

# PROGRESS AND THE EMPIRICAL TRADITION IN CONDORCET

In a seminal text delivered before the Académie française on 21 February 1782 upon his admission to the company of the immortals, Condorcet set out his faith in the mission of the Enlightenment. He characterised his century as the age in which

le système général des principes de nos connaissances a été développé; où la méthode de découvrir la vérité a été réduite en art, et, pour ainsi dire, en formules; où la raison a enfin reconnu la route qu'elle doit suivre, et saisi le fil qui l'empêchera de s'égarer (I, 390)<sup>1</sup>

The vision that he unveiled in his *Discours de réception* with such heady optimism was one in which the human race would no longer accept the inevitability of the triumph of darkness over light, and in which the torch of genius and reason was from now on inextinguishable. A determined and tenacious confidence in the cumulative dynamics of progress is the familiar hall-mark of Condorcet's world-view:

La vérité a vaincu; le genre humain est sauvé ! Chaque siècle ajoutera de nouvelles lumières à celles du siècle qui l'aura précédé; et ces progrès, que rien désormais ne peut arrêter ni suspendre, n'auront d'autres bornes que celles de la durée de l'univers (I, 390-91).

The rhetorical flourish of a public speech often heralds a crushing banality of content, then as now, but this was not to be the case on this occasion, and any academician anticipating superficiality was to be

---

<sup>1</sup> References to Condorcet's works are to the second, enlarged edition edited by A. Condorcet-O'Connor and F. Arago, *Oeuvres complètes de Condorcet* (Paris, 1847-49).

pleasantly surprised. Condorcet's confidence in man's future well-being and prosperity remained unshaken even when he was awaiting the guillotine some ten years later, as can be seen from the evidence of that extraordinary last work, his crowning achievement, the *Esquisse d'un tableau historique des progrès de l'esprit humain*. However, it was not sanguine. Outside Europe, prior to the American Revolution, the rest of the world was still in darkness (VI, 237-38). Condorcet was not indifferent to the wounds that still bled, as his Academy speech made clear:

Ne m'accusez pas d'être insensible aux maux de l'humanité; je sais que ses blessures saignent encore, que partout le joug de l'ignorance pèse encore sur elle; que partout où l'homme de bien jette ses yeux, le malheur et le crime viennent contrister sa vue et briser sa coeur (I, 394).

*Philosophes* could still be revolted by the human spectacle (VI, 244), but in the struggle between error and truth, superstition and reason, light and darkness, the outcome was ultimately assured:

L'ignorance et l'erreur respirent encore, il est vrai: mais ces monstres, les plus redoutables ennemis du bonheur de l'homme, traînent avec eux le trait mortel qui les a frappés; et leurs cris même, qui vous effraient, ne font que prouver combien les coups qu'ils ont reçus étaient sûrs et terribles (I, 395).

The historical stages of that victory, in the course of which the chains of intellectual and political oppression were to be finally broken, were set out in graphic detail in the ninth *époque* of the *Esquisse* where Condorcet surveyed the implications of the giant leap forward to Enlightenment taking place between the Cartesian revolution and that other revolution that had culminated in the death of the *ancien régime* and the establishment of the First Republic. The progress of man's mind and that of man's liberty were always for Condorcet closely interlinked processes, and one of the main purposes of the *Esquisse* was to show

par quels degrés ce qui nous paraîtrait aujourd'hui un espoir chimérique doit successivement devenir possible, et même facile; pourquoi, malgré les succès des préjugés, et l'appui qu'ils reçoivent de la corruption des gouvernements ou des peuples, la vérité seule doit obtenir un triomphe durable; par quels liens la nature a indissolublement uni les progrès des lumières et ceux de la liberté. de la vertu, du respect pour les droits naturels de l'homme (VI, 20).

The dystopic prophecies of Rousseau were discarded by Condorcet without compromise. The progress of the sciences and the arts offered no reason to fear for man's happiness, virtue and freedom. Condorcet confronted Rousseau's pessimism frequently - as, for example, in his commentary on Voltaire's *Le Mondain* in his notes for the Kehl edition of the great man's works (IV, 233-37).<sup>2</sup> That pessimism, itself grounded in despair at the consequences, as Rousseau had perceived them, of the scientific enterprise, was attacked by Condorcet with evidence drawn from the benefits that had accrued over the centuries as a consequence of the forces that Rousseau deplored most. The achievements of science, and particularly contemporary, post-Cartesian science, were for Condorcet real and beyond dispute. They were central to his notion of progress and to his uncompromising acceptance of the perfectibility of man's nature and of that better world that would be brought about through the beneficence of scientific endeavour.

