from antiquity or "Newton" among contemporaries, rarely implied agreement even on which works to honour, let alone a detailed analysis – as Ephraim Chambers (ca. 1680–1740) (→ Media Link #bl) lamented in 1727, only one year after Isaac Newton's death.²⁸ Throughout the 18th century, the circles of the intellectual elites remained largely self-contained.

▲ 18

In Britain, pragmatism or expediency, readily associated with Baconian or Lockean empiricist attitudes to enquiry and evidence, governed the application of the new sciences to agriculture, mining, or medicine. No one was uniformly sceptical in all contexts, and varieties of sceptical argument were as frequently used to bolster recipes for good living as for subverting rival theological or moral views. Still, metaphysics and abstract speculation were to be avoided, and anyone advocating a "system" was to be treated with suspicion.²⁹ The fierce commercial and political rivalry between Britain and France ensured that the majority of thinkers directed their focus on practical affairs, whether in the scientific or social domain. It was precisely their interest in metaphysics which limited the impact of Gottfried Wilhelm Leibniz (1646–1716) (→ Media Link #bn), Christian Wolff (1679–1754) (→ Media Link #bo) and Immanuel Kant (1724–1804) (→ Media Link #bp) on British or French Enlightenment thinking, although few of their works were available in accessible French or English translation anyway. The existing translations were invariably interpreted in eccentrically local ways –

Hume's use of the term "mind" became *esprit* (which may also mean "spirit" or "wit") in French, and *dusha* (the equivalent of "soul") in 19th century Russian translations from the French, thereby almost reversing the original sense.³⁰

▲ 19

However, if the need for action was the ultimate constraint on, or terminus to, philosophical generalisations about knowledge or methods, other constraints have been studied in detail by modern historians. This concerns, for example, the cost and availability of books (→ Media Link #bq), and the diverse ways in which they were read, understood, discussed, adapted, or extracted for use;³¹ the cost, attitude towards, and availability of technologies such as lenses or instruments for measurement, refining metals or the manufacture of industrial machinery;³² or the social and intellectual consequences of economic development, leisure, and consumerism. The latter includes the expansion of libraries, the popularity of public scientific demonstrations, or the cachet of conspicuously owning scientific instruments or attending exhibitions of paintings.³³

▲ 20

Even if these social factors generated little self-conscious reflection among the citizens themselves, modern writers began to realize that political or moral generalisations which ignored historical changes and cultural differences, or promoted simplistic explanations, were untenable. It became obvious that increasingly diverse social behaviour threatened the political or theological power bases of those who sought to impose uniformity and unthinking allegiance.³⁴ After the early 1700s, radical writers began to argue that the wealth and health of societies needed to be studied in both literal and metaphorical ways.³⁵ If assumptions, traditions, expectations, behaviour, or conceptual diet were found to damage or threaten that health, then remedial action was necessary – as Pierre Charron (1541–1603) (→ Media Link #bs), the pupil of Michel de Montaigne (1533–1592) (→ Media Link #bt), had already suggested at the end of the 16th century.³⁶

▲ 21

For the majority of practitioners up to the early 1700s, science and religion were still welded seamlessly together. Only a century later, most of the sciences had severed themselves from religion, although forms of deism remained commonplace.³⁷ Theologians of all colours attributed the increasing secularisation of societies *not* to the rapidly developing sciences, but to an amorphous alliance of atheists, deists, materialists, Epicureans, free-thinkers and sceptics, all of whom were held to subvert the power of the churches. However, promiscuous abuse of either fellow religionists or their critics was strategically self-defeating, because it weakened convictions among enquiring minds.³⁸

▲ 22

Among the most challenging arguments were those of the Huguenot (→ Media Link #bu) scholar Pierre Bayle, who proposed that it was necessary to separate discussions of behaviour from those of philosophical beliefs: No one regulates their lives entirely in accordance with their professed opinions, and this is because we are all primarily driven or motivated not by reason, but by our passions.³⁹ During the century up to 1789, writers pondered on how such a view might be fully understood, or modified. If its scope was unlimited, covering politics and all social behaviour, as well as all the sciences and religions, what goals could be set or plans implemented to bring about individual freedom and law-bound communities? Moreover, by which criteria could one establish that particular beliefs or other mental events were the causes, however defined, of individual or group actions or events? Furthermore, how reliable were any rules in contexts of uncertainty and constant change if, as the French architect Claude Perrault (1613–1688) (→ Media Link #bv) had argued forcefully in the 1680s, they were only summaries of past and incomplete understanding?⁴⁰

▲ 23

In terms of book sales, travel literature, religious tracts, and *belles lettres* were the most popular genres at the beginning of the 18th century, but the two main sources of information for scholars were learned journals, which summarised and extracted newly published works, and the first encyclopaedias, sometimes called "dictionaries". These often gave bibliographical references, and readers shamelessly used such entries verbatim in their own writings, without consulting

the original texts cited. Challengeable interpretations and unrepresentative quotations thus gained currency by default, especially where theological or political comments were regarded as threatening. The views of Hobbes and Spinoza, for example, and later Bernard de Mandeville (1670–1733) (→ Media Link #bx) and David Hume, were notoriously distorted in this way. The long preface and many entries in Ephraim Chambers's *Cyclopaedia* of 1728⁴¹ discussed how best to conduct enquiry and communication of its results, as well as issues of classification, evidence, definition and theory.

▲24

It should be emphasised here that neither the theory nor the practice of religious toleration was uniformly or consistently embraced throughout Europe in the Enlightenment period. Protestants' attitudes to Catholics or Jews, for example, Anglicans' to Dissenters, or Catholics' to Freemasons (→ Media Link #by) or Jesuits typically fell far short of toleration, and fierce disagreement within religious groups, such as Lutherans or Jansenists, about individual rights and duties was commonplace – and arguably as divisive as criticism from outside by free-thinkers, proclaimed atheists, or sceptics.⁴²

▲25

Philosophical Methods of Enquiry and Problems

Even in the absence of widely shared views, there was considerable awareness throughout the 18th century of challenges inherited from classical rhetoric.⁴³ Ciceronian ideals, upheld by many among the elite, required speakers and by extension writers to bear in mind the opportunities and limitations of the conceptual and technological resources available to them, as well as the expectations and capacities of their audiences. Any proposed conceptual revision of or challenge to prevailing theological or political views required the greatest care. However, under the general rubric of rhetoric, other matters are of importance.

