

Man—Machine

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[Brackets] enclose editorial explanations. Small ·dots· enclose material that has been added, but can be read as though it were part of the original text. Occasional •bullets, and also indenting of passages that are not quotations, are meant as aids to grasping the structure of a sentence or a thought. Every four-point ellipsis indicates the omission of a brief passage that seems to present more difficulty than it is worth. Longer omissions are reported between brackets in normal-sized type.—The most recent translation and edition of this work, by Ann Thomson (Cambridge UP 1996), gives much historical and bibliographical material that is needed for a serious scholarly study of the work. It also includes translations of other works by La Mettrie that have never before been translated into English. The original title is *L'Homme Machine*, an odd bit of French—two nouns side by side—which has to be translated into odd English. The usual choice has been *Man a machine*. Ann Thomson's edition uses *Machine Man*, which emits an unwanted whiff of Hollywood. (It was chosen not by her but by the editor of her series.)—The division into sections is added in this version; it is meant only as a rough guide to the places where new topics are started on.

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For a wise man, it is not enough to •study nature and the truth; he must be willing to •proclaim it for the benefit of the few who are willing and able to think. As for the rest—the willing slaves of prejudice—they can't reach the truth any more than frogs can fly.

A start on thinking about materialism

Philosophers' theories regarding the human soul? Basically there are just two of them: the first and older of the two is •materialism; the second is •spiritualism. [As you will see, this has *nothing* to do with the 'spiritualism' that traffics in communication with the dead etc.]

The metaphysicians who implied that matter might well have the power to think didn't disgrace themselves as thinkers. Why not? Because they had the advantage (for in this case it is one) of expressing themselves badly. To ask whether unaided matter can •think is like asking whether •unaided• matter can indicate the time. It's clear already that we aren't going to hit the rock on which Locke had the bad luck to come to grief •in his speculations about whether there could be thinking matter•.

The Leibnizians with their 'monads' have constructed an unintelligible hypothesis. Rather than materialising the soul •like the philosophers I have just mentioned•, they spiritualised matter. How can we define a being •like the so-called 'monad'• whose nature is absolutely unknown to us?

Descartes and all the Cartesians—among whom Malebranche's followers have long been included—went wrong in the same way, •namely by dogmatising about something of which they knew nothing•. They admitted two distinct substances in man, as if they had seen and counted them!

Divine revelation

The wisest have said that the soul can be known only by the light of faith; but as rational beings they claimed the right to examine what the Bible meant by the word 'spirit', which it uses when speaking of the human soul. And if in their research they disagree with the theologians on this point, are the theologians any more in agreement with each other on everything else?

Here, in a few words, is the result of all their reflections.

(1) If there is a God, he is the creator of nature as much as of revelation; he gave us the one to explain the other, and reason to reconcile them.

(2) To distrust what we can learn by studying living bodies is to see •nature and •revelation as hostile opposites, and consequently to come out with an absurdity—that God contradicts himself in his different works, and deceives us.

(3) If there is a revelation, it can't contradict nature. It's only through nature that we can discover what the Gospel's words mean: experience is the only guide to that. Previous commentators have only confused the truth. We'll see an example of that •when we look into the work of• the author of the *Spectacle of Nature*, •Abbé Pluche•, who writes this about Locke:

'It is surprising that a man who debases our soul to the point of thinking it to be made of clay ventures to set up reason as the judge and supreme arbiter of the mysteries of faith. What an astonishing idea of Christianity we would have if we tried to follow reason!'

These reflections, as well as throwing *no* light on anything to do with faith, are frivolous objections to the method of those who think they can interpret the holy books—so frivolous that I am almost ashamed of spending time refuting them.

What makes reason excellent is not its being *immaterial* (what a grand meaningless word *that* is!), but its force, its scope, or its acuteness. Contrast these two:

- A soul of clay which tackles countless ideas that are hard to grasp, and sees at a glance, so to speak, how they are related to one another and what they imply;
- A silly, stupid soul made of the most precious elements.

It is obvious which of these would be the better soul to have! Blushing at the miserable nature of our origins, as the ancient Roman naturalist Pliny did—that's not behaving like a philosopher. What seems to be base is here the most precious thing, on which nature seems to have expended the most art and effort. ['. . . is *here* the most precious thing'—what does La Mettrie mean by 'here'? Perhaps 'here on this planet', perhaps 'here in the case of man'.] But even if man had come from a lower-seeming source than mere clay, he would still be the most perfect of all beings; and if his soul is pure, noble and sublime, whatever it is made of, it is a splendid soul that entitles its owner to respect.

