to return to Aristotle, just as it was not going to follow directly on the path traced by Descartes. The summary of Locke's *Essay* appeared in the *Bibliothèque Universelle* of 1688 (the *Essay* itself was published two years later, 1690), and another 'revolution' was begun in modern thought.

VII

THE SURVIVAL OF THE METHOD

§ 1

THE later vicissitudes of the Cartesian philosophy as a whole are displayed most strikingly in Locke. Its fundamental metaphysical position, the distinction of matter from mind, was offered by Descartes explicitly as the basis of his mathematico-physical theory of the equation of matter with extension. The whole of this is rejected by Locke, physics and metaphysics alike, and with it Descartes' well-known attempt in the ontological argument to draw the fullest consequence from the autonomy of mind. In the same way we have Locke's reiterated criticism of the very possibility of a demonstrative science of nature, a criticism which puts asunder the mathematics and physics joined so decisively by Descartes.

And yet Locke is a Cartesian. One has only to glance at the kernel of his philosophy, the doctrine of knowledge in Book IV of the *Essay on Human*

Understanding, in order to recognize its origin. The 'rules' of the *Discourse* are only repeated in Locke's account of the true method of demonstration as consisting in the 'intervention' of 'intermediate ideas', and if we couple with this Locke's stress on 'clear and distinct ideas' we have no option but to call him a Cartesian.

And yet what a Cartesian! One wonders what Descartes would have said to this:[1]

'To return to the study of natural philosophy: though the world be full of systems of it, yet I cannot say I know any one which can be taught a young man as a science wherein he may be sure to find truth and certainty, which is what all sciences give an expectation of. I do not hence conclude that none of them are to be read; it is necessary for a gentleman in this learned age to look into some of them to fit himself for conversation: but whether that of Des Cartes be put into his hands, as that which is most in fashion, or it be thought fit to give him a short view of that and several others also; I think the systems of natural philosophy that have obtained in this part of the world are to be read more to know the hypotheses, and to understand the terms and ways of talking of the several sects, than with hopes to gain thereby a comprehensive, scientific and satisfactory knowledge of the works of nature. . . . But I would not deter anyone from the study of nature because all the knowledge we have, or possibly can have of it, cannot be brought into a science. There are very many things in it that are convenient and necessary to be known to a gentleman; and a great many

[1] Locke, *On Education* (1690), § 193.

other, that will abundantly reward the pains of the curious with delight and advantage. But these, I think, are rather to be found among such writers as have employed themselves in making rational experiments and observations, than in starting barely speculative systems. . . .'

Even the physics of 'rational experiments and observations' is thus become no more than a polite accomplishment for a 'gentleman', and the 'barely speculative systems' are of no value at all. Locke's 'discipleship' is thus severely restricted. If he accepts Descartes' logic he will have nothing to do with his science. We are thus led again to the historical paradox of the *Discourse*: it comes into its own only with the rejection of what, in Descartes' own eyes, was its justification. The *Discourse*, for Descartes himself, was only a prelude to the *Essays*, but it is through the death of the *Essays* that the *Discourse* came to its immortality.

§ 2

The old view of the relationship between Locke and Descartes is that Locke represents the 'empirical' reaction against Cartesian 'rationalism', and this was supposed to be shown in the *Essay*, particularly and typically in Book I, the attack on 'innate ideas'. It is clear, however, as is witnessed by the absolute distinction between 'knowledge' and 'opinion' which is the basis of Locke's whole theory of logic, that Locke is also a 'rationalist', and it

has been shown that the 'innate ideas' he attacks are not, primarily and exclusively, those of Descartes but those of the current version of scholasticism.[1] It is essential, therefore, before considering the problem of the relationship between the two thinkers, to agree on points of similarity and dissimilarity between them which can serve as criteria for discussion.

The characteristic points of similarity between Locke and Descartes would seem to be: (*a*) the conception of 'demonstration' as the end of a chain of 'intuitions', and (*b*) the use made of the immediate apprehension of the 'self'. The former, the mainspring of the Cartesian logic, is found in its most explicit form in the *Regulae*, the latter, the starting-point of the Cartesian metaphysic, in the *Meditations*; but they are both clear enough in the *Discourse on Method* (the point is of some importance in view of the date of the publication of the *Regulae*, although it seems clear on other grounds that the *Regulae*, although not printed till 1701, circulated in manuscript and may well have been seen by Locke). The characteristic points of *difference* between Locke and Descartes would seem to be: (*c*) Locke's refusal to accept Thought as the essence of mind, (*d*) his parallel refusal to accept Extension as the essence of body, and (*e*) his severance of physics from mathematics.

