

JULIEN OFFRAY DE LA METTRIE



*Machine Man and
Other Writings*

TRANSLATED AND EDITED BY

ANN THOMSON

University of Caen



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Introduction

La Mettrie is known mainly for *L'Homme machine* or *Machine Man*, a work whose title has rung out as a provocation since its publication in Holland in 1747. This was doubtless the effect sought by the author; like the majority of his works, it has little of a formal treatise and is mainly a polemical work addressed to the general reading public of educated people. Because of this, it seems to have been quite widely distributed for most of the eighteenth century, although since the end of the century, it has been more often referred to than read, a fact which has paradoxically increased its scandalous reputation. In any case, the life of its author, Julien Offray de La Mettrie, was such that it could only increase the aura of scandal surrounding his work. A medical doctor who wrote both satires against his colleagues and irreligious philosophical works, he was forced to leave his native France and then Holland before finding refuge at the court of Frederick II of Prussia, where he continued to write 'scandalous' works developing amoral conclusions drawn from his uncompromising materialism, which aroused condemnation even among those who had not been shocked by his earlier works. He died, in 1751, of what was commonly described as indigestion.¹

He was writing at a turning-point in the mid-eighteenth century, when the intellectual scene was dominated by Voltaire, when the works of Buffon, Montesquieu, Rousseau and Diderot were beginning to be published and the *Encyclopédie* project was getting under way, and he was very conscious of this new self-conscious philosophical party critical of many aspects of the Old Régime. Prussia was by no means an intellectual backwater, as Frederick attracted many scientists, in addition to French men of letters such as Maupertuis, Voltaire and d'Argens; nevertheless, La Mettrie seems to have felt his exile as a hard blow and attempted, thanks to Voltaire's intervention, to obtain permission to return to France. The publication of his philosophical works in Berlin in 1750 seems to have been partly a way of showing that he was involved in the new movement, and even the fact that

¹ For the events of his life, see the Chronology.

he chose to call each of the texts contained in the volume a contribution to the 'natural history of man' can be seen as a reference to Buffon's *Natural History*, whose first volumes had just been published. His death, in 1751, meant that he did not take part in the activity around the *Encyclopédie*, and the Philosophes of the second half of the century all dissociated themselves from someone with such an unsavoury reputation who could easily be accused of undermining morality and the foundations of society. Materialists such as Diderot or d'Holbach shared many of his ideas, and Diderot's *Dalembert's Dream* or *Refutation of Helvetius*, in particular (neither of which was published at the time), bear many affinities with La Mettrie's ideas. Nevertheless, La Mettrie's writings undermined their attempts to provide a non-religious basis for morality; this led to attacks on him, in d'Holbach's *The System of Nature* and in Diderot's *Essay on the Reigns of Claudius and Nero*, for his moral theories and his view of the philosopher as someone writing only for an élite, whose speculations do not take account of the needs of society. He was thus denounced as a 'lunatic' by those who were in part indebted to him, and his reputation suffered an eclipse.²

Recently, interest in La Mettrie's works has been aroused, including among those studying brain functioning, but attention still tends to be paid mainly to *Machine Man*. However, for a clear understanding of the author's aim and the implications of the issues he discussed, it is necessary to look also at his other main philosophical works, which either laid down the bases for the discussion in his most famous work or developed in a different way some of the issues raised there. They enable us to see more clearly what La Mettrie considered to be the main aspects of his materialism, which remained constant despite changes in emphasis or formulation and even a certain amount of incoherence. This, together with his often satirical intention and the fact that he was concerned less with philosophical consistency than with expounding a thoroughgoing materialism, has led to differences of interpretation. In addition, many of the problems raised by his writings remain obscure to the modern reader and need to be placed in the context in which they were written. La Mettrie was contributing to certain long-standing debates but, at the same time, he was very much aware of new developments in intellectual life, which were reported in the journals that he read assiduously, as did all educated people. Indeed, his writings often seem to have been sparked off by recent publications. He reacts, even if it is often in a superficial manner, to the latest scientific discoveries and to the important publications that were of interest to the educated, but not necessarily specialist, reading public he was addressing.