▲26

What counts as an intelligible question and as an acceptable answer to it varies considerably both over time and, at any given time, within different regions, cultural traditions, and disciplines.⁴⁴ The geologist James Hutton (1726–1797) (→ Media Link #c1), for example, realised that almost no one could envisage that small but continuous changes could produce vast changes in land (→ Media Link #c2) forms, or that "obviously" stable objects such as rocks were themselves subject to constant change, albeit "too slow to be discernible".⁴⁵ The capacity for ever more precise measurement was of central importance to the sciences, but it also served to alarm laymen that almost nothing was known about anything, be it very large or very small, very fast or very slow. It also generated the criticism that both value and resources seemed to be allocated only to what could be measured. Furthermore, as early as 1728, Chambers lamented the fact that even people "of the same profession no longer understand one another".⁴⁶ Hume's complaint that most men "confine too much their principles",⁴⁷ a commonplace for fifty years already, recorded intellectual gaps in enquiry and comprehension throughout society that were never to be closed.

▲27

Whilst the precise nature of "theory", "principle", or "system" was almost never clarified by writers of the time, the terms recur throughout the period 1690–1790. Many agreed with Claude Perrault⁴⁸ that few practitioners thought of themselves as acting under the influence of, or being motivated by a theory, even though it was often useful to generalise particular cases after the event in the form of a theory. As Ephraim Chambers insisted:

▲28

[T]he rules of an art are posterior to the art itself, and were taken from it or adjusted to it, *ex post facto*... dogmatizing and method...are posterior things, and only come in play after the game is started.⁴⁹

The view also emerged that, if empirical enquiries were literally without end, any apparent termini, sometimes misleadingly heralded as axioms, were merely "resting places" before undertaking further research.⁵⁰ Jean Le Rond d'Alembert's (1717–1783) (→ Media Link #c3) masterly summary of these methods in the 1750s underlined the view that

only by observation and experiment (→ Media Link #c4) could theories be justifiably formulated, upheld, revised, or abandoned. Nevertheless, d'Alembert claimed that the ever pressing challenges of new information and constantly changing contexts were such that many problems were simply abandoned as unresolved because they had been replaced by new ones.⁵¹

▲ 29

Increasingly, from the mid-17th century onwards, propagandists and popularisers alike tried to confront the ancient dichotomy between thought and action – or, more precisely, between their texts and the events these recorded in histories or advocated in manifestos. Practising scientists knew well that Thomas Sprat's (1635–1713) (→ Media Link #c5) tidy *History of the Royal Society of London* (1667)⁵² did not mirror the guesses, inaccuracies and uncertainties of any laboratory (→ Media Link #c6). Within a century, however, Diderot and d'Alembert claimed that the texts in the *Encyclopédie* would more effectively describe the myriad processes appropriate for bettering mankind if they were supplemented by multiple illustrations (→ Media Link #c7) of techniques and available technologies.

▲ 30

Still, these, too, had to be read and were no more self-evident than any other text. D'Alembert insisted, nevertheless, that there were countless human activities for which "showing" is essential and never fully matched by "saying"⁵³ – when, for example, we witness the skills of a surgeon, needlewoman, or ploughman, or those of a sculptor or harpsichordist. Craftsman skills, in this sense, can only be learned on the job, and the tacit knowledge of "know-how" among practitioners cannot be acquired from texts alone. This fact became a source of irritation and then resignation among artists and musicians towards the end of the 17th century, when the rapidly expanding class of leisured bourgeois consumers urgently sought advice on what to acquire as emblems of their wealth and taste.

▲ 31

Critics and commentators who promoted themselves as guides soon found that their audience was not interested in the techniques and processes of painting or composition. Learning what to say and what property to buy was enough.⁵⁴ More pretentious critics offered theoretical discussions about aesthetics from which practising artists themselves, with a few notable exceptions such as William Hogarth (1697–1764) (→ Media Link #ca) and Sir Joshua Reynolds (1723–1792) (→ Media Link #cb) in England, absented themselves. Such critics frequently diverted attention away from their supposed subject matter, the works themselves, in favour of a spectator's self-conscious experiences, thereby contributing to what many already regarded as the tyranny of the text.⁵⁵ Moreover, the more the works of scientists, architects or musicians were heralded by the ignorant public, even if they were neither understood nor upheld by the tests of time, the more the performers themselves withdrew into self-contained professions, often resenting the supposedly parasitic critics who claimed special insights. Precisely who the "public" were (and which rights, duties, or competencies could be associated with them) was increasingly debated throughout the 18th century.⁵⁶

▲ 32

From the outset of the century, prompted by the rapid expansion of experiments within the sciences and the irresistible popularity of traveller's tales of exotic peoples, it was becoming commonplace for thinkers such as Hume to warn against inventing explanations in terms of "causes which never existed" or projecting onto the past (or even on other cultures in the present) anachronistic interpretations drawn from the context of the commentator alone: "[I]t seems unreasonable to judge of the measures, embraced during one period, by the maxims, which prevail in another."⁵⁷ Such views, propounded for example by Adam Ferguson (1723–1816) (→ Media Link #cc) and William Robertson (1721–1793) (→ Media Link #cd) in Scotland, drew attention to the problem that since a search for causes characterised much enquiry, there needed to be agreement on how to identify the events, processes, or actions to be explained. What were the boundaries of a given event, such that its causes and consequences can be separately identified? Moreover, if each event was ultimately held to be unique, at least with regard to its spatio-temporal context, how can events be legitimately classified together or even fruitfully discussed? Throughout the 17th century, it had increasingly been argued that identity and difference can be determined only by means of analogy and comparison – each of which was qualified by degree. Comparison requires a context and consideration of the various relations in which the elements are to be linked.