There is a touch of fanaticism about Pluche's system, but even on its own terms his second mode of reasoning seems to me to be flawed: if our idea of faith is contrary to the clearest principles and the most unquestionable truths, we should conclude that this idea is false and that we don't yet know the meaning of the Scriptures. We owe this to the honour of revelation and its author.

Here are two options. Choose one:

- Everything—both nature itself and revelation—is illusion.
- Faith can be justified by unaided experience.

Could anything be more ridiculous than our author? I

can imagine hearing an Aristotelian saying 'We mustn't believe Toricelli's experiment, because if we did accept it, abandoning nature's abhorrence of a vacuum, what a strange philosophy we would have! [Toricelli did some experiments with a set-up that is now recognised to be a barometer.]

I have shown how flawed Pluche's reasoning is¹ in order **(1)** to show that if there is a revelation, it isn't adequately established just by the Church's authority without being examined by reason, as all those who fear reason claim that it is; and **(2)** to shield from attack the method of those who would like to follow the path that I am clearing for them, interpreting supernatural things—which, taken on their own, are incomprehensible—by the lights that each of us has received from nature, i. e. interpreting them by the lights of experience and reason.

In this territory, then, experience and observation should be our only guides. There are countless relevant empirical data in the records of physicians who were philosophers [here = 'philosophers or scientists'], not in those of philosophers who were not physicians. Physicians have explored and thrown light on the labyrinth of man; they alone have revealed the springs hidden under coverings that hide so many marvels from our sight. [The word translated by 'spring' in this work is *ressort*, which refers only to the insides of wind-up machines, and has nothing to do with natural sources of water.] They alone, calmly surveying our soul, have many times caught it unawares—in its misery, without despising it, and in its grandeur, without admiring it. I repeat: these are the only scientists who have the right to speak on this subject. What could anyone else, especially the theologians, tell us? Isn't it ridiculous to hear them shamelessly holding forth on a subject they are in no position to understand? It's not just that (negatively)

¹ His mistake is obviously that he assumes the truth of his conclusion as one of his premises.

they don't understand it; they have (·positively·) been turned away from understanding it by obscure studies that have led them into countless prejudices—in short, *fanaticism*—which increases still further their ignorance of the mechanism of our bodies.

But although we have chosen the best guides, we'll still find many thorns and obstacles in our path.

Man is a machine—such a complex machine that it's initially impossible to get a clear idea of it or (therefore) to define it. That is why all the research that the greatest philosophers have conducted *a priori*—trying to use the wings of the mind, so to speak—have led nowhere. Our only way to discover the true nature of man is *a posteriori*, ·i.e. on the basis of empirical evidence·, trying isolate the soul, as it were disentangling it from the body's organs. ·When I speak of what we can 'discover', I don't mean ·discover with certainty but merely ·reach the highest possible level of probability.

Some empirical facts

Let us, then, ·forget about wings, and use our feet. Let us take up the staff of experience and turn our backs on the sad story of all the futile opinions of philosophers. To be blind and to believe one doesn't need this staff—that is the height of blindness! A modern author [in fact, La Mettrie himself] was right to say that the refusal to appeal to secondary causes as well as primary ones is sheer vanity! [God or an action of God's may be the ·primary cause of that tree's falling down; if he causes this by causing a wind that blows down the tree, then that wind is the ·secondary cause of the tree's falling.] We can, we *should*, admire all those geniuses—the Descarteses, the Malebranches, the Leibnizes, the Wolffs, etc.—in their utterly useless labours; but tell me: What did we *get* from their deep meditations and

all their works? So let us get started, looking not at what has been thought but at what we should think if we want an untroubled life.

To each different balance of •bodily fluids or 'humours' there corresponds a different mind, character and habits. Even Galen knew this truth, which Descartes pushed to the point of saying that medicine, unaided, could change minds and habits by changing the body. It is true that each man is different from each other man because of differences in their 'humours'—melancholy, bile, phlegm, blood, etc.; differences in what kinds they have, how much of each, and how they are combined.

When someone is ill, ·all sorts of things may happen to his soul:

- his soul drops out of sight, giving no sign that it exists;
- his soul is so agitated by the violence of the illness that it appears to be doubled;
- recovery from the illness cures imbecility: in the course of convalescence an idiot becomes a clever man;
- the illness makes a really fine mind stupid, so that he doesn't even know who he is—farewell all that splendid knowledge acquired at such cost and with such effort!