This does not mean that he was simply a curious amateur. La Mettrie was a practising medical doctor and, however much he may have considered that his

² See in particular *Système de la Nature*, (2 vols., 'Londres', 1770), Bk, II ch. 12 and Diderot, *Essai sur la vie de Sénèque le philosophe, sur ses écrits et sur les règnes de Claude et de Néron* (2 vols., 'Londres', 1782), vol. 2, pp. 29–32. For further details, see my *Materialism and Society in the Mid-Eighteenth Century* (Geneva, 1981), pp. 181ff.

medical studies were insufficient, for him the study of medicine seems to have been extremely important, as he emphasises throughout his writings. His first published works were medical and included pamphlets on the conflict between doctors and surgeons, original works based on his own observations (as a practitioner in Brittany and as a military doctor) and translations of the great Leiden teacher Hermann Boerhaave, whose pupil he claimed to be after having spent a couple of years in Leiden. La Mettrie considered his philosophical works to be an extension of his medical concerns and he never failed to remind the reader that he was approaching philosophical subjects from a medical standpoint. Thus, when taking part in current philosophical debates his inspiration tends to be eclectic, and his arguments frequently rely on medical data. But before looking at these arguments, we first need to clarify the issues which were the subject of debate.

La Mettrie's starting-point is the question of the soul. His treatment of this subject lies at the intersection of several different debates and traditions; as a result, he does not always approach the issue from the same point of view, and his use of terms can lead to confusion. On the one hand, there was speculation on the animal soul in the wake of the controversy over Cartesian animal machines. The theory was espoused in its literal sense by philosophers such as Malebranche but others refuted it, fearing that it might simply be extended to humans – which La Mettrie of course claims to be doing, even implying that this had been Descartes' own intention and that, had Descartes been free to write what he believed, he would have extended his theory to humans. An alternative view posited, with the Gassendists, the existence of different types of soul, the animals possessing an inferior, material soul. This theory was adopted by two late seventeenth-century medical writers to whom La Mettrie was particularly indebted. The first was the Englishman Thomas Willis, who did important work on the anatomy of the brain. He published in 1672 *De anima brutorum* (translated in 1683 as *Two Discourses Concerning the Soul of Brutes*), in which, referring to the Lucretian tradition and to Gassendi, he develops the theory of a corporeal fiery soul extended throughout the bodies of animals and humans, while insisting on the existence of a second higher, rational soul in humans. Willis was followed by the Frenchman Guillaume Lamy, a follower of Gassendi who likewise situated himself in the Epicurean tradition. In *Anatomical Discourses* (1675) and *Explication mécanique et physique des fonctions de l'âme sensitive* (*Mechanical and Physical Explanation of the Functions of the Sensitive Soul*, 1678), Lamy explained the functioning of the human senses, passions and will by a material sensitive soul, while being careful to avoid talking about intellectual faculties and to claim that faith teaches us the existence of an immortal spiritual soul. La Mettrie's discussion of the question in *Natural History of the Soul* (later *Treatise on the Soul*) in 1745 adopts the same prudent approach and is in the tradition of these late seventeenth-century Epicureans who challenged the Cartesian theory of the soul. But La Mettrie finally throws off all prudence in *Machine Man* and, abandoning the theory of a separate sensitive or animal soul, challenges

religious orthodoxy by openly denying any separate immortal soul in humans as in animals.

For La Mettrie is also a representative of the current of antireligious thought which, in the late seventeenth and early eighteenth centuries, called into doubt many doctrines of the Christian churches and in particular their teaching on the existence of an immortal, immaterial soul. Lamy's works, with their open Epicureanism and antifinalism, were also part of this current, although on the question of the soul he was careful to make concessions to religious orthodoxy, preferring to proceed by insinuation. There were many such coded references to the question in 'Libertin' writings,³ linked to what is generally called the clandestine tradition. For there existed a large number of heterodox and antireligious works which circulated unofficially throughout the century, many of which originated in the late seventeenth or early years of the eighteenth century. These works, sometimes printed illegally in France, Holland or elsewhere (although many circulated in manuscript form alone), cast doubt on many aspects of Christian teaching. They often listed the opinions of a variety of religious and classical sources and used for their own purposes arguments taken from theologians or thinkers like Malebranche, but they also drew on elements forming a common fund of seventeenth-century or earlier Pyrrhonian, or sceptical, writing, or on the works of Locke, Hobbes, Toland or other English freethinkers. The result was often a patchwork of different passages joined together in a way that was not always coherent, similar to that found, to a lesser extent, in much of La Mettrie's *Treatise on the Soul*.⁴ La Mettrie seems to have known these works well, as he refers to some of them and traces of others can be found in his writings, and there is no doubt that his own publications must also be situated in the context of this clandestine tradition, some of whose techniques he borrowed, at least as long as he was in France.