Just as the ancient search for a *criterion* of knowledge continued into the 18th century, so did debate about the universal or contingent validity of knowledge claims. Many of the rapidly developing physical sciences aimed to present their conclusions in a mathematized form, hoping thereby to convey *a priori* certainty and universality.⁵⁸ Nevertheless, where such a formulation seemed to be unavailable and variable experiments undeniable, the provisional and revisable character of conclusions could not be disguised. From the early 1700s onwards, initially in Leiden and associated with the work of Herman Boerhaave (1668–1738) (→ Media Link #ce), it was found that many of the assumptions and theories about inert matter that held sway in physics and chemistry were inapplicable in the life and biological sciences.⁵⁹ Generally, multiple causation and reciprocal inter-action seemed to be at work in living systems and in complex bodies: the chemical model of analysing matter into constituent elements before synthesising the findings did not capture the nature of the observable dynamic processes and relations.⁶⁰ And whilst many thoughtful medical practitioners concentrated on the "how" of processes rather than the "why", the unpredictability of most diseases and illnesses, coupled with continuous change both in living things and in the observer's understanding of them, forced them to admit the provisionality of all knowledge claims.

▲ 34

Such views encouraged a number of experimenters and practitioners in the life sciences to challenge the inherited binary system of thought.⁶¹ Findings of apparent complexity, ambiguity and paradox suggested to them that attempts to reduce all statements to one of a binary pair overlooked matters which revealed an irreducible vagueness or indeterminacy. Many philosophers such as Descartes, Fontenelle, George Berkeley (1685–1753) (→ Media Link #cf), Hume and Diderot experimented with the dialogue form. They thus echoed ancient attempts to capture in texts the dynamics and improvisatory dimensions of conversation, in which participants can explore, modify, and play with ideas without goals of final conclusion – other than those of pragmatic need. Early scientific writing in the mid-17th century adopted a conversational style, partly to convey the processes of experiment and partly to defuse hostility from strident theologians – even though most European scientists associated themselves with current theological views.

▲ 35

The adversarial mode of legal argument and the rigorous Jesuit tradition of combative discussion sought victory by fair means or foul, rather than approximations to the truth or moderation of judgment. In spite of these drawbacks, and with varying degrees of reluctance, Scottish writers such as Hume, Adam Ferguson and William Robertson acknowledged that there was a deep social and psychological problem: few people were inspired by moderation, and almost no one was galvanised by it to tenacious action. Everyone seeking power readily grasped that the forceful presentation of simplified views, however misleading, secured more attention and could be used to motivate more people than any cautious warnings of complexity or ignorance. As many ancient commentators noted, skilful orators could easily arouse crowds by using slogans and other theatrical devices, but they could rarely do so by cautious analysis of ideas or possibilities.

▲ 36

Civil Society

From the 1680s onwards it was widely agreed, in both France and Britain, that man was a fundamentally social being, although what that was held to mean varied greatly. Interest in social structures and arrangements seemed to presuppose a study of man himself – "la science de l'homme" (the French phrase of the 1680s), which was boldly promoted by David Hume who based his account on traditional distinctions between sensory experience, the imagination, and the rational intellect. This required an analysis both of man's mental and physical make-up, only nervously acknowledging any relevant ideas from medicine and the life sciences, and of man-made institutions such as the law (→ Media Link #cg) and government. Aristotle's insistence that studying a thing in isolation was inadequate for understanding but must be supplemented by examination of its manifold relations to others things and processes was

increasingly heeded outside religious contexts. It has been observed that Scottish writers in particular adapted established vocabulary from theologians, jurists and philosophers to their perceived needs, drawing on earlier Continental theorists of law such as Hugo Grotius (1583–1645) (→ Media Link #ch) and Pufendorf.⁶²

▲ 37

If society was an aggregate of human animals, perhaps social institutions and practices, such as politics, the law, and religion, could be analogically explained in medical terms, rather than in a vocabulary appropriate for inert matter. Primarily a medical concept at the time, "sympathy" became a prominent concept for Hume and Adam Smith, and the multiple factors suggested as influencing an individual's health⁶³ were readily extended to society at large. This entailed that political and social explanations or agendas became ineradicably contextual and historically anchored to the evolution of practices and concepts that each had inherited. In the field of medicine, the views of Julien Offray de La Mettrie (1709–1751) (→ Media Link #ci) or Claude-Adrien Helvetius (1715–1771) (→ Media Link #cj) on biological issues slowly gained professional support, although to most laymen they were as inaccessible as the earlier mathematically grounded theses of Newton. Leading citizens were primarily concerned with the effective application of scientific ideas to practical life.

▲ 38

The rapid growth of the British market economy from the 1690s and its attendant consumerism were accompanied by widespread interest in Locke's arguments about personal and property rights. Central social and political questions concerned the relations between liberty and authority, egoism and social order. Law was held to be the stabilising factor and guarantor of limited toleration. "Sociability", never unequivocally defined, was a goal of education and individual fulfilment for every writer from Anthony Ashley Cooper, Earl of Shaftesbury (1671–1713) (→ Media Link #ck) to Adam Smith, and emphasis on "politeness" readily appealed to the elite in France who had been heralding "politesse" as a social cement for a century.⁶⁴ The French concept itself, however, traded on a strenuously protected concept of "trust" which, as European elites painfully discovered, was neither widely understood nor implemented in societies at large.⁶⁵ And if those same elites shared Voltaire's view that "The thinking Part of Mankind are confin'd to a very small number",⁶⁶ Allan Ramsay's version had obvious political implications:

▲ 39

[T]he business of the bulk of mankind is not to think, but to act, each in his own little sphere, and for his own purposes; and, this he may do, very completely, without much reflection.⁶⁷

Such reflections seemed to imply that if the practicalities of government are immeasurably hindered when more citizens are enabled to think, the moral burdens are immeasurably increased when they do not.

▲ 40

An additional factor, which had again been inherited from classical rhetoric, was prominently heralded by Hume and others: for many people, the final preference for an idea, argument, or doctrine did not rest on the intellectual content, rigour, implications, or scope of their presentation, but on aesthetic judgments about style – taste is often the ultimate arbiter.⁶⁸ This partly explained that "the public" was willing to tolerate, however fleetingly, the simplistic slogans or banners of theatrical orators, the meaning of which was deceitfully held to be self-evident, even to the most limited minds.