... Take the case of a soldier who doesn't realize that his arm has been amputated. His illusion—his type of delirium—is caused by his memory of earlier sensations and of the place in his body that his soul related them to. If we speak to him of the missing part, that will start him off: he'll remember it and feel all its movements; and that will create a peculiar indescribable sort of unpleasure in his imagination. [In the last line of the above indented passage, 'a really fine mind' translates *le plus beau Génie*—really meaning 'the finest genius'? No. Early modern French frequently used *génie* in a weaker sense than we have for it today;

and in that weaker sense it will be translated in this version by ‘intellect’ or ‘fine intellect’ or the like. When he applies it to ‘the Descarteses’ etc. a page back, La Mettrie surely means it in the strong sense, but ironically.]

[This paragraph refers to three ancient Romans who faced death by execution with notable courage and calmness.] Here’s a man who cries like a baby at the approach of death, and there’s one who jokes about it. What would have changed the bravery of Canus Julius, Seneca or Petronius into shivering cowardice? An obstruction in the pancreas or the liver, or a blockage in the portal vein. Why? Because when either of those happens the imagination is blocked along with the organs, and that’s what gives rise to all the varieties of hysteria and hypochondria.

There are people who think •they have been changed into werewolves, cocks or vampires, or •that they are being sucked by the dead: what could I say about them that hasn’t been said already? There are people who think that some part of them is made of glass and who have to be advised to sleep on straw (‘so that you won’t break!’), so that the straw can be set alight, causing them to be afraid of being burnt, which causes the supposedly glass limb to return to being a usable affair of flesh and bone. (This fear has sometimes cured paralysis.) But why would I spend time on them? I ought to skim through facts that everyone knows.

I shan’t spend more time, either, on details of the effects of sleep. Look at that exhausted soldier! He is snoring in his trench to the sound of a hundred cannons! His soul hears nothing, his sleep is complete unconsciousness. A bomb is going to crush him and he may feel the blow less than he would an insect under his foot.

Whereas over *there* there’s a man who can’t sleep because of his jealousy, hatred, greed or ambition. The quietest place, the most soothing cool drinks are all useless for those who haven’t freed their souls from the torment of the passions.

The soul and the body fall asleep together. As the blood’s movement is calmed, a sweet feeling of peace spreads through the whole machine. The soul feels itself gently

- becoming heavy along with the eyelids,
- relaxing along with the brain’s fibres, and thus gradually
- becoming paralysed, as it were, along with all the body’s muscles.

The muscles can’t support the weight of the head, while the soul can’t support the burden of thought. When it is asleep, the soul is as if it didn’t exist.

If the blood flows too fast, the soul can’t sleep; if the soul is too agitated, the blood cannot calm down—you can *hear* it rushing through the veins. These are reciprocal event-pairs, one with the causation running from body to soul, the other running the other way; and yet they are both causes of insomnia. A single scare in a dream makes the heart beat twice as hard, and deprives us of . . . the sweetness of sleep, just as would a sharp pain or a full bladder. Finally, as sleep comes from the mere closing down of the soul’s functions, little sleeps of the soul—day-dreams—. . . occur even when one is awake (or, strictly, half-awake). This shows that the soul doesn’t always wait for the body in order to go to sleep, for if it isn’t completely asleep in a day-dream it is awfully close! That can be seen in the fact that the soul can’t pick out a single object that it has paid any attention to; that is, can’t pick it out from the great mass of confused ideas that are like clouds filling the atmosphere of our brains.

Opium is so closely related to the sleep it brings that it earns a place in this discussion. This remedy inebriates, as do wine, coffee, etc., each in its own way, and according to the dose. The state it puts a man into is the •image of death, and would seem to be the •tomb of feeling, yet it makes the

man happy. What sweet lethargy! The soul would like to stay in it for ever. Having been vulnerable to the greatest miseries, the soul now feels only the pleasure of •suffering no more and of •enjoying the most charming tranquillity. Opium even affects the will: the soul wants to stay awake and enjoy itself, but the soul forces it, against its will, to go to bed. I shan't talk about the history of poisons.

Coffee is the antidote to wine: by lashing the imagination it dissipates our headaches and our sorrows without saving them up for the next morning, as wine does.

Let us think about the soul in its other needs.

Food

The human body is a machine that winds itself up, a living likeness of perpetual motion. The states that fevers •work up are •kept in a steady state by food. Without food, the soul loses strength, becomes frenzied, and dies worn out—like a candle whose light flares up just as it is going out. But if you feed the body, pouring into its pipes •vigorous sugars and strong liquors, then the soul—as full of energy as •they are—arms itself with proud courage, and the soldier who would have run away if given water becomes fierce and cheerfully runs towards death to the sound of drums. In the same way hot water stirs up the blood while cold water calms it.