The question of the human soul was particularly discussed by these clandestine treatises; indeed, the titles of several of them refer to a material or mortal soul. Amongst them was Voltaire's letter on Locke from the *Philosophical Letters* (1734), which circulated separately as a 'Letter on the soul', which La Mettrie had read. Locke's hypothesis that God might 'superadd to matter a faculty of thinking' gave rise to great controversy in Britain concerning materialism and the nature of the soul,⁵ which continued to rage at the time that La Mettrie was writing; but although he refers to the hypothesis, other works seem to have been more important for him. One of them was perhaps the most famous of the clandestine treatises, dating from

³ This term refers to the seventeenth-century group of irreligious thinkers and their followers; see R. Pintard, *Le libertinage érudit dans la première moitié du 17^{ème} siècle* (Paris, 1943). On the influence of their antireligious thought and their methods, in particular the use of coded references for insiders, see O. Bloch, 'L'héritage libertin dans le matérialisme des Lumières', *Dix-huitième Siècle*, 24 (1992), pp. 73–82.

⁴ See Verbeek's critical edition of this work, and in particular his study of its sources.

⁵ Locke, *An Essay Concerning Human Understanding*, Bk. IV, ch. 3, §6. On the controversy in England, see J. Yolton, *Thinking Matter* (Oxford, 1983).

the turn of the century, which circulated in various versions under the title either of *Traité des trois imposteurs* (*The Three Impostors*) or of *L'esprit de Spinoza* (*The Spirit of Spinoza*). This patchwork of ideas taken partly from Spinoza but also from the Libertin tradition, criticises final causes, posits the existence of a material God and questions the existence of an immortal soul. It adopts the theory of a fiery soul – a very subtle fluid or tenuous matter, part of the soul of the world – taken from the Paduan school, but in a passage copied from Lamy's sixth *Anatomical Discourse*. It was therefore a form of atheism and materialism that this work propagated under the aegis of Spinoza and that was called, in the early part of the eighteenth century, Spinozism. In several of his philosophical works, La Mettrie claims for himself the label 'Spinozist', equating it with both materialism and determinism, or the belief that the individual is not free but is determined by bodily states. 'Man' is therefore a 'machine' in the sense of being an automaton. This opinion is clearly spelled out in the exposition of Spinoza's philosophy provided by La Mettrie in the *Summary of the Systems* (§vii), annexed to his *Treatise on the Soul* in 1750, where he writes: 'The author of *Machine Man* seems to have written his book on purpose to defend this sad truth' (that the human being is an automaton).

La Mettrie's materialism was therefore, for him, equivalent to the Spinozism spread by the clandestine tradition. But, on the specific issue of the soul, the materialism of the clandestine treatises took different forms. On the one hand, it was possible, as in the *Three Impostors*, to posit with the Epicureans the existence of a material soul or subtle matter, which is then used to explain all the intellectual functions; but on the other, one could deny the existence of any sort of soul, material or otherwise, and affirm simply that thought and the other mental processes are the result of a particular organisation of matter in the brain.⁶ Although La Mettrie seems at times tempted by the former theory in the *Treatise on the Soul* and also, in *Machine Man*, identifies the Hippocratic *ἑνορμών* or elemental force with the soul, it is the latter explanation that he finally adopts; indeed, he is careful to situate this elemental force in the brain.