▲ 41

Political Economy

Reflections on civil society (→ Media Link #cl) from the 1680s onwards, particularly in Britain and France, generated interest in "political economy" which was understood as the interaction of, and arguably inextricable link between, economic and political issues in societies whose concepts were evolving as rapidly as the structures of societies

themselves. The goal of political economy was the "improvement" of man's lot, which was often misunderstood as only material betterment, but more properly as the "health and wealth of the nation". By the mid-18th century, rival interpretations by David Hume, Adam Smith and Sir James Steuart (1712–1780) (→ Media Link #cm) in Scotland, or by French writers such as François Quesnay (1694–1774) (→ Media Link #cn) and Anne-Robert-Jacques Turgot (1727–1781) (→ Media Link #co), nevertheless anchored their views to epistemological tenets about probability and the absence of certainties, alongside analyses of man's social nature, moral understanding, and political structures. This connection with views about the nature of knowledge and its acquisition was gradually abandoned by later writers on political and economic issues.

▲42

Power has always been dependent on wealth, which rested in turn on whatever resources could be enhanced or exploited to secure it – including taxes, confiscation, exploration, trade, land and people. Louis XIV's (1638–1715) (→ Media Link #cq) ministers had been analysing in the 1660s how and why Florentine city states had flourished in the 15th and 16th centuries, which led to significant government support for what was essentially the defence budget – the physical needs of armies and institutions committed to the imperial ambitions of their leaders, such as instruments of measurement, engineering projects, or transport.⁶⁹ It was suggested that if France could intellectually outbalance its main rival Britain, its own wealth and health – and European, if not also global domination – might be secured. Whilst both technological developments and trading secrets were protected everywhere, the spread of competitive commercial activity throughout the 18th century accelerated awareness that ideas, as such, could not be owned and were always susceptible to change and improvement.

▲43

Conclusion

Throughout history, conceptual repertoires and boundaries, professional traditions, goals and agendas, and normative allegiances have been jealously guarded. *Practising* scientists typically pay little attention to the histories of their disciplines, methods and concepts, but most are aware of the underdetermined character of their written reports. After all, these can neither be understood nor replicated, even by fellow experts, without additional information about the context which covers, for example, the constraints, technologies, and resources in operation. By contrast, *historians* of science, medicine, engineering or agriculture are alert to the importance and affordability of laboratory, experimental or field equipment, such as microscopes or measuring instruments, but there has been limited study of the economic and artistic consequences of technological features in the theatre, such as scenery, acoustics, lighting, and instrument design.⁷⁰

▲44

Those who have limited their focus to "theory", "ideas", "concepts" or "arguments" – whether philosophical, political, legal or theological – typically dismiss as irrelevant how such ideas have been (or, indeed, provably could be) implemented in the messy, complex contexts of the real world. Thereby they prolong the established hostility between practitioners and commentators. It is as important to examine the manner in which scientific practices and claims have been used to bolster or discredit particular cultures as it has been to analyse the impact of religious and political views. The "cognitive content" of philosophical or scientific claims (however it is identified) is not the same as their social or cultural sources or implications. Moreover, there is no field of enquiry that does not use ideas and methods which originated in other, unrelated areas: the implications of such legacies, if undetected, can seriously impede understanding. Concepts are tools, humanly devised for contextually anchored tasks. If the contexts change, the tools must be re-shaped or abandoned, but obsolescent concepts always embody useless and often obstructive elements.

▲45

Concepts of law, liberty, interest, property, or revolution oscillate as much over time in their scope and use as do those of knowledge, truth, or reality. Awareness of conceptual variation and change, under different conditions, calls for sustained multi-disciplinary study, alongside the analysis of technologies and prevailing scientific views on behaviour

and mind-sets. An individual's views about medicine in general or health in particular, for example, may influence his or her behaviour towards family, property, societal responsibilities or the future. Besides, the concepts used may change during the course of a life, generating obstacles to both self-knowledge and understanding by others. Historical research, hermeneutics and reception studies have merely confirmed that individuals cannot reliably identify and separate themselves from their interests, knowledge, agendas and cultural contexts, in order to make judgments of universal validity or scope.

▲46

The use of "Enlightenment" as a description of either a period of time or sets of ideas and practices may well diminish in value as detailed enquiry delves into the thought and action of earlier times. The categories and taxonomies chosen by historians neither record abstract eternal essences, nor do they celebrate immunity from revision or abandonment. Naturally, in the 18th century, no one could foresee the scale or implications of the industrial revolution (→ Media Link #cs), scientific understanding, or technological opportunities, of national or global trends in population, of social or political changes, of the consequences of educational reforms and global communication, or of the manic ambitions of those seeking power.

▲47

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Appendix

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Notes

1. ^ Art. "enlightenment", *A New English Dictionary* 1897, vol.3, p.191.
2. ^ According to what Moses Mendelssohn (1729–1786) wrote in 1784 (cited in Schmidt, *Enlightenment* 1996, p. 53).
3. ^ Porter, *National Context* 1981, offers chapters with bibliographies on the Netherlands, Switzerland, Italy, Austria, Bohemia, Sweden, and Russia, as well as England, Scotland, France, and Germany. The term "Scottish Enlightenment", seemingly coined around 1903, became fashionable only in the 1970s.
4. ^ Burke, *Reflections* 2001, p. 256.
5. ^ Porter, *National Context* 1981.
6. ^ Fitzpatrick, *Enlightenment World* 2004. Vyverberg, *Human Nature* 1989, offers a useful overview, particularly of French writers.
7. ^ Richter, *History* 1995, Rothschild, *Economic Sentiments* 2001.
8. ^ Howell, *Logic and Rhetoric* 1971.
9. ^ Cassirer, *Philosophy* 1932, pp. vii, ix.
10. ^ Robertson, *Case* 2005, p. 43.
11. ^ Porter, *National Context* 1981; idem, *English Society* 1982.
12. ^ Panofsky, *Renaissance* 1960, with a bibliography. Koselleck, *Practice* 2002, himself indebted to contemporary French and German thought, has argued for the necessity of theory in historical writing and research.
13. ^ Robertson, *Case* 2005, chapter 1.
14. ^ Mayr, *Systematics* 1942; Glass, *Forerunners* 1959; Morton, *Botanical Science* 1981; Rudwick, *Limits of Time*