How powerful a meal is! Joy revives in a sad heart; it enters the souls of the diners who express it in the charming songs that the French are so good at. [In an obscure further sentence, La Mettrie seems to be saying •that good food will have a bad rather than a good effect on a *Mélancolique*, this presumably being someone who is clinically depressed rather than merely having 'a sad heart'; and •that a studious person will have lost the ability to be cheered up by food.]

Raw meat makes animals ferocious; men would be too, if that was all they ate. This ferocity gives rise in the soul to pride, hatred, contempt for other nations, stubbornness, and other feelings that which degrade the character, just as coarse food makes for a heavy, thick mind that best likes laziness and inactivity.

[La Mettrie next quotes the English poet Alexander Pope, in French prose. This version will give the original.]

Pope well knew the power of greed, when he said:

Catius is ever moral, ever grave,
Thinks who endures a knave, is next a knave,
Save just at dinner—then prefers, no doubt,
A rogue with ven'son to a saint without.
(Alexander Pope, *Moral Essays*)

In Switzerland a certain bailiff. . . . was the most upright and even indulgent of judges when he was fasting, but heaven help any poor wretch in the dock when the bailiff had had a good dinner! He was as apt to hang the innocent as the guilty.

It's the way our machine is provisioned that makes us lively or brave, and in the same way it makes us think, and makes us honest. Sometimes one would say that the soul lives in our stomach. . . .

What excesses we are led to by cruel hunger! The person who is starving loses his respect for the bodies that gave him life and for the ones to whom he gave life [that is, a starving man will eat his children, or his parents, if there is nothing else to eat]; he tears them apart voraciously, making a horrible feast of them; and in this frenzy the weakest always fall prey to the strongest.

Other influences

Pregnancy. . . usually brings depraved tastes in its wake; but it goes further than that, and sometimes makes the soul carry out the most atrocious plots, the effects of a sudden mania that smothers even the law of nature. Thus the brain—that womb of the mind—undergoes its own kind of perversion along with the changes in the womb of the body. [La Mettrie opens this paragraph with an obscure comparison between •pregnancy and *pâles couleurs*, a plural name for a single infirmity, a •kind of anemia in young women. He associates 'depraved tastes' with 'both •these states'.]

What other kind of frenzy—male or female—occurs in those who are *hunted* by continence and good health! This shy, modest girl has lost all shame and modesty; worse, she now considers incest merely as a promiscuous woman considers adultery. If her needs aren't promptly met, her troubles won't be confined to mere episodes of womb trouble, mania, and so on; this poor woman will die of an affliction for which there are many doctors. [He means, evidently, that she will die of continence = virginity; it's obvious why there are 'many doctors' for that 'affliction'.]

If you can see at all, you can see the necessary influence of age on reason. The soul tracks along with the stages in the body's progress as it does also with the stages of education. In the fair sex, the soul also tracks sensitivity of temperament, which explains the tenderness, affection and strong feelings •that women have•, based on passion rather than on reason; and it also explains such things as •women's• prejudices and superstitions whose deep imprint can scarcely be erased. In men, on the other hand, **(1)** whose brains and nerves have the firmness of all solids, the mind is more muscular, as is the face. And their soul is strengthened

still further by **(2)** education, which women don't get. With such help from nature and art, how could men *not* be more grateful, generous, constant in friendship, firm in adversity etc. •than women are•? But anyone who combines grace of mind and body with nearly all the tenderest and most delicate feelings of the heart shouldn't envy *us* the twofold strength that men seem to have been given only so as to improve their performance in **(1)** being drawn by the attractions of beauty and **(2)** providing pleasures for women. In saying this I am pretty much following the thought of •Pernetti•, the author of *Letters on Physiognomy*.

You don't have to be as great a physiognomist as Pernetti to guess the quality of someone's mind from his face or strongly marked features, any more than you have to be a great physician to recognise an illness that is accompanied by its obvious symptoms. Examine the portraits of Locke, Steele, Boerhaave, Maupertuis and others: you won't be surprised to see that they have strong features and eagle eyes. Go through countless others, and you'll always be able to tell the merely handsome from the intellectually brilliant, and often you'll be able to tell the honest man from the rogue.

The air •that we feel and breathe• has great power. . . . It can happen that a whole people's minds are heavy and stupid, while the minds of another people are lively, light and penetrating; and this has to be caused in part by the food they eat, their fathers' seed² and the chaos of different elements floating around in the immensity of the air. The mind, like the body, has its epidemics and its scurvy.