It is clear from what has just been said that the nature of matter and its properties was therefore an issue of great importance, and it is this question that La Mettrie tackles unsuccessfully at the beginning of his *Treatise on the Soul* (using Aristotelian categories), and to which he returns in *Machine Man*. La Mettrie tries to show that matter possesses motive force and sensitivity, but the question for him, as for Diderot in his commentary on Helvétius in the 1770s, is whether they are inherent in its smallest particles or are the result of a particular organisation of matter. On this issue, La Mettrie prudently restricts himself to saying, in the *Treatise*, ch. vi, and *Machine Man*, that they are only observed in organised matter. But there was also the further question of how this sensitive matter could explain intellectual functions, for he is consistent in his claim that if observed matter can be seen to

⁶ See A. Vartanian, 'Quelques réflexions sur le concept d'âme dans la littérature clandestine', *Le Matérialisme du XVIIIe siècle et la littérature clandestine*, ed. O. Bloch (Paris, 1982), pp. 149–65.

possess the capacity to move, one can deduce the capacity to feel and therefore to think. For him, the question of vital force and that of intelligence are inextricably linked, although he distinguishes life and movement from intelligence and is suspicious of the idea of a soul spread throughout the body, which runs the danger of 'spiritualising matter' rather than 'materialising the soul'. However, his approach to these questions evolves. La Mettrie's speculation concerning the soul and the functioning of the human organism had first been expressed in comments he added to his translation of Albrecht von Haller's annotated edition of Boerhaave's *Institutions*,⁷ the *Natural History of the Soul* developed from these comments and draws on Boerhaave's writings, while adopting a different philosophical standpoint. In this work, as we have seen, he uses the theory of a sensitive soul but he discusses its seat in the brain in a manner that is very much indebted to his proclaimed master, Boerhaave, the leading representative of the iatromechanist school. This school, strongly influenced by Cartesian physiology, described the workings of the body in terms of mechanical principles and posited that the soul receives sensations by means of animal spirits moving through the nerves, which were hollow cylinders. The precise seat of the immaterial soul, where it received these sensations, was open to debate and various parts of the brain were proposed.

The iatromechanist theory posed great problems for the explanation of vital phenomena and was challenged by the animism of the German G. E. Stahl (in particular in *Theoria medica vera* (*True Medical Theory*), 1708), who defined the principle of movement in the body as the immaterial soul, which directed all of the body's actions. La Mettrie's denunciation of Stahl's theories runs as a leitmotiv throughout his works, medical as well as philosophical. Iatromechanists, to avoid such solutions, appealed to various explanations of motive force in matter, using dynamic theories inspired by Leibniz or making use of forms of subtle matter or of an innate vital principle. La Mettrie's speculations were also made against the background of new developments in physiological theory, for at precisely the time when he was writing, Haller was developing his theory of irritability, which posited the existence of a force inherent in muscle fibres. Although the theory was only developed fully from 1752, indications were given in Haller's comments on Boerhaave's *Institutions*. Such speculation about the source of vital functions was soon to lead to the development of vitalism (which was to influence Diderot's materialism).⁸ La Mettrie, in *Machine Man*, gives examples to demonstrate the existence of life in the smallest parts of the body (or what he calls their 'natural oscillation'), from which he deduces that a certain organisation of matter in the brain produces thought. Finally, however, he freely admits his ignorance as to

⁷ La Mettrie translated Boerhaave's *Institutiones rei medicae*, as annotated by A. von Haller in his *Praelectiones academicae* (1739–44), and published them under the title of *Institutions de médecine de M. Hermann Boerhaave* (Paris, 1743–50).

⁸ On these developments in physiology, see F. Duchesneau, *La Physiologie des Lumières* (The Hague, 1982).

exactly how organised matter acquires the faculty of thought (although he is consistent in limiting intelligence to the brain), because the essential point for him is to deny the existence of an immaterial and immortal soul, which follows from the acceptance of a dynamic view of matter. He seems at times favourable to any theory which could explain intellectual phenomena in terms of matter alone. This is what constitutes his materialism or, as he also says, Spinozism.

An aspect of this materialism is the denial not only of human freedom but also of the existence of absolute moral values. Good and evil are created by religion for the needs of society and have no other validity. Although this conclusion is not drawn in *Machine Man*, La Mettrie expounded it immediately afterwards in his *Anti-Seneca* in a way which was no longer acceptable to those Philosophes who were trying to found a secular morality. Here again we see that, despite his concern to keep up to date on scientific and intellectual developments, La Mettrie's outlook and many of the important influences on him look back to the seventeenth century. In the early eighteenth-century literary dispute between the Ancients and the Moderns, he is in general on the side of the Ancients, and he is also largely in the Epicurean tradition, as he frequently affirms. This separates him from the Philosophes who were coming to the fore at the time of his death and who, as we have seen, rejected any association with him. More details of the contradictions engendered by his position at a moment of transition will emerge from a discussion of the individual works presented here. In order to see the progression of his thinking on the central issues, I shall begin with his first philosophical work.