- 2005.
15. ^ Schroeder, Haydn 1990; Christensen, Rameau 1993; Macmillan, Painting 1986; Rykwert, First Moderns 1983. See also Picon, French Architects 1988.
 16. ^ Schmidt, Enlightenment 1996.
 17. ^ Adorno / Horkheimer, Dialectic 1972, p. 83.
 18. ^ Ibidem, p. xiii.
 19. ^ Gordon, Postmodernism 2001.
 20. ^ Vyverberg, Human Nature 1989; Fitzpatrick, Enlightenment World 2004; Porter, Eighteenth-Century Science 2003; Haakonssen, Eighteenth-Century Philosophy 2006.
 21. ^ Rothschild, Economic Sentiments 2001.
 22. ^ Sale, Human Scale 1980; Vyverberg, Human Nature 1989. The importance of scale was prominently underlined by the Italian scholar and architect Leon Battista Alberti (1404–1472) in the 1480s, and modern interest initially focussed on architectural and urban contexts (Mumford, Technics 1934). Yet, already in the 18th century writers were alarmed by population growth and the density of urban dwelling, as well as by the defensible scale of governmental decisions. William Robertson warned against the projection of alien systems of values and thought onto different cultures (Fitzpatrick, Enlightenment World 2004, p. 7).
 23. ^ Kühn, Kant 2001.
 24. ^ Hobbes, Elements 1994, chapter 4.
 25. ^ Darnton, Devil 2010, p. 416, warned of "the danger of assuming that the French believed everything they read". He also implied that, on occasion, neither speakers nor writers believed everything they said.
 26. ^ Fontenelle insisted that "nous nous sommes toujours représenté l'inconnu sous la figure de ce qui nous était connu" (*Sur l'histoire and Origine des Fables* in: Fontenelle, Œuvres diverses 1728, vol.1, p.331). In *Entretiens* [5th Soir, vol.1, pp.213, 220] he argued that observers commenting from outside a society on its social or political dimensions might be viewing them inadvertently through the wrong interpretative lenses, and this was because we are rarely aware of all the assumptions behind our claims. He agreed with Hobbes that it was necessary to be alert to the *ceteris paribus* clauses in all enquiries. Darnton, Best-Sellers 1996, has shown that the *political* views of Rousseau (as distinct from his writings on music or education), unlike those of Locke or Voltaire, were little known before the French Revolution.
 27. ^ Brooke, Science and Religion 1991; Berman, Atheism 1990; Hunter, Atheism 1992.
 28. ^ Chambers, Cyclopaedia 1738 [1728] recorded the diverse ways in which "science" was understood and at least seven senses in which the label "Newtonian" was understood.
 29. ^ Smith, Theory 1976, p. 232, had drifted back by 1790 into self-consciously using d'Alembert's distinction which he had commended in 1755–1756 when reviewing the *Preliminary Discourse* (Smith, Essays 1980, pp. 242–254). D'Alembert distinguished between "*esprit systématique*" and "*esprit de système*" (d'Alembert, Mélanges 1770, vol. 1, p. 36). Hume's declared Ciceronian view was to limit enquiry to what "suffices for the conduct of life" [Hume, Treatise, 2007, p. 46].
 30. ^ See Jones, Reception 2005, chapter 8. Also: Oz-Salzberger, Translating the Enlightenment 1995. Nobert Waszek's "Bibliography of the Scottish Enlightenment in Germany" lists the rapidly emerging German translations of Scottish works, beginning with Hume (1754), Francis Hutcheson (1694–1746) (1756), Robertson (1762), Kames (1763), and Ferguson (1768; see Waszek, Scottish Enlightenment 1988). Some German translators were themselves distinguished writers, such as Christian Garve (1742–1798), who added a long commentary to his translations of Kames (1763), Ferguson (1772) and Smith (1794). Sir James Steuart was available in German as early as 1769, and years before Smith's *Theory of Moral Sentiments*.
 31. ^ Darnton, Best-Sellers 1996; idem, Devil 2010; Sher, Enlightenment 2006.
 32. ^ Bud, Instruments 1998; Dumas, Scientific Instruments 1972; Fox, Arts of Industry 2009.
 33. ^ Bud, Instruments 1998; Darnton, Best-Sellers 1996; Dumas, Scientific Instruments 1972; Fitzpatrick, Enlightenment World 2004; Fox, Arts of Industry 2009; Fox, Luxury Trades 1998; Golinski, Science 1992; Gusdorf, Sciences Humaines 1972; Hahn, Anatomy 1971; Lindberg, Reappraisals 1990; McClellan, Science Reorganized 1985; Poovey, Modern Fact 1998; Porter, Eighteenth-Century Science 2003; Roche, Siècle des lumières 1978; Sargentson, Merchants 1996; Shapin, Social History 1994; Sher Enlightenment 2006; Sturdy, Science 1995.
 34. ^ A good example is the fluctuating attitude of the Austrian court to Opera and its plots in the last quarter of the 18th century (see Link, National Court Theatre 1998; more generally, see Sadie, Baroque Music 1998).
 35. ^ Mandeville, Fables 1924. See Hundert, Enlightenment's Fable 1994.