[1] So Hume: 'Locke was betrayed into this question by the schoolmen' (*Enquiry into the Understanding*, section II, last note).

If we turn to the *Draft* of the *Essay* published by Professor Rand[1] (remembering its date, 1671) and examine it with reference to these specific points, we find: (*a*) The 'chain' *conception of demonstration* does not appear at all. On the contrary, 'demonstration' *is* 'intuition' (p. 103), i.e. the actual seeing ('showing men how they shall see aright', p. 104).[2] (*b*) The *intuition of the self* is referred to once (p. 88) specifically ('this being, according to Descartes, to everyone past all possibility of doubt, that while he writes or thinks that he writes, he that thinks does exist'). But it should be noted that this reference is quite incidental and is by no means, as it is in the *Essay*, the ground for the proof of the existence of God.[3] (*c*)–(*d*) Locke's *refusal to accept Thought as the essence of mind and Extension as the essence of body* does not appear in the same way as in the *Essay*. True, we have in the *Draft* (pp. 64–5, 198–206) the same 'materialist' doctrine as in the *Essay*, but it is not accompanied, as in the *Essay*, by a definite anti-Cartesian polemic. With regard to (*e*) the *severance of physics from mathematics* we have in the *Draft* (pp. 64, 123, 127, 165, 195, 198, 202) the same general doctrine of substance as in the *Essay*, together with the corollary (p. 280) that 'universal propositions concerning causes and effects' have no necessary truth.

[1] Harvard University Press, 1931.

[2] Cf. p. 97 f., 101 f., 105, 108, 111 f., 117.

[3] For which see pp. 206–7. The ontological argument is rejected in the *Draft* (p. 207) on much the same grounds as in the *Essay*.

But we have nothing of the *Essay*'s main point that mathematics is certain because it is abstract, physics *un*-certain because it is particular, and nothing of the *Essay*'s well-known attempt to make morals a deductive science on the model of mathematics.[1] On the contrary, the *Draft* insists that knowledge is of 'real existence', i.e. 'apprehending things to be as really they are or do exist' (p. 85; cf. p. 300).

§ 3

The draft published by Professor Rand ('Draft B') is a relatively complete piece of work, and, although imperfect, is fit for publication. The manuscript, we are told,[2] is 'so very carefully prepared' that it 'gives one the impression that it was meant for the press'. But this was not Locke's first draft. There is a yet earlier one ('Draft A'), of the same year, 1671, now edited by Professor R. I. Aaron, and if this is examined it brings us to exactly the same results. Neither in Draft A[3] nor in Draft B is any attention

[1] For the *Draft*'s view of morals see pp. 291 ff.

[2] *An Early Draft of Locke's Essay*, edited by R. I. Aaron and Jocelyn Gibb, Clarendon Press, 1936, p. xxiii.

[3] The detail may be of interest. The Cartesian 'clearness and distinctness' as the criterion of truth appears on pp. 16, 42, 45, 47, 52, 53; but (*a*) the crucial theory of the 'chain' of demonstration does *not* appear, and the doctrine is that of Draft B (above, § 2), cf. §§ 11, 12, 13, 27, 30, 31 (pp. 21, 22, 24, 25, 26, 42, 43, 47, 51, 53, 54); (*b*) the 'immediate apprehension of the self' is mentioned (p. 20) in exactly the same words as in B, and in another passage (p. 40) Locke signifies his agreement with Descartes that this 'is the most certain and undoubted proposition that can be in the mind of a man', but nothing further is made of it; (*c*)–(*d*), the nature

given to those points which have been indicated above as being specifically concerned, either positively or negatively, with the conscious study of Descartes. We seem justified, therefore, in concluding that Locke had made no more than an ordinary acquaintance with Descartes when he first put pen to paper and roughed out the early drafts of the *Essay* in 1670–1. His real and earnest study of Descartes began *after* 1671. It was only *after* he had made a fair copy of his first thoughts that, as the editor of Draft A remarks, he saw that it lacked its essential point.