Treatise on the Soul

The *Treatise on the Soul* (chs. I–x of which are included here), published in 1750, is an amended version of the *Natural History of the Soul*, first published in 1745. The 1745 text already seems to have been recast several times, drawing on different, sometimes incompatible, sources, which leads to a certain confusion and even contradictions. The work's unavowed aim is to show that all those faculties which are attributed to the workings of the soul can be explained by matter alone, and thus that there is no need to posit an immaterial soul; for this La Mettrie adopts the threefold Scholastic division of the soul into the vegetative, sensitive and reasonable souls, each responsible for different faculties. He is here following the lead of Willis and Lamy, who claimed not to be discussing the rational soul of man. The *Treatise* begins with a discussion of matter (chs. I–vii) in which La Mettrie attempts to show that it possesses the faculty to move and consequently to feel; this discussion calls on a variety of philosophical traditions, notably the Scholastic, and on Madame du Châtelet's exposition of the philosophy of Leibniz and Wolff in *Physical Institutions* (1740), and it is generally rather confused. La Mettrie finally admits ignorance as to the nature of matter and arrives at the conclusion that organised, observable matter possesses the faculty to feel. He then proceeds, in chapters viii–ix, to a discussion

workings of the senses and the brain, La Mettrie does not wish to repeat them in *Machine Man*, but goes on to draw the conclusions of these explanations in a more radical way than he had done before. His physiological explanations in the *Treatise* are largely drawn from the medical writings of Boerhaave and also from Haller's commentaries on Boerhaave. Certain passages are even taken directly from this work, but La Mettrie is not particularly concerned with fidelity to the original and gives them a materialistic colouring, as he had already done in a more timid way in his translation of Boerhaave/Haller, for he clearly shows that the soul which receives sensations in the brain is material.¹⁰ This materialistic aim was in contradiction with Boerhaave's dualism. Haller's angry reaction, accusing him of plagiarism, was no doubt partly prompted by his fear of being associated with La Mettrie's materialistic conclusions, and was probably what incited La Mettrie to dedicate *Machine Man* to him in a provocative manner.

Machine Man

In *Machine Man*, written in Holland, where La Mettrie had sought refuge after the scandal of his *Natural History of the Soul*, his attempt to explain all the workings of the human body in terms of matter alone is now clearly avowed. It relies to a large extent on examples of comparative anatomy, showing the similarities between humans and animals. The title, 'machine man', refers specifically to the Cartesian hypothesis that animals are mere machines without a soul, and La Mettrie claims that what he is doing is simply applying the Cartesian hypothesis to humans; he shows repeatedly that whatever applies to animals applies equally to humans. Although he does not attempt, in his text, to demonstrate that humans are no more than animals in the Cartesian sense, his title and his invocation of Cartesian authority for what he was doing were enough to ensure the work's immediate notoriety. The arguments concerning animal soul had been examined in detail by Pierre Bayle in his *Dictionary*¹¹ article 'Rorarius', in which he pointed out clearly the dangers of the different theories and of their extension to humans; if the existence of a material soul in animals is accepted, there is no reason why the souls of humans should be any different, even though to deny souls to animals and to claim that they were mere machines, as did the Cartesians, was not a solution, as nothing would prevent the same thing being said of humans. It is clear that La Mettrie is adopting Bayle's reasoning and insisting on the comparison between humans and animals, given the similarity of their organisation. Indeed, he gives many examples of intelligence in animals, in the tradition of Montaigne. This line of argument was taken up again in his *Animals More than Machines* (1750). There

¹⁰ For details, see Verbeek's critical edition of the *Traité*. On the translation of Haller, see also my, 'La Mettrie, lecteur et traducteur de Boerhaave', *Dix-huitième Siècle*, 23 (1991), pp. 23–9.