36. ^ Charron, *Of Wisdome* 1640, Bk.2 Ch.2, p.257: "neither in the whole, nor parts thereof, it [the world] is alwaies the same, but in perpetual flux and reflux; That there is nothing said, held, beleevd at one time and in one place, which is not likewise sayd, held, beleevd in another, yea and contradicted, reprov'd, condemned elsewhere, the spirit of man being capable of all things, the world alwaies tumbling, sometime the same, sometimes divers.... all things are...subject to increase, changing, ending, to the mutation of times, places, climats, heavens, aires, countries".
37. ^ Brooke, *Science and Religion* 1991; Hankins, *Science* 1985.
38. ^ Kors, *Atheism* 1990.
39. ^ Rex, *Essays* 1965.
40. ^ Perrault, *Dix Livres* 1684 <http://gallica.bnf.fr/ark:/12148/bpt6k85660b>, in his Preface and long footnotes to his translation of Vitruvius. Perrault was particularly interested in the roles of hypotheses, theories, and assumptions, and discussed them in his *Essais de physique*, 1680–1688, which included a short treatise on music.
41. ^ Chambers's work was the primary inspiration of Jean le Rond d'Alembert's *Preliminary Discourse* of 1751 to the *Encyclopédie*. See also Yeo, *Encyclopaedic Visions* 2001.
42. ^ See Kors, *Atheism* 1990; also Grell, *Toleration* 2000; Hunter, *Atheism* 1992; Keohane, *Philosophy* 1980. Also the chapters by James Dybikowski, Luisa Simonetti, Martin Fitzpatrick, Hugh Dunthorne, and Ian Hunter in Fitzpatrick, *Enlightenment World* 2004. See also Jacob, *The Radical Enlightenment* 1981; idem, *Living the Enlightenment* 1991.
43. ^ France, *Rhetoric and Truth* 1972; Craveri, *Civiltà* 2001.
44. ^ Jardine, *Scenes of Inquiry* 1991.
45. ^ Hume, *Essays* 1985, p. 378. The absence of documentary evidence for such claims was used by those who felt that Biblical authority was being challenged, inducing Hutton himself to argue that *a priori* (theological) certainties must ultimately ground the provisional claims of daily experience (Hutton, *Investigation* 1794, vol. 3).
46. ^ Chambers, *Cyclopaedia* 1738 [1728], pp. xxiv, xvii.
47. ^ Hume, *Essays* 1985, "The Sceptic" (first published in 1741–1742).
48. ^ Perrault, *Dix Livres* 1684.
49. ^ Chambers, *Cyclopaedia* 1738 [1728], pp. xviii, xxv.
50. ^ John Gay, in his Preliminary Dissertation to Law's translation of King's *Essay on the Origin of Evil* argued that since the mind can consider only "a few things at once", and in order to avoid running through a "long series of consequences" on every occasion, "we choose out certain Truths ...as RESTING PLACES, which we may safely acquiesce in...regarding them as *Axioms*". The problem is that they quickly function as "*Habitual Knowledge*", generating unexamined prejudices. The "resting places" are "*Substitutes of Principles*", but we inevitably come to treat them as Principles themselves. (King, *Essay* 1739 p. li)
- Some early French thinkers challenged notions of *a priori* epistemological foundations. Elsewhere Fontenelle argued that principles should be treated as the contingent "stopping-places" of current enquiry, inevitably to be superseded over time. [Carré, *La Philosophie* 1932]. British writers, including Hume, held that what were often regarded as the indefinable termini of an enquiry, only signalled the contingent suspension of limitless investigation: "Terminal" concepts indicate directions for future research and their replacement by new termini.
51. ^ " [L]es obstacles périssent plutôt que de céder; rarement au-delà, parce que, les barrières une fois franchies, l'esprit humain va souvent plus vite qu'il ne veut lui-même, jusqu'à ce qu'il rencontre un nouvel obstacle qui l'oblige à se reposer pour long-tems" (Art. " Expérimental " in: Diderot, *Encyclopédie* 1751–1765, vol. 6, p. 299). <http://artflsrv02.uchicago.edu/cgi-bin/philologic/getobject.pl?c.5:373.encyclopedie0513.2794834>
52. ^ Sprat, *History* 1667. <http://archive.org/details/historyroyalsoc00martgoog>
53. ^ d'Alembert, *Mélanges* 1770, vol. 1, p. 202.
54. ^ "The bulk of Mankind are incapable of thinking or judging for themselves on any subject. There are a few leading spirits and the rest must follow. This makes systems so universally agreeable. If they cannot teach people to think and to feel, they teach them what to say, which answers all the purposes of vanity." (Gregory, *Comparative View* 1768 <http://archive.org/details/acomparativevie02greggoog>) See Peter Jones in Norton, *Companion* 2009.
55. ^ "To the reputation of a Theorist, indeed, longevity is insured by means of books, which become obsolete more slowly than musical compositions. Tradition only whispers, for a short time, the name and abilities of a mere Performer ... whereas, a theory once committed to paper and established, lives, at least in libraries, as long as the language in which it was written." (Burney, *General History* 1957, vol. 1, p. 705) For centuries, of course,

texts had been not only an anchorage for discussion, but they were often credited with special authority: Plays were as often judged by their texts as by performances, and paintings by the presumed texts they were taken to illustrate. The assumption insensibly evolved that discussions of texts might warrant a higher status than face to face encounters, and that if something could not be regarded as a text, discussion was futile.

56. ^ Dubos, *Réflexions* 1719, vol. 1–2; Melton, *Rise of the Public* 2001.
57. ^ Hume, *History* 1770, chapter LIII. <http://hdl.handle.net/2027/mdp.39015073721493> William Robertson (*History* 1777, vol. 2, p. 133 <http://hdl.handle.net/2027/ucm.5319463420>) observed that too often missionary priests "study to reconcile the institutions, which fall under their observations, to their own creed, not to explain them according to their rude notions of the people themselves. They ascribe to them ideas which they are incapable of forming, and suppose them to be acquainted with principles and facts, which it is impossible that they should know".
58. ^ Porter, *Eighteenth-Century Science* 2003.
59. ^ Underwood, *Boerhaave's Men* 1977; King, *Philosophy of Medicine* 1978.
60. ^ King, *Philosophy of Medicine* 1978; Porter, *Eighteenth-Century Science* 2003.
61. ^ For Johann Georg Heinrich Feder (1740–1821), Moses Mendelssohn and Paul Joseph Barthez (1734–1806), see Porter, *Eighteenth-Century Science* 2003.
62. ^ See Fania Oz-Salzberger in Kaviraj, *Civil Society* 2001.
63. ^ These were canvassed by radical doctors such as John Pringle (1707–1782) – formerly professor of philosophy at the University of Edinburgh, and later Hume's doctor.
64. ^ Montandon, *Dictionnaire Raisonné* 1995.
65. ^ Craveri, *Civiltà* 2001.
66. ^ Voltaire, *Philosophical Letters* 1961, Letter XIII.
67. ^ Ramsay was Hume's close friend and Royal Painter to George III of England (1738–1820).
68. ^ Hume, *Enquiry* 2000, Section 1.
69. ^ Dumas, *Scientific Instruments* 1972; Rykwert, *First Moderns* 1983; Picon, *French Architects* 1988; Mainstone, *Developments* 1998; Saint, *Architect and Engineer* 2007.
70. ^ Forsyth, *Buildings for Music* 1988; Sadie, *Baroque Music* 1998.