In his *Discours de réception* he affirmed this credo in the following terms:

Toute découverte dans les sciences est un bienfait pour l'humanité; aucun système de vérités n'est stérile. Nous avons recueilli les fruits des travaux de nos pères; gardons-nous de croire que ceux de nos contemporains puissent rester inutiles, et jouissons d'avance du bonheur qu'ils répandront un jour sur nos neveux, comme un père voit avec plaisir croître et s'élever l'arbre, dont l'ombrage doit s'étendre sur sa postérité. Il me serait facile de confirmer cette vérité. Témoin nécessaire du progrès des sciences, je vois chaque année, chaque mois, chaque jour, pour ainsi dire, marqués également par une découverte nouvelle et par une invention utile. Ce spectacle, à la fois sublime et consolant, est devenu l'habitude de ma vie et une partie de mon bonheur (I, 391-92).

Much of what Condorcet had to say about scientific progress related specifically to the dramatic discoveries emanating from great contemporary mathematical minds. In his notes for the Kehl *Voltaire* he catalogued the achievements of Bradley in the field of celestial mathematics, of d'Alembert who had advanced significantly the calculus

---

<sup>2</sup> Condorcet edited the 70 volume Kehl edition of Voltaire's works (Paris, 1785-89) in collaboration with P.-A. Caron de Beaumarchais, L.-P. Decroix and Letellier.

of fluid mechanics, and who had also solved the problem of equinoctial precession inherited from Newton, of Bouguer who had elaborated the laws relating to the gradation of light waves, of Euler whose work had facilitated the discovery of acromatic lenses, of Rochon, Linnaeus, Franklin, Rouelle, Aubenton, Bernoulli, La Grange and others.

Condorcet's view of science was in essence Baconian: the focus of its activity was man; its purpose was man's happiness and welfare; its operative principle the empirical path of rational enquiry based on the observation of nature; its vision of the scientific endeavour a universalist one. In another speech to the Académie française, in response to one given by the comte de Choiseul-Gouffier, on 26 February 1784, he reflected in distinctly Baconian terms on the interconnections and interdependence of the sciences (I, 439). His debt to Bacon was further acknowledged at great length in the *Fragment sur l'Atlantide, ou efforts combinés de l'espèce humaine pour le progrès des sciences* towards the end of the *Esquisse* (VI, 598-599). Later in the same year, on 4 September, this time speaking to the Académie des sciences, Condorcet again singled out Bacon's achievement in having taken the first hesitant steps towards a methodology of truth (VI, 186).

Together with Galileo and Descartes, Bacon formed part of that trio of colossi bestriding the old and the modern worlds to which Condorcet paid tribute in the eighth *époque* of the *Esquisse*. Descartes deserved homage, 'malgré ses erreurs', for having encouraged thinkers to throw off the yoke of authority, but it was Bacon who had first unveiled the 'true method' of studying nature and penetrating its secrets: 'l'observation, l'expérience et le calcul' (VI, 168). The power of Baconian science and its Newtonian legacy as the driving force behind the astonishing progress made since the sixteenth century in physics, chemistry, biology, astronomy, botany, medicine and other 'hard' sciences were well understood by Condorcet, and it was an understanding that was shared by many of his predecessors and contemporaries. Condorcet's distinctive contribution to mid and late-eighteenth-century applications of the English empirical legacy was his insight into the implications for the moral sciences, or what he called in the *Tableau général de la science, qui a*

*pour objet l'application du calcul aux sciences politiques et morales, 'mathématique sociale (I, 540).<sup>3</sup>*

The point was underlined in his *Discours de réception*. Moral, social and political areas of enquiry could advance only by being harnessed to the observation of facts, and their mathematical analysis:

En méditant sur la nature des sciences morales, on ne peut, en effet, s'empêcher de voir qu'appuyées comme les sciences physiques sur l'observation des faits, elles doivent suivre la même méthode, acquérir une langue également exacte et précise, atteindre au même degré de certitude (I, 392).

In the moral and political extensions of an empirically based methodology lay the only authentic mechanism of progress, although Condorcet always conceded that the pace of that progress might be slow and tentative.