¹¹ *Dictionnaire historique et critique*, first published Rotterdam, 1696, went through numerous editions in the late seventeenth and early eighteenth centuries.

of the soul which concentrates mainly on the sensitive soul, common to humans and animals. He describes the mechanism of sensation (ch. x), relying on the theory of animal spirits which transmit sense impressions to the brain; this enables him to show that the (sensitive) soul is material, and is identified with the *sensorium commune*, or termination of the nerves (generally considered to be the seat of the soul), in turn identified with the brain as a whole. It is here that the extract in the present volume ends. Having shown that the sensitive principle is material, he then goes on (chs. xi–xii) to describe the different faculties of the sensitive soul, managing to include almost everything. These chapters contain discussion of contemporary literature and writers. He admits (ch. xiii) the existence of a rational soul responsible for intellectual faculties, whose existence is taught to us by faith (ch. xiv), but its role is reduced to such an extent as to be practically meaningless. The work finishes (ch. xv) with a series of stories proving that all our ideas come from the senses. Here, the obvious reference is Locke who was to have such an influence on Condillac, Helvétius and others. Indeed, in *Machine Man*, La Mettrie accuses himself of aping Locke in this work. However, it shows less his influence than that of the Aristotelians or Gassendi.⁹ The *Treatise of the Soul* was accompanied by a *Summary of the Systems*, composed of developments of what were notes in the 1745 version; La Mettrie summarises the philosophies of Descartes, Malebranche, Leibniz, Wolff, Locke, Boerhaave and Spinoza, and gives a review of different opinions concerning the soul (like that found in many clandestine manuscripts), intended to insist on its materiality. The paragraph on Locke implies that he was only reviving the ancient axiom that there is nothing in the mind which was not formerly in the senses, and seems to be taken mainly from secondary sources, including Voltaire.

The work is not devoid of a polemical aim, in particular in its rejection of the Cartesian conception of the soul and of animal machines, and it also contains a number of satirical elements. But it mainly attempts to provide detailed explanations of how matter can explain all natural phenomena, including intellectual activity. La Mettrie gives details concerning the mechanism of the sensations and the workings of the brain which are absent from *Machine Man*. In the *Treatise on the Soul* the animal spirits play an important role in his discussion of the mechanism of sensations and of the sensorium. La Mettrie here follows Boerhaave's definition of animal spirits and of the nerves as hollow tubes containing little globules which transmit sensation to the brain by means of physical contact. This seems to be abandoned in *Machine Man* where there is no clear model of the workings of the animal spirits and where they seem to be used much more as a metaphor. For it is the conclusion of the *Treatise* that is important, namely that 'the soul depends essentially on the organs of the body, with which it is formed, grows and declines'. Perhaps realising the rather unsatisfactory nature of his explanations of the

⁹ See Verbeek's critical edition, in particular vol. 2, pp. 86ff.

has been much discussion of the extent to which La Mettrie's remarks in *Machine Man* can be taken at their face value, and whether he was in fact extending Descartes' analysis to humans, thus abandoning the hostility shown in the *Treatise on the Soul*.¹² This is not the place to go into this complex issue, beyond pointing out that Cartesian 'animal-machines' constitute an important element in the intellectual backdrop to his thinking, whether he was reacting against the theory or claiming to adopt it.

His polemical beginning, rejecting all the existing philosophical systems which claim to explain human nature and the soul and attacking the theologians, is typical of irreligious works. Proclaiming that one should be guided by observation and experiment alone, La Mettrie gives a long series of medical examples proving the dependence of the 'soul' on bodily states. He then moves on to the teaching of comparative anatomy, an important field for Boerhaave's school, and in particular to the comparison of the brains of humans and animals, and of the behaviour that results. He claims that it would be possible to teach an ape to speak, in which case nothing would distinguish it from a human, for, like the Cartesians, he insists on the importance of language. His discussion of the imagination is intended to show that the brain is not simply a passive organ, as it had appeared in the *Treatise on the Soul*, but is also creative; its capacities depend on its organisation and the education it has received. Coming back to the subject of animals, he shows the superiority of their instinct, and that they have a moral sense, like humans; if we deny moral sense in animals, then we must deny it in humans as well. The question of a knowledge of natural law in humans and animals (a subject on which he adopts a different position in *Anti-Seneca*) leads to a long discussion of the existence of God. Here La Mettrie is mainly replying to the deistic arguments of Diderot in *Philosophical Thoughts* (1746), parts of which, in turn, were a reply to La Mettrie's *Natural History of the Soul*, which did not prevent Diderot's work being attributed to La Mettrie. Here La Mettrie does not openly reject the existence of God, but his criticism of Diderot's position and the doubts he raises show clearly enough his atheistic position.