'The truth seems . . . to have been that the second draft remained unfinished because its author did not know how to finish it. And it is significant that it is unfinished just in respect to the very problem which Locke set out to solve, namely, that of the nature and extent of human knowledge. At first the solution seemed easy; but doubts had arisen after the completion—perhaps in the writing—of Draft A. Locke was in search of a satisfactory theory of knowledge, but by the end of 1671 he realized that he had no such theory to offer.'[1]

It is not then a matter for surprise that Locke delayed publication for so long. He was learning all the time, particularly in the decade following the

of mind and body, are practically the same as in B (cf., e.g., p. 4), while a significant passage (§ 27, pp. 42–3, 44) takes Descartes' equation of Body with Extension as a mere hypothesis; (*e*) the doctrine of the 'substratum' and the possibility of a 'science' of physics is just as in B, cf. pp. 7, 19, and §§ 15 and 27 (pp. 28, 29, 41, 44).

[1] Aaron and Gibb, p. xxiii.

writing of the drafts. He started out from the problems of ethics and religion, and, with one important exception, that of the nature of certainty in ethics, his views on them, in broad outline, did not change. But he was led to see that the nature of certainty in these subjects cannot be apprehended satisfactorily unless the attempt is made to grapple with the nature of certainty as such. In this sense the theory of knowledge is central, and to the theory of knowledge he was drawn inevitably.

Theory of knowledge he learnt from Descartes. Although no mathematician himself, Locke took the mathematical ideal of deduction as the type of certainty, and feeling, as he did so strongly, the 'necessity' of our ethical judgements, he was constrained to demand for them also a mathematical 'demonstration'. The doctrine of 'mediation' is thus as central for the Locke of the completed *Essay* as for the Descartes of the *Discourse*. The curious thing, however, is that just this central point is lacking in all Locke's early drafts and memoranda, and appears only with the publication of the completed *Essay* itself.

§ 4

The historical point involved would seem to be settled finally by the documents published by Professor Aaron. The old biographers already gave some excerpts from Locke's papers which showed that he was interested in and made some study of

Descartes during the years he spent in France (1675–9). The journal for 22 March 1676, for example, notes 'the new philosophy of Descartes' as 'prohibited to be taught in Universities, schools and academies',[1] while that for 27 March of the same year shows Locke occupied with the problem of space and body, and we have the phrase 'imaginary space' (p. 123) which recalls to mind the 'imaginary spaces' of Discourse 5. Much more important is the essay 'on Knowledge, its extent and measure' (8 February 1677) (pp. 161 ff.). This begins with the 'QUESTION: How far, and by what means, the will works upon the understanding and assent?' On this it may be observed that it is purely Cartesian; that nothing like it is to be found in the drafts of 1671; and that the addition of the last words ('and assent') indicates the special interest which is Locke's own.

The new documents are, however, still more remarkable. Under the date 8 August 1677 we have a detailed list of Descartes' works. A general inquiry into space (16 September 1677) is followed (20 January 1678) by a specific examination of Cartesian doctrine. For 7 March 1678 we have a memorandum on the 'Methode pour bien etudier la doctrine de M^r^ de Cartes' (the editor makes the suggestion that this is not Locke's original composition but a copy of something he found elsewhere, but for us the important thing is that Locke took the

[1] King, *Life of John Locke*, ed. 2, 1830, i. 119.

trouble to write it down and that it covers the whole ground, not only the works of Descartes himself but those of his followers; it begins significantly enough with the advice to start with the 'method' and then to follow it up with the study of the Port-Royal Logic). From now on we are in the (anti-) Cartesian atmosphere which stimulated the emergence of the characteristic portions of the *Essay*. July 1678 gives a note on the Infinite directed specifically against the 'Cartesians'. June 1681 shows us one of the characteristic doctrines of the *Essay* whereby morals are ranged with mathematics as capable of certainty as against the 'knowledge of natural bodies and their operations', and the reason is the very reason of the *Essay*, the abstract character of the one, the particularity of the other:

'Hence it comes to pass that our knowledge of general things are *eternae veritates* and depend not upon the existence or accidents of things, for the truths of mathematics and morality are certain whether men make true mathematical figures or suit their actions to the rules of morality or no. For that the three angles of a triangle are equal to two right ones is infallibly true whether there be any such figure as a triangle existing in the world or no; and it is true that it is everyman's duty to be just whether there be any such thing as a just man in the world or no. But whether this course in public or private affairs will succeed well, whether rhubarb will purge or quinquina cure an ague, is only known by experience, and there is but probability grounded upon experience or analogical reasoning but no certain knowledge or demonstration.'