The climate is so dominant that someone who changes climates is affected by that change, whether or not he wants to be. He's a wandering plant that has transplanted itself; if the climate changes then the plant declines or improves.

² The history of animals and men proves the influence of the father's seed on the minds and bodies of their children.

We copy everything from those we live with—gestures, accents, and so on—doing this as involuntarily as the eyelid blinks when it sees a blow coming, or as a spectator's body imitates mechanically, and despite himself, all the movements of a good mime.

Those remarks show that a thinking man who can't find anyone else like himself will be his own best company. If he keeps company with people who don't think, his mind will get rusty; in tennis, we return the ball badly when it is badly served. Rather than being with an intelligent man who has had a bad education, I would prefer one who has had no education, provided he is still young enough. A badly trained mind is like an actor who has been spoilt by provincial theatres.

Physical constitution

So the soul's various states are always correlated with the body's. But to make a better job of exhibiting this dependence and its causes, let us bring in comparative anatomy. Let us get into the *entrailles* [= 'innards'] of men and animals. How are we to know human nature if we aren't informed by an accurate comparison of the structures of men and animals?

In general, quadrupeds' brains are pretty much the same in form and composition as man's brain. Everywhere—same shape, same arrangement; with just this essential difference: relative to body-size, man has the biggest and most convoluted brain of all the animals. Next come the ape, beaver, elephant, dog, fox, cat, etc.; these are the animals that are most like man, for they can be compared among themselves on a scale having to do with the corpus callosum, which Lancisi said was the home of the soul, an opinion that the late M. de la Peyronie illustrated with a mass of experiments.

After all the quadrupeds, it's the birds that have the most brain. Fish have big heads, but they are empty of sense, like those of many men. They have no corpus callosum and very little brain. Insects have no brain at all.

If you read Willis's *The Brain* and *The Soul of Brutes*, you'll see that there's no end to the details of nature's variety or to the speculations one might offer about them; so I shan't go into either.

I shall simply draw a conclusion that obviously follows from these incontrovertible observations: **(1)** the more ferocious an animal is, the less brain it has; **(2)** the brain seems to grow in some way in proportion to its owner's ability to learn; **(3)** here we see that nature always does, and always will, ensure that what is gained on the side of intelligence is lost on the side of instinct. Which is greater, the loss or the gain?

I am not claiming that the volume of an animal's brain tells us, unaided, how good the animal is at learning. For an animal to be high on that scale, the quality of its brain must correspond to its quantity, i.e. its size; there must be a healthy balance between the solids and the fluids.

A congenital idiot does have a brain (he is often said not to), but it tends to have a bad consistency—for example, being too soft. It is the same for lunatics: we can sometimes examine the defects of their brains. But if the causes of idiocy, madness, etc. are not easy to see, how can we hope to find the causes of the difference between one sound human mind and another? . . .

In addition to the softness of the brain marrow in children, puppies and birds, Willis remarks that the corpora striata are discoloured and hard to see in all these animals, and that their streaks are as imperfectly formed as in paralytics. He adds (and he's right) that man has a very large pons varolii, and that this part of the brain is steadily smaller as we move

to the ape and then on through the other animals that I listed; whereas the calf, ox, wolf, sheep, pig, etc.—in which the *pons variolii* is very small—have very big nates and testes. [These two words are Latin for ‘buttocks’ and ‘testicles’ respectively; but for some reason they were adopted in the 17th and 18th centuries to name parts of the brain.]

What are we to make of these and many other observations concerning the—let’s call it—*inconstancy* of vessels and nerves, etc.? It’s all very well to be cautious and sparing in drawing conclusions, but there’s one thing we *can* say about all this, namely that all this variety can’t merely show nature playing meaningless games with us. They show at least the need for a good and rich organisation, because throughout the animal kingdom the soul becomes firmer along with the body, and acquires wisdom in proportion as the body gains strength.

The ability to learn

Think about the differences in animals’ ability to learn. Sound analogical thinking leads the mind to believe that the causes I have mentioned are the source of all the differences between the other animals and ourselves; though we must admit that our feeble understanding, being restricted to the crudest observations, can’t see the ties linking the cause to its effects. The cause-effect tie is a sort of *harmony* that philosophers and scientists won’t ever understand.

- Some animals learn to talk and sing; they remember tunes and *get* all the notes as exactly as any musician.
- Others (such as the ape) display more intelligence and yet can’t manage this. Why is this, if it’s not because of a defect in the speech organs?

But is this defect built into the animal so that it can’t

be remedied? In short, would it be absolutely impossible to teach a language to such an animal? I don’t think so.