He then returns to the dependence of mental on bodily states, with another series of experimental observations intended to show that each part of living matter possesses its own innate force. As we have already seen, the explanation of vital phenomena was an important problem for physiologists, but La Mettrie linked it to the explanation of intellectual functions and considered it to be a vital step in his demonstration that there is no need for a soul. He here makes use of the theory of

¹² A. Vartanian, in particular, in his important critical edition of *L'Homme machine*, which should be consulted for more detailed information on the issues and scientists referred to in this work, emphasises La Mettrie's Cartesianism; he sees in this text a rejection of a Lockean position adopted in the *Treatise on the Soul*. This opinion has been contested by myself and Verbeek. See also L. C. Rosenfield, *From Beast-Machine to Man-Machine: Animal Soul in French Letters from Descartes to La Mettrie* (New York, 1941), and H. Kirkinen, *Les Origines de la conception moderne de l'homme machine* (Helsinki, 1960)

irritability developed by Haller, for whom it meant the capacity of a fibre to shorten when subject to an external stimulus and who specifically applied it to muscle fibres. Haller distinguished it from sensitivity, by which he meant the capacity to transmit sensations to the brain. But La Mettrie applies it to all fibres and links it to theories of the existence of a motive force and sensitivity in all matter, and even with theories of a material soul throughout nature. This shows that his main aim is not to develop a scientific explanation of the workings of the human 'machine', but to use any evidence to deny the need for a soul.

From involuntary movements he moves on to an explanation of voluntary movements, by means of animal spirits directed by a material principle in the brain. Thus he is able to postulate the 'material unity of man', backed up by examples showing how the will depends on bodily states. He uses the comparison, common at the time, and which he seems to have taken directly from a clandestine text called *Le philosophe* (*The Philosopher*),¹³ between the human body and a machine or watch, in which there is a mainspring driving the rest; however, he puts it to a different use, explaining that each small cog has its own moving principle, as matter is self-moved. This is his main affirmation, and is part of what he means by declaring that humans are machines. He admits his ignorance as to the detailed workings of this machine, and in particular as to how matter acquires the faculty of movement. After further examples concerning reproduction and the development of the foetus (a debate to which he was to return in *Man as Plant*), in which the similarity of humans and animals is again emphasised, La Mettrie ends with an uncompromising declaration of materialism – that only matter exists in the universe – and defiance of the theologians.

It is clear that the main aim of this work is to expound a materialistic philosophy, consisting in the claim that matter is both self-moved and sensitive, which for La Mettrie is enough to deduce that a particular organisation of it produces thought; matter is therefore sufficient to explain all existing phenomena. He is much more forthright than he had been in 1745, no longer attempts a detailed description of the workings of the brain or the functioning of the animal spirits and abandons the search for the *sensorium commune*. Instead, *Machine Man* proposes a certain number of metaphors and a declaration of principle and is, to a large extent, a polemical work directed mainly against those who defended the existence of an immaterial soul, whether theologians or physiologists like Stahl. The sympathy he shows for all those who seem to support, or who could be enlisted in favour of, his position leads to a lack of clarity in his use of certain concepts, but not in his main argument, which provoked a scandal even greater, no doubt, than the one he intended.

¹³ Frequently attributed to the grammarian C. Chesneau Dumarsais, it was published in 1743 and later formed the basis of the *Encyclopédie* article 'Philosophe'. See H. Dieckmann, *Le Philosophe: Texts and Interpretation* (St Louis, 1948).

Man as Plant

The title of this work seems to have been chosen in order to exploit the impact made by *Machine Man*. It provides a description of the workings of the human body based on a comparison with the organisation of plants, in an attempt to show the uniformity of the animal and vegetable kingdoms. The first chapter describes human organisation in terms of the parts of plants, with particular reference to reproduction, and concludes with a Latin description of the human being in Linnaean terminology, which was omitted from the final version, in 1750. In the second chapter, La Mettrie moves on to the differences between animals and plants, in which much space is devoted to a demonstration that there is no need of a soul to explain the functioning of plants. He then introduces the subject of polyps, whose particular form of reproduction had been recently discovered by the Genevan naturalist, Abraham Trembley, and had created a great stir in scientific circles. They were considered to be transitional beings between the vegetable and animal kingdoms. La Mettrie had been particularly interested in Trembley's discoveries, referred to in *Machine Man*, as they presented problems for the existence of the soul. But they also seemed to show the continuity in nature, and the subject leads La Mettrie on to the question of the great chain of being, a widespread idea in the eighteenth century, which is developed in the final chapter.¹⁴ La Mettrie's interest here in this topos is to insist on the uniformity of all living beings and to insist, as he had done in *Machine Man*, on the similarities between humans and animals and on the claim that human superiority is only the result of physical organisation. The end of *Man as Plant* is thus rather similar to *Machine Man* and specifically refers to the debate on animal souls.