The marriage of science, and particularly mathematics, to the analysis of social phenomena led in Condorcet's thought to a consideration of a universal theory of knowledge and a universal language, and he speculated at length on these issues in the tenth *époque* of the *Esquisse* (VI, 270-72). Universal language, appropriately formulated, was to be the main tool of the new methodology for understanding the world, for rationally ordering our responses to its ever increasing complexities, and for ultimately guaranteeing the onward march of progress.

Mais, comme à mesure que les faits se multiplient, l'homme apprend à les classer, à les réduire à des faits plus généraux; comme les instruments et les méthodes qui servent à les observer, à les mesurer avec exactitude, acquièrent en même temps une précision nouvelle; comme à mesure que l'on connaît, entre un plus grand nombre d'objets, des rapports plus multipliés, on parvient à les réduire à des rapports plus étendus, et les renfermer sous des expressions plus simples, à les présenter sous des formes qui permettent d'en saisir un plus grand nombre . . . les vérités . . . sont bientôt après développées et prouvées par des méthodes qui ne sont plus au-dessus d'une intelligence commune (VI, 252-53).

---

<sup>3</sup> Published after Condorcet's death in the *Journal d'Instruction sociale* (22 June and 6 July 1795).

The mission of science was being given a significantly new, humanised orientation in Condorcet's hands, and this expressed itself as a central article of faith in his *Discours de réception*. Progress in the physical sciences provided an unstoppable momentum to progress in the moral sciences, and minimised the risk of a relapse of modern society into the barbarity of the past. The union of the physical and the moral sciences would give to the latter an extended, and above all useful, field of enquiry that would have practical impact on individuals' lives, on the institutions that governed those lives and on human nature itself. The new 'social mathematics' would forge a dynamic relationship between the world of enlightened minds and the world of ordinary men and women.

Condorcet's Enlightenment addressed the problems of setting in place ways of transforming the future as well as ways of solving shorter-term problems by reforming the present and alleviating the burdens of the past.

Le projet de rendre tous les hommes vertueux est chimérique; mais, pourquoi ne verrait-on pas un jour les lumières, jointes au génie, créer pour des générations plus heureuses une méthode d'éducation, un système des lois qui rendraient presque inutile le courage de la vertu ? . . . Voyez, maintenant, d'un bout de l'Europe à l'autre, les hommes éclairés réunir tous leurs efforts pour le bien de l'humanité, et tourner vers cet objet seul toutes leurs forces avec un courage et un concert dont aucun siècle n'a donné l'exemple (I, 395, 397).

If Bacon had provided the model for enquiry and the first hesitant insights into the inter-relationships between the physical and the moral sciences, the structure of Condorcet's Enlightenment was firmly anchored, not so much to English science (although his admiration for Newton, for example, was unqualified, and the Newtonian influence on his thought is clearly discernible),<sup>4</sup> but to Bacon's successors in the field of epistemology, Locke and Hume. The characteristic feature of the progressivist enterprise of the Enlightenment, and the explanation for the startling advances that had taken place in the modern age, lay for Condorcet in the abandonment of 'systems'. Condorcet's abhorrence of

---

<sup>4</sup> See my forthcoming article in the *British Journal for Eighteenth-Century Studies*, "Condorcet and the English Enlightenment."

metaphysical speculation constitutes a sustained *leit-motif* in his thinking, whether on the subject of science, politics, economics, legislative codes, canals, women, the abolition of the slave trade, or the rights of man. Locke had cured Voltaire of 'la manie des systèmes' (IV, 283); Franklin had demonstrated the need to link the world of abstract knowledge to 'les usages de la vie' (III, 417); Cartesianism, in so many ways for Condorcet a brilliant beacon on the route to Enlightenment, had to be replaced by 'une philosophie plus vraie' if the century's vision of progress was to be translated into transformative action.