My best candidate for this would be the great ape [= the Orang-outang], unless we happened to discover some other species that is even more like ours, as we well might in some region that hasn’t yet been explored. The great ape is so like us that naturalists have called it the ‘wild man’ or the ‘man of the woods’. I would select one that •was neither too young nor too old (most of the ones brought to Europe are too old), and that had the cleverest physiognomy and confirmed this promise in a thousand little tests. Finally, as I am not up to the job of being its tutor, I would send it to the excellent Amman’s school or to the school of some other equally skilful teacher, if there is one. [J. K. Amman, a Swiss physician and author of *Surdus loquens* = ‘The talking deaf man’, developed a system for teaching congenitally deaf people to speak.] My criteria for selecting my great ape pupil, incidentally, are the ones Amman uses in selecting children for his school.

You know, from Amman’s book and from all those who have presented his method,³ all the wonderful results he has achieved with children born deaf, in whose eyes he has discovered ears (that is how he puts it), and how quickly he has taught them to hear, speak, read and write. I think that a deaf person’s eyes see better and more alertly than the eyes of someone who isn’t deaf, because the loss of one limb or one sense can increase the strength or the sharpness of another. But the ape sees and hears, it understands what it hears and sees. It grasps so perfectly the signs that are made to it that I’m sure it would do better than Amman’s pupils at any game or exercise that didn’t involve language. Why then should the education of apes be impossible? Why couldn’t a hard-working ape reproduce for itself the sounds needed for

³ The author of *The Natural History of the Soul* etc. [this author was La Mettrie himself].

pronunciation, achieving this—as the deaf do—by imitation? Well, it might be that the ape’s speech organs can never articulate anything, whatever we do in the way of teaching; I don’t venture to pronounce on that question. But I’d be surprised if it were right, given the close analogy between ape and man, and the fact we have never found any other animal that is so strikingly like man, inside and outside, as the great ape is. Locke was never suspected of credulity, and he saw no obstacle to believing Sir William Temple’s account of a parrot that . . . had learned, as we do, to conduct a sort of coherent conversation. I know that some have made fun of this great metaphysician,⁴ but if someone had announced to the world that some animals can reproduce without eggs and without females, would he have found many supporters? Yet Trembley has discovered such animals, which reproduce by simple division, without mating. [These were polyps, of which we shall hear more in item 10 on page 23.] And wouldn’t Amman have been regarded as mad if he had boasted, in advance of having any results, that he could teach pupils like his, and in such a short time? Yet his success has astonished everyone, and like Trembley he has shot up into immortality. I rank someone who owes the miracles he performs to his own intellect above one who owes his miracles to chance. Anyone who discovers how to make things even better in the finest of kingdoms, providing perfections it didn’t have, should be valued more than an unemployed maker of futile systems or a hard-working author of sterile discoveries! Amman’s discoveries have a different order of value; he has saved men from the mere *instinct* to which they seemed condemned; he has given them ideas, a mind—a *soul*—that they would otherwise never have had. How much greater this power is! . . .

The mechanism that opens the Eustachian tube in the deaf—couldn’t it also unblock it in apes? An amiable wish to imitate the master’s pronunciation—couldn’t that free the organs of speech in animals that can imitate so many other signs with such skill and intelligence? I defy anyone to point to a single truly conclusive experiment showing that my plan is impossible and absurd; and I go further—I am virtually certain, given the ape’s similarity to us in structure and operations, that if we went about it in the right way we could teach this animal to utter sounds and consequently to learn a language. Then it would no longer be a ‘wild man’ or an imperfect man, but a perfect man, a small ‘man of the town’ as against ‘man of the woods’, with as much material—as much *muscle*—for thinking and profiting from its education as we have.

There’s no sharp line between animals and man; true philosophers would agree about that. What *was* man before he invented words and learned languages? Back then a member of the human species, with much less natural instinct than members of other species (he didn’t yet think he was their king!), was distinguishable from apes and other animals only by having a facial structure that indicated greater discernment (which is what now marks off apes from other animals). Reduced to raw sensory knowledge. . . . he saw only shapes and colours, without being able to distinguish any of them. A perpetual child (whatever his age), he stuttered out his sensations and his needs, like a hungry dog wanting to eat or a restless one wanting to be taken for a walk.

⁴ For example, the author of *The Natural History of the Soul*.

Language

Words, languages, laws, science and arts came, and through them the rough diamond of our minds was at last polished. Man was drilled like an animal; he was trained into being an author in the same way as a dog, for instance is trained to carry a pack. A mathematician learned how to conduct the most difficult proofs and calculations, as a monkey learns to don and doff his little hat or ride his trained dog. Everything was done by signs; each species understood what it *could* understand; and that is how man acquired what our German philosophers call *symbolic knowledge*.