This work enables La Mettrie to discuss some questions that he had not hitherto gone into. In addition to insisting on the conclusions of *Machine Man*, he draws on much recent work on botany, particularly Needham's microscopic observations, which had revived interest in plant reproduction.¹⁵ La Mettrie joins the debate on animal reproduction, already mentioned towards the end of *Machine Man*, which centred on the role played by the eggs and the sperm and on whether both parents participated in the formation of the foetus; new theories of reproduction were throwing doubt on the preformationist theory, still defended by scientists such as Réaumur or, afterwards, Bonnet, who postulated that all animals had been created together and that future animals already existed completely in either the spermatozoid or the egg. Maupertuis' *Vénus physique* (*Physical Venus*, 1745) contained a comprehensive discussion of the different theories and most recent research on the question of reproduction; he developed a theory of reproduction based on attraction (to which La Mettrie also refers quite favourably in *Machine Man*), which explained

¹⁴ On this subject, see A. O. Lovejoy, *The Great Chain of Being* (Cambridge, Mass., 1936).

¹⁵ John Turberville Needham, *An Account of Some New Microscopical Discoveries* (London, 1745). It was translated into French in 1747.

the formation of the foetus by the coming together of different elements in the seminal fluids of both the mother and the father, and reduced the role of the spermatozoa. La Mettrie favours preformation, and he does not follow Maupertuis, but seems to adopt the view of those who believed that the sperm alone produced the individual and that the egg simply nourished it. This position was in fact stated with more force in *Machine Man*. He comes back to the question of reproduction, from a slightly different angle, in *The System of Epicurus*.

The System of Epicurus

The final version of *The System of Epicurus* is composed of ninety-four paragraphs of somewhat disorganised reflections, inspired by Lucretius's poem *De rerum natura*, on themes that La Mettrie had not always developed elsewhere. It is interesting to note that Diderot's *Letters on the Blind*, published in 1749, included developments taken from Lucretius which were very similar to some of those by La Mettrie. But two recently published works mentioned in the text can only have served as a stimulus to these reflections. The first three volumes of Buffon's *Natural History*, contained a discussion of the origin of animals and reproduction, and Benoît de Maillet's *Telliamed*, which had circulated in manuscript form before being published in 1748, developed the theory that all animal life had originally come from the sea. The original title of La Mettrie's work, 'reflections on the origin of animals' doubtless reflects this contemporary debate. This, together with the reference to Montesquieu's newly published *Spirit of the Laws*, also shows how he was reacting to recent developments in French intellectual circles.

After the author's initial protestations concerning our ignorance of nature, *The System of Epicurus* first of all develops the Lucretian theme that the existence of all things is due to the chance development of grains floating in the air (§v–xix) and, like Lamy and others, he refuses any form of teleology (§xx–xxvii). His insistence on the dependence of human reason on bodily organisation and the comparison with the faculties of animals (§xviii–xlvi) repeat the themes already developed in *Machine Man*, while he also refers to what he has already written in the *Treatise on the Soul* and *Man a Plant*, mixed with reflections concerning our ignorance of nature. La Mettrie then moves on to reflections on death and the need to expect it stoically (§xlix–lxxiv), followed by a reaction against this philosophy, with an affirmation of the joys of living, and essentially sensual pleasures. These remarks possibly constitute a partial reply to Maupertuis' *Essai de philosophie morale* (*Essay on Moral Philosophy*, 1749), discussed below. The work terminates with praise for Frederick II, at whose court he had found refuge (§lxxvi–xciv).

These Epicurean musings, which are often very personal and, ironically enough, refer to La Mettrie's own death, which was to follow soon afterwards, also concern the pleasures of life, in a similar vein to those found in his work entitled *L'Ecole de*