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Aristotle (384–322 BC)

Link #b6

- Francis Bacon (1561–1626) VIAF [↗](http://viaf.org/viaf/31992319) [↗](http://viaf.org/viaf/31992319) (http://viaf.org/viaf/31992319) DNB [↗](http://d-nb.info/gnd/118505696) (http://d-nb.info/gnd/118505696) ADB/NDB [↗](http://www.deutsche-biographie.de/pnd118505696.html) (http://www.deutsche-biographie.de/pnd118505696.html)




Link #b7

- René Descartes (1596–1650) VIAF [↗](http://viaf.org/viaf/41838958) [↗](http://viaf.org/viaf/41838958) (http://viaf.org/viaf/41838958) DNB [↗](http://d-nb.info/gnd/118524844) (http://d-nb.info/gnd/118524844) ADB/NDB [↗](http://www.deutsche-biographie.de/pnd118524844.html) (http://www.deutsche-biographie.de/pnd118524844.html)






- <http://www.ieg-ego.eu/en/mediainfo/rene-descartes-159620131650-en>
René Descartes (1596–1650)

Link #b8

- Isaac Newton (1642–1727) VIAF  <http://viaf.org/viaf/22146457> DNB  <http://d-nb.info/gnd/118587544>
ADB/NDB  <http://www.deutsche-biographie.de/pnd118587544.html>




Link #b9

- Thomas Hobbes (1588–1679) VIAF  <http://viaf.org/viaf/59083895> DNB  <http://d-nb.info/gnd/118551698>
ADB/NDB  <http://www.deutsche-biographie.de/pnd118551698.html>



- <http://www.ieg-ego.eu/en/mediainfo/thomas-hobbes-1588-1679-1>
Thomas Hobbes (1588-1679)




Link #ba

- Voltaire (1694–1778) VIAF  <http://viaf.org/viaf/36925746> DNB  <http://d-nb.info/gnd/118627813>
ADB/NDB  <http://www.deutsche-biographie.de/pnd118627813.html>



- http://www.ieg-ego.eu/en/mediainfo/copy_of_voltaire-169420131778
Voltaire (1694–1778)




Link #bb

- Charles de Secondat, Baron de la Brède et de Montesquieu (1689–1755) VIAF  <http://viaf.org/viaf/27069096> DNB  <http://d-nb.info/gnd/118583670> ADB/NDB  <http://www.deutsche-biographie.de/pnd118583670.html>



- <http://www.ieg-ego.eu/en/mediainfo/charles-de-secondat-baron-de-la-brede-et-de-montesquieu-168920131755-1>
Charles de Secondat, Baron de la Brède et de Montesquieu (1689–1755)

Link #bc

- Denis Diderot (1713–1784) VIAF  <http://viaf.org/viaf/54146831> DNB  <http://d-nb.info/gnd/118525263> ADB/NDB  <http://www.deutsche-biographie.de/pnd118525263.html>

Link #bd

- Translation (<http://www.ieg-ego.eu/en/threads/backgrounds/translation/mary-snell-hornby-juergen-f-schopp-translation>)


Link #bf

- Laboratory (<http://www.ieg-ego.eu/en/threads/crossroads/knowledge-spaces/henning-schmidgen-laboratory>)

Link #bg

- Censorship and Freedom of the Press (<http://www.ieg-ego.eu/en/threads/european-media/censorship-and-freedom-of-the-press/juergen-wilke-censorship-and-freedom-of-the-press>)

Link #bh

- Bernard le Bovier de Fontenelle (1657–1757) VIAF  <http://viaf.org/viaf/99744686> DNB  <http://d-nb.info/gnd/118639056> ADB/NDB  <http://www.deutsche-biographie.de/pnd118639056.html>

Link #bi

- Étienne Bonnot de Condillac (1714–1780) VIAF  <http://viaf.org/viaf/9844868> DNB  <http://d-nb.info/gnd/118521756> ADB/NDB  <http://www.deutsche-biographie.de/pnd118521756.html>

Link #bj

- Jean-Jacques Rousseau (1712–1778) VIAF  <http://viaf.org/viaf/100184045> DNB  <http://d-nb.info/gnd/118603426> ADB/NDB  <http://www.deutsche-biographie.de/pnd118603426.html>


Link #bk

- Baruch Spinoza (1632–1677) VIAF  <http://viaf.org/viaf/22149024> DNB  <http://d-nb.info/gnd/118616242> ADB/NDB  <http://www.deutsche-biographie.de/pnd118616242.html>



- <http://www.ieg-ego.eu/en/mediainfo/baruch-spinoza-163220131677>
Baruch Spinoza (1632–1677)

Link #bl

- Ephraim Chambers (ca. 1680–1740) VIAF  <http://viaf.org/viaf/27206124> DNB  <http://d-nb.info/gnd/123973716>


Link #bn

- Gottfried Wilhelm Leibniz (1646–1716) VIAF  <http://viaf.org/viaf/9849392> DNB  <http://d-nb.info/gnd/118571249> ADB/NDB  <http://www.deutsche-biographie.de/pnd118571249.html>

Link #bo

- Christian, Freiherr von Wolff (1679–1754) VIAF  <http://viaf.org/viaf/7425989> DNB  <http://d-nb.info/gnd/118634771> ADB/NDB  <http://www.deutsche-biographie.de/pnd118634771.html>

Link #bp

- Immanuel Kant (1724–1804) VIAF  <http://viaf.org/viaf/82088490> DNB  <http://d-nb.info/gnd/118559796> ADB/NDB  <http://www.deutsche-biographie.de/pnd118559796.html>






- <http://www.ieg-ego.eu/en/mediainfo/immanuel-kant-1724-1804-1>
Immanuel Kant (1724–1804)

Link #bq

- Book Market (<http://www.ieg-ego.eu/en/threads/backgrounds/the-book-market/ernst-fischer-the-book-market>)