If we add to this passage the notes of the following year (February 1682) on the problem of immortality which contain a polemic against the Cartesian conception of the soul, a polemic which is couched in pretty much the same terms as in the *Essay* (II. i. §§ 10 ff.), we may fairly say that the *Essay* in the form in which we know it, as opposed to the form it took in the early drafts, is at last beginning to take shape.

There is only one important point lacking, and that is our first, the 'chain' theory of 'demonstration'. There is no doubt that this is Cartesian, no doubt either that it was derived from a meditation on the nature of mathematics. It has indeed been affirmed that the realization of the nature of the knowledge given in mathematical reasoning was Locke's 'Copernican Revolution', 'and it was as significant and as liberating an experience for him as Kant's was for Kant. He became so convinced of the importance of his new position that, at the beginning of Book IV, he defined knowledge wholly in terms of it.'[1] And yet the theory, so fundamental for Locke's whole position and for the later reputation and influence of the *Essay*, appears neither in the drafts of 1671 nor in the journals, at least in those so far published; and the notes just quoted (June 1681), in which Locke joins ethics with mathematics as a demonstrative science as against physics, still

[1] R. I. Aaron, *Locke's Theory of Universals* (Proc. Ar. Soc. 1932–3), p. 197.

consider 'demonstration' as 'seeing' a thing 'to be so'.[1] Locke's attention to mathematics and its peculiar character seems to have been drawn, therefore, only *after 1681*.

The stimulus for Locke's thinking on this point would seem to have been derived from Newton. The method is actually connected in one passage[2] with Newton by Locke himself, but there is an anecdote which brings the relevant points and persons together in a much more striking way: 'The celebrated Locke, who was incapable of understanding the Principia from his want of Geometrical knowledge, inquired of Huyghens if all the mathematical propositions in that work were true. When he was assured that he might depend upon their certainty, he took them for granted, and carefully examined the reasonings and corollaries deduced from them. . . .' If the chronological difficulties could be solved[3] this would seem to be the general truth of the matter, whatever be thought of the details of the anecdote. The crucial first part of

[1] Aaron and Gibb, p. 117. Cf. above, p. 119 with n. 3 (*a*).

[2] *Essay IV*, i, § 9.

[3] It should be remarked that although the *Principia* was published only in 1687 it rests on papers and inquiries going back many years, and that Newton made frequent journeys to the meetings in London of the Royal Society, of which he became a member in 1672, and would have met Locke there. Huyghens was a member since 1663. He lived from 1665 to 1681 in Paris, returning then to Holland, where Locke lived in retreat from 1684 to 1688. The anecdote is quoted from Brewster, who himself quotes from Desagulier (1734), by Fox Bourne, ii. 216 n.

Book IV of the *Essay*, that on the theory of knowledge and the nature of certainty and demonstration, would be the rediscovery of the method of Descartes in the demonstrations of Newton.

§ 5

It is generally assumed, on the authority of Lady Masham, that Locke's study of Descartes goes back to his Oxford days. But the report is dated 1704 (and therefore long enough after the event not to be pedantically accurate) and in any case says simply:[1]

'The first books, as Mr. Locke himself has told me, which gave him a relish of philosophical things, were those of Descartes. He was rejoiced in reading these, because, though he very often differed in opinion from this writer, he yet found that what he said was very intelligible; from whence he was encouraged to think that his not having understood others had possibly not proceeded from a defect in his understanding.'

Another report would seem to confirm the account given above, to wit, that Locke was influenced by Descartes comparatively late in life.

'I myself', said Le Clerc,[2] 'heard him complain of his

[1] Fox Bourne, i. 61–2.

[2] *ap.* Fox Bourne, i. 47–8. It is worth remarking that Fox Bourne himself (p. 71) noted, with reference to some memoranda of Locke certainly not later than 1660, that 'Locke had already broken off not only from Aristotelianism and scholasticism but also from Cartesianism; or if, *as is most likely, he wrote them before he read Descartes* . . .'. Locke himself, writing in 1696 on 'Descartes' proof of a God from the idea of necessary existence', speaks of having examined it only '*lately*', although he had 'heard Descartes' opinion

early studies, in a conversation I one day had with him on the subject; and when I told him that I had a tutor who was a disciple of Descartes and was a man of very clear intelligence, he said that he had not that good fortune (though it is well known he was not a Cartesian), and that he lost a great deal of time at the commencement of his studies, because the only philosophy then known at Oxford was the peripatetic, perplexed with obscure terms and useless questions.'