You see, nothing is simpler than the mechanism of our education! It all comes down to sounds, to words, which go from x's mouth through y's ears to y's brain, which receives at the same time through y's eyes the shape of the bodies that x's words are the arbitrary signs of.

But who spoke first? Who was the first tutor of the human race? Who devised the means to make the best use of our constitutional capacity for learning? I don't know; the names of those first geniuses—bless them!—are lost in the mists of time. But art is the child of nature, and nature must have long preceded it. [In this context, 'art' refers to anything that involves inventiveness, techniques, rules, skill; so linguistic competence is an 'art'.]

We must suppose that the men who were best constituted, those on whom nature has lavished its benefits, will have taught the others. They couldn't have heard a new sound, experienced new feelings, or been struck by all the enchanting beauties of nature, without finding themselves in the same position as the famous deaf man from Chartres. . . .who at the age of 40 heard for the first time the astonishing sound of bells. [What 'same position'? Presumably: having something amazing to report, and no means to report it. The account of the deaf man

came from the playwright and man of ideas Bernard le Bovier Fontenelle, who reported that the deaf man began to speak only a few weeks after suddenly becoming able to hear.]

It isn't absurd to believe that those first intellectually well-equipped mortals tried—like that deaf man or like animals and dumb people (who are another sort of animals)—to express their new feelings and experiences by movements provided by their imagination, leading in due course to spontaneous sounds—different sounds for each animal—this being a *natural* expression of their surprise, joy, emotions or needs. For doubtless those whom nature endowed with more refined feelings were also given greater facility to express them.

That is how I see men as having used their feelings or their instinct to acquire intelligence [*esprit*, often merely meaning 'mind'], and used their intelligence to acquire knowledge. Those are the means, as far as I can grasp them, by which they filled their brain with the ideas that nature had built them to receive. They helped one another in this task; and from small beginnings their abilities gradually increased until they could pick out any object in the world as easily as they could a circle.

Just as a violin string. . . vibrates and makes a sound, so also the strings of the brain, struck by sound-waves, were stimulated to give out or repeat the words that reached them. [In that first clause, La Mettrie probably set out to say: 'Just as a violin string, when a certain sound reaches it, vibrates and makes that same sound on its own accord. . . .'] But the brain is constructed in such a way that as soon as the optically competent eyes have received pictures of certain objects, the brain **can't help** seeing what they are like and how they differ from one another. Now, carrying this general account of the brain back into the very early days of language and knowledge, when the signs for these differences were marked or engraved

on the brain, the soul **had to** examine the relationships between them; and this examination wouldn't have been possible without the discovery of signs or the invention of languages. [The next clause speaks of a time when the world was 'silent' = it didn't 'speak to' human beings = they didn't know what to make of it.] At the time when the world was almost silent, the soul confronted all those objects in the manner of a man who has no idea of proportions looking at a picture or a sculpture, with no ability to pick out parts of it and see their significance within the whole. Or in the manner of a little child (back then the soul *was* in its childhood) holding in its hand some bits of straw or wood, having a vague and superficial intake of them as a bunch but not being able to count or differentiate them. But if we take two indistinguishable pieces of wood and attach to one a tag bearing the numeral '1' and to the other a tag with the numeral '2', then the child will be able to count them, and this will set him on the way to learning the whole of arithmetic. As soon as one external spatial item seems to him to be equal to another by its numerical sign—i.e. equal in the sense that each of them is *one* item—he'll easily conclude these are two different bodies, and that 1 and 1 make 2, that 2 and 2 make 4, and so on.⁵

This real or apparent similarity of external spatial items is the ultimate basis for all truths and all our knowledge. (I say '... or apparent' not because •I think that our senses always deceive us, as Malebranche said they do, or because •I think that our eyes, naturally slightly inebriated, don't see objects as they really are (though microscopes daily prove that they don't), but because •I don't want to get into any argument with the Pyrrhonians [= 'extreme sceptics'], most notably Bayle.) The truths whose signs are less simple

and less perceptible are harder to learn than other truths, because it takes a higher level of intellect to grasp and combine the vast quantity of words that the sciences in question use to express their truths; whereas sciences that present themselves through figures or other small signs are easy to learn; and no doubt it's this ease that led to the success of algebraic calculations, more even than their evidentness.