Link #bs

- Pierre Charron (1541–1603) VIAF  <http://viaf.org/viaf/32015289> DNB  (<http://d-nb.info/gnd/118520229>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118520229.html>)


Link #bt

- Michel de Montaigne (1533–1592) VIAF  <http://viaf.org/viaf/95153547> DNB  (<http://d-nb.info/gnd/118583573>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118583573.html>)

Link #bu

- Reformierte Konfessionsmigration: Hugenotten (<http://www.ieg-ego.eu/de/threads/europa-unterwegs/christliche-konfessionsmigration/ute-lotz-heumann-reformierte-konfessionsmigration-die-hugenotten>)

Link #bv

- Claude Perrault (1613–1688)  (<http://viaf.org/viaf/14778429>)

Link #bx

- Bernard de Mandeville (1670–1733) VIAF  <http://viaf.org/viaf/22145254> DNB  (<http://d-nb.info/gnd/118730592>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118730592.html>)

Link #by

- Freemasonries, 1850–1935 (<http://www.ieg-ego.eu/en/threads/european-networks/secret-societies/freemasonries-1850-1935/joachim-berger-european-freemasonries-1850-1935>)

Link #c1

- James Hutton (1726–1797) VIAF  <http://viaf.org/viaf/2479262> DNB  (<http://d-nb.info/gnd/118775383>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118775383.html>)

Link #c2

- Land (<http://www.ieg-ego.eu/en/threads/backgrounds/nature-and-environment/frank-uekoetter-land>)

Link #c3




- Jean Le Rond d'Alembert (1717–1783) VIAF  <http://viaf.org/viaf/46756283> DNB  (<http://d-nb.info/gnd/11850178X>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd11850178X.html>)

Link #c4



- <http://www.ieg-ego.eu/en/mediainfo/chemical-laboratory-france-1765>
Chemical Laboratory (France, 1765)

Link #c5

- Thomas Sprat (1635–1713) VIAF  <http://viaf.org/viaf/14887139> DNB  (<http://d-nb.info/gnd/104278285>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd104278285.html>)

Link #c6






- <http://www.ieg-ego.eu/en/mediainfo/the-laboratory-of-the-chemist>
The Laboratory of the Alchemist

Link #c7



- <http://www.ieg-ego.eu/en/mediainfo/camera-obscura-1751>
Camera obscura 1751



Link #ca

- William Hogarth (1697–1764) VIAF   (<http://viaf.org/viaf/17268409>) DNB  (<http://d-nb.info/gnd/118552805>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118552805.html>)

Link #cb

- Sir Joshua Reynolds (1723–1792) VIAF   (<http://viaf.org/viaf/27081216>) DNB  (<http://d-nb.info/gnd/118744771>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118744771.html>)

Link #cc

- Adam Ferguson (1723–1816) VIAF   (<http://viaf.org/viaf/49279367>) DNB  (<http://d-nb.info/gnd/118686798>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118686798.html>)

Link #cd

- William Robertson (1721–1793) VIAF   (<http://viaf.org/viaf/59177542>) DNB  (<http://d-nb.info/gnd/118834541>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118834541.html>)



- <http://www.ieg-ego.eu/en/mediainfo/william-robertson-172120131793-en>
William Robertson (1721–1793)

Link #ce

- Herman Boerhaave (1668–1738) VIAF   (<http://viaf.org/viaf/61555409>) DNB  (<http://d-nb.info/gnd/118660829>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118660829.html>)



- <http://www.ieg-ego.eu/en/mediainfo/herman-boerhaave-166820131738>
Herman Boerhaave (1668–1738)





Link #cf

- George Berkeley (1685–1753) VIAF   (<http://viaf.org/viaf/100192823>) DNB  (<http://d-nb.info/gnd/118509616>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118509616.html>)

Link #cg

- Law (<http://www.ieg-ego.eu/en/threads/backgrounds/law/martin-otto-law>)

Link #ch

- Hugo Grotius (1583–1645) VIAF   (<http://viaf.org/viaf/32005141>) DNB  (<http://d-nb.info/gnd/118542702>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118542702.html>)



- <http://www.ieg-ego.eu/en/mediainfo/hugo-grotius-1583-1645>
Hugo Grotius (1583–1645)

Link #ci

- Julien Offray de La Mettrie (1709–1751) VIAF   (<http://viaf.org/viaf/59084677>) DNB  (<http://d-nb.info/gnd/118726102>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118726102.html>)

Link #cj

- Claude-Adrien Helvetius (1715–1771) VIAF   (<http://viaf.org/viaf/100185545>) DNB  (<http://d-nb.info/gnd/118710257>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118710257.html>)

Link #ck

- Anthony Ashley Cooper, Earl of Shaftesbury (1671–1713) VIAF   (<http://viaf.org/viaf/41846508>) DNB  (<http://d-nb.info/gnd/118613693>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118613693.html>)

Link #cl

- Civil Society (<http://www.ieg-ego.eu/en/threads/transnational-movements-and-organisations/civil-society/dieter-gosewinkel-civil-society>)

Link #cm

- James Stuart (1712–1780) VIAF   (<http://viaf.org/viaf/4956723>) DNB  (<http://d-nb.info/gnd/118798774>)

Link #cn

- François Quesnay (1694–1774) VIAF   (<http://viaf.org/viaf/7428836>) DNB  (<http://d-nb.info/gnd/118743163>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118743163.html>)


Link #co

- Anne-Robert-Jacques Turgot (1727–1781) VIAF   (<http://viaf.org/viaf/12316007>) DNB  (<http://d-nb.info/gnd/118763202>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118763202.html>)

Link #cq

- Louis XIV of France (1638–1715) VIAF   (<http://viaf.org/viaf/89765843>) DNB  (<http://dnb.info/gnd/118816829>) ADB/NDB  (<http://www.deutsche-biographie.de/pnd118816829.html>)



-  (<http://www.ieg-ego.eu/en/mediainfo/louis-xiv-of-france-163820131715>)
Louis XIV of France (1638–1715)

Link #cs

- Industrialization (<http://www.ieg-ego.eu/en/threads/backgrounds/industrialization/richard-h-tilly-industrialization-as-an-historical-process>)



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