It was to Locke that he turned in the quest for this 'truer philosophy'. Locke had shown the English 'la route qu'il faut suivre en métaphysique pour ne point s'égarer' (IV, 19). In the *Esquisse* Condorcet elaborated on the qualities of Lockean procedures that appealed to him. The precision of Locke's analysis of the origin of ideas in sensation, with its associated concentration on the relationship between ideas and words (what Locke called 'the great instruments of knowledge'), provided the key to the resolution of the problems posed by the incoherence and indeterminacy of the phenomena of human experience. Locke had proved the link between inchoate perception and the operations of the mind on sensation, and in so doing had provided the means to guard against a danger that constantly haunted Condorcet, that of 'getting lost':

que la perception se borne à une partie seulement de chacune de ces sensations composées. Il fait voir qu'en attachant un mot à chaque idée, après l'avoir analysée et circonscrite, nous parvenons à nous les rappeler constamment la même, c'est à dire, toujours formée des mêmes idées plus simples, toujours renfermées dans les mêmes limites, et par conséquent, à pouvoir l'employer dans une suite de raisonnements, sans jamais risquer de nous égarer (VI, 182-83).

Locke's emphasis on 'epistemological modesty' was fully shared by Condorcet. Reason was a powerful tool of enlightenment, but useless when applied to the unanswerable questions of Panglossian-style metaphysics. In the *Eloge de m. Duclos* the folly of Cartesianism had been defined precisely as 'cette fureur de se croire obligé de rendre raison, bien ou mal, de tous les phénomènes' (II, 33). Above all, it was Locke's precept, set out in the *Essay concerning Human Understanding*,

that 'our business here is not to know all things, but those which concern our conduct',<sup>5</sup> that enabled Condorcet to define the real business of *philosophe* science and the necessarily delimited nature of its mission without undermining his own optimism and faith in the possibility of progress. Locke was the first to map out the frontiers of human knowledge and to determine the nature of the truths that it could embrace. Locke had argued, moreover, that scientific and philosophical enquiry should take on board the moral sciences. This was a dazzlingly illuminating concept for Condorcet:

c'est en l'applicant à la morale, à la politique, à l'économie publique, qu'ils sont parvenus à suivre dans ces sciences une marche presque aussi sûre que celle des sciences naturelles; à n'y plus admettre que des vérités prouvées, à séparer ces vérités de tout ce qui peut rester encore de douteux et d'incertain; à savoir ignorer enfin ce qu'il est encore, ce qu'il sera toujours impossible de connaître (VI, 183).

Locke's method provided for Condorcet the 'universal instrument' to be applied to the discovery of truth across the whole range of human experience and enquiry, and the influence of Lockean epistemological procedures on Condorcet is incontrovertible, although it has to be said that while we know that Condorcet could read English texts in the original, our knowledge of what Condorcet actually did read of Locke's works is still a matter for speculation and informed assumption. What can be said is that his writings evoke Lockean precepts and formulations in ways that suggest an easy familiarity with the *Essay concerning Human Understanding*. In the light of that text, any appreciation of the impact on Condorcet of Lockean views on language as an instrument of analysis, on sensationalist theory, and above all on probability, must take us back once more to Condorcet's notes to his reception speech to the Academy. It was in the *Discours de réception* that he paid his most public tribute to Locke's role in establishing the methodological foundations of the moral and political sciences within fresh parameters of sensationalist psychology.

---

<sup>5</sup> John Locke, *An Essay on Human Understanding*, edited by A. C. Fraser (Oxford, 1894): I, 31.



He took up the key epistemological themes of the *Discours* in the *Esquisse* where he mapped out the path ahead for the Enlightenment, and finally drew out in some detail the implications for society of the new insights to be derived from the Lockean relationship between method and language, certainty and probability, mathematisation/classification and 'philosophical calculus'. It is here that the potential power of Condorcet's later application of Lockean epistemology to the social sciences and the imperatives of the moral universe is clearly spelled out:

Ainsi l'analyse de nos sentiments nous fait découvrir, dans le développement de notre faculté d'éprouver du plaisir et de la douleur, l'origine de nos idées morales, le fondement des vérités générales qui, résultant de ces idées, déterminent les lois immuables, nécessaires du juste et de l'injuste; enfin, les motifs d'y conformer notre conduite, puisés dans la nature même de notre sensibilité, dans ce qu'on pourrait appeler, en quelque sorte, notre constitution morale (UI, 183-184).