It would seem indeed, on the information provided by the biographers, that Locke's interest in 'foreign' speculation only began in earnest when he went abroad. His first journey to France took place in the autumn of 1672, the year after the completion of the 'drafts'. Before he went he seems to have known no French, and he brought back with him a vivid interest in a French philosopher who, if not Descartes, was at least a distinguished Cartesian, an interest great enough to stimulate him to translate one of his recent works into English.

The book was the *Essais de Morale* of Pierre Nicole, the friend of Arnauld and Pascal and the collaborator in the *Provincial Letters* and the Port-Royal Logic. The translation, not meant for publication,[1] was sent, apparently in the early part of 1673, to Lady Shaftesbury, and Locke's version included

concerning the being of a God often questioned by sober men' (King, ii. 133).

[1] It saw the light, edited by Thomas Hancock, M.D., in 1828, under the title *Discourses, translated from Nicole's Essays* (Fox Bourne, i. 297 n.).

the essays on 'the existence of God and the immortality of the soul', the 'weakness of man', and the 'way of preserving peace with men'. Fox Bourne[1] quotes the following from the second essay, and it would seem to represent the opinions not of Nicole only but of Locke himself:

'After men have been teaching and studying philosophy upon divers principles for these three thousand years together, there starts up a little fellow in a corner of the world who changes the whole face of it, and undertakes to show that all those who went before him understood nothing of the principles of nature. Wherein there is something more than empty boasting; for it must be acknowledged that this new philosopher gives us more light into natural things than all the others together. Nevertheless, how happy soever he has been to discover the weakness of the principles in the common philosophy, he has left in his own some obscurities which the wit of man cannot clear up. His doctrine of space and the nature of matter hath horrible difficulties, and I fear me they have more heat than light who declare themselves not startled at them. What greater instance can one have of the weakness of man's understanding than to see that men (and those who seemed, of all others, to have had the strongest parts) have been employed these three thousand years long in the study of nature, and that, after that infinite number of books they have writ on this subject, it was found they understood so little of it, and were so far out of the way, that they are to begin all anew, and that the only benefit one can make of all their works is to learn

[1] i. 301 f.

that philosophy is a vain amusement, and that men know almost nothing.'

§ 6

I have fetched a wide compass and must return. The point involved is twofold and is in brief this: To the student of Locke I should say that Descartes was the positive influence in the formation of the *Essay* we know, and this is proved by the fact that until Locke's serious study of Descartes the *Essay* was not the *Essay* we know; but I should ask the student of Descartes to note that the Descartes who influenced Locke was not the physicist or the metaphysician but the logician. Descartes' *Essays* left Locke cold, his *Meditations*, actively hostile. What affected Locke permanently was the *Discourse*.

The change of emphasis between the two thinkers is thus definite and notable; it is also typical and illustrative of the main thesis of this volume. To Descartes the basing of physics is the end to which the logic is subservient: the *Discourse* is subordinate to the *Essays*. Method is the thread which leads us through the labyrinth of nature and by itself is of no value. To Locke, as to Aristotle, logic is the ordering of knowledge acquired elsewhere, and its end is not discovery but demonstration.

What has happened meanwhile? The answer seems clear. The Cartesian physics has broken down. What Daniel and Huet and other literary and scientific critics had pointed out in theory, Locke saw

before his eyes in practice. Physics had left, temporarily at least, the 'high priori road', and 'creeping by timid steps and slow' had begun 'on plain experience' to 'lay foundations low'. It had become with Newton a science of observation, with Boyle a science of experiment. But even so, as we saw, it has in Locke's eyes only a limited value as a polite accomplishment for a 'gentleman'. Nor is the 'incomparable Mr. Newton' exempted from his general judgement. Even Newton's contribution is limited specifically[1] to the showing 'how far mathematics, applied to some parts of nature, may, upon principles that matter of fact justify, carry us in the knowledge of some, as I may so call them, particular provinces of the incomprehensible universe'. Only fifty years have elapsed since the mathematical ideal of the *Discourse* was to bring us to 'truth in the sciences'. Now the highest triumph of the mathematician has to be 'justified' by 'matter of fact', and is restricted to 'particular provinces' of a universe which remains 'incomprehensible'. The 'universal science' announced by the *Discourse* has vanished with the collapse of the *Essays* which were to be its 'proofs', and we are left with a method of setting out our empirical discoveries.

[1] *On Education*, § 194 (immediately following on the passage quoted above, p. 115).