References to Locke abound in Condorcet's writings, but in addition to the *Discours*, there is one other text that deserves a special mention as evidence of Condorcet's understanding of Locke's significance, and that is the obituary that he wrote for Condillac soon after the latter's death on 2/3 August 1780. Most of the *philosophes* owed their knowledge of Lockean sensationalist psychology to Condillac's 1754 *Traité des sensations*, which was widely taught in the colleges in the second half of the eighteenth century. Condorcet's *Notice historique et critique sur Condillac* appeared in the *Journal de Paris* on 25 September 1780,<sup>6</sup> and it offered readers a tribute to Condillac's achievements that was at best luke-warm. However, one aspect of Condillac's work recommended itself to Condorcet, and that was Condillac's adherence to procedures that recalled Locke's 'plain, historical method' and the pioneering analytical methodology that had been instrumental in crystallising the link between ideas and their origins in sensation. Reviewing Condillac's life-work, therefore, Condorcet was reminded of how much Locke had achieved in fulfilling the promise of the original Baconian vision (*Notice*, p. 237).

---

<sup>6</sup> Reference is to the text of this work edited by K. M. Baker, "Un éloge officieux de Condorcet: sa notice historique et critique sur Condillac," *Revue de synthèse* 3 (1967): 236-251.

Finally, there remains the testimony of the *Esquisse*, his final and perhaps most impressive declaration of faith in man's ability to progress. Here he made clear his debt to Locke in the context of his doctrine of moral sentiment. He opened his *tableau* with a portrait of primitive man as the one creature possessing the faculty of receiving sensations, of reflecting upon them, of analysing and recombining them meaningfully. The pleasure-pain principle engendered moral feelings and, eventually, relationships based on enlightened self-interest. The sensations became in this scenario the driving force behind man's painful climb out of the darkness of primitive pre-social life and his advance towards the light of civilisation:

Ce progrès est soumis aux mêmes lois générales qui s'observent dans le développement des facultés chez les individus, puisqu'il est le résultat de ce développement, considéré en même temps dans un grand nombre d'individus réunis en société (VI, 12).

In the fifth *époque* he paraphrased in a capitalised text that seminal Lockean statement on innate ideas, tracing its source back to Aristotle:

que nos idées même les plus abstraites, les plus purement intellectuelles, pour ainsi dire, doivent leur origine à nos sensations' (VI, 88).

If Aristotle had sown the seeds of the epistemological upheaval that flowed from that precept however, Locke's achievement had been to bring those seeds to a remarkable fruition:

Ce fut plutôt l'aperçu d'un homme de génie, que le résultat d'une suite d'observations analysées avec précision, et combinées entre elles pour en faire sortir une vérité générale: aussi ce germe jeté dans une terre ingrate, ne produisit de fruits utiles qu'après plus de vingt siècles.

Locke had enabled the human race to finally part company with the errors of its infancy, and in so doing his 'truer philosophy' had accelerated significantly the momentum of human progress (VI, 1-3).

To set Condorcet's view of progress and enlightenment within an English empirical, and essentially Lockean, tradition is not to deny the existence of other powerful, formative influences. Recent scholarship has

rightly drawn attention to the importance of Hume's thought, for example,<sup>7</sup> and certainly Condorcet's application of probability reasoning suggests an interesting linkage with the *Treatise on Human Nature* (especially the third chapter, 'Of Knowledge and Probability'). Berkeley and Adam Smith also need to be further investigated as sources of that unique blend of empiricism and intuitivism so characteristic of Condorcet's notion of 'mathématique sociale'.

Yet the authority of Locke's name remains a central point of reference in Condorcet's thought across a broad spectrum of contexts. It was through the application of Lockean insight that Newtonian science had been brought down to earth,<sup>8</sup> that Cartesian methodic doubt had been transplanted from the domain of mythical systems to the social arena of profane humanity, that the transcendental terms of the Pascalian wager had been rejected.<sup>9</sup> The challenge of man's salvation would from now on be irreversibly secularised, a process that was consolidated with the birth after 1789 of what we can now recognise as our own world. Condorcet helped to usher in that new, and in some ways much more complex world with a 'social mathematic' of revolutionary importance, and one which, in accordance with the whole spirit of his brand of Enlightenment, encapsulated a crucial Lockean concern: 'Elle a les hommes pour objet...' (I, 543).

UNIVERSITY OF SHEFFIELD

DAVID WILLIAMS

---

<sup>7</sup> See K. M. Baker, *Condorcet: From Natural Philosophy to Social Mathematics* (Chicago & London, 1975): 138-155.

<sup>8</sup> See G.-G. Granger, *La Mathématique du marquis de Condorcet* (Paris, 1956): 38.

<sup>9</sup> Condorcet published an edition of Pascal's *Pensées* in 1776. It was reprinted as the *Eloge et Pensées de Pascal* (Paris, 1778).