So all the windy learning that inflates the brain-balloons of our haughty pedants is merely an enormous mass of words and figures, which create in the head all the traces by means of which we recall objects and distinguish them from one another. . . . These words are so closely linked in the brain to the figures they represent that we very seldom imagine an object without •imagining•the name or sign that is attached to it.

Imagination

I keep using the word 'imagine' because I believe •that everything is imagined and •that all the parts of the soul ultimately come down to imagination, which creates them all, and thus •that judgment, reason and memory are parts of the soul that are in no way absolute but. . . [The next part of this sentence is so condensed that it is hard to translate in a way that makes its point clear. It says that these 'parts' of the soul are in no way marked off as absolutely distinct from the rest. They are merely *regions* of the soul that are differentiated from •their surroundings only by being qualitatively different from •them. The region that contains them all, our author continues,] is that sort of medullary screen on which the objects depicted in the eye are projected as in a magic lantern. But if *that* is the wonderful and

⁵ There are still people today whose stock of signs isn't big enough to let them count higher than 20.

incomprehensible result of how the brain is organised, if everything is conceived by the imagination, if everything is explained by it, then why divide up

how La Mettrie finished this sentence: *le principe sensitif qui pense dans l'homme?*

routinely translated: the sensitive principle that thinks in man?

actually meaning: the ·whatever-it-is that is· the source of feeling and thought in man?

[The French *principe*, like the English 'principle' at that time, had two meanings: (i) as standing for a kind of proposition, (ii) as meaning something like 'source' or 'cause' . The remaining seven occurrences of *principe* with this meaning—all of them on pages 22–28—will be translated here by 'principle_c', with the subscript suggesting 'cause'.]

Isn't this a plain contradiction by the supporters of the mind's *simple* nature? When we divide something we can't regard it as indivisible! See where we're led by the misuse of language and the haphazard use of grand words like 'spirituality' and 'immateriality' etc. which *no-one* understands.

Nothing is simpler than to prove a system that is founded, like this one ·of mine·, on each individual's private feelings and experience. If the imagination—a . . . part of the brain about whose nature we know as little as we do about its workings—is naturally small or weak, then it will scarcely have the strength to note similarities amongst its ideas; it will be able to see only what is in front of it or what affects it most vividly, and it won't make a good job of seeing even that! But it's true all the same that

- only the imagination perceives; that
- it makes representations of all objects, along with the words and figures that characterise them; and thus that thus—I'll say it again—
- the imagination is the soul, because it plays all its

roles.

It is through imagination—through its flattering •brush—that the cold skeleton of reason is covered in living rosy flesh. It's through imagination that the sciences flourish, the arts create beauty, forests speak, echoes sigh, rocks weep, marble breathes and all inanimate objects come to life. It is imagination that adds to the tenderness of a loving heart the stimulating attraction of sexual pleasure. Imagination makes pleasure take root in the study of the philosopher or the dusty pedant, and it makes scientists as well as orators and poets. Some people stupidly criticise it, while others emptily treat it as *special*; neither knows much about it. Imagination doesn't only follow in the train of the Graces and the fine arts; as well as •painting nature it also measures it. [Or ' . . . measures her'. French doesn't distinguish these; but this version will treat nature as feminine only in places where La Mettrie seems to be thinking of it in personal terms.] It reasons, judges, compares and deepens. ·And there are close connections between imagination's two sides·. Could it have such a good sense of the beauty of the pictures that are drawn for it without understanding their relationships? [He means: ' . . . without understanding the relationships amongst their parts'.] No.

The rest of this paragraph: *Comme elle ne peut se replier sur les plaisirs des sens sans en goûter toute la perfection ou la volupté, elle ne peut réfléchir sur ce qu'elle a mécaniquement conçu, sans être alors le jugement même.*

Literal translation of that: Just as it can't fall back on the pleasures of the senses without appreciating all their perfection, all their sensuality, so also it can't reflect on what it has conceived mechanically without then becoming ·the faculty of· judgment itself.

Meaning: ?

The more the imagination or the feeblest intellect is exercised, the more well-padded (so to speak) it becomes, the more it grows, becomes vigorous, robust, wide-ranging, and able to think. Even the best constitution needs exercise.

Humanity's assets

[In this context, the verb *estimer* will be translated as '(give moral) respect (to)' or 'admire'. In each case the choice is stylistic, not theoretical.] Man's first asset is his physical constitution. All moral theorists refuse to give moral respect to •qualities that are given by nature; they give it only to •talents acquired by reflection and hard work. This is just wrong. Where do cleverness, knowledge, and virtue come from, if not from a disposition—a physical constitution—that makes us apt to become clever, learned and virtuous? And where does that disposition come from if not from nature? All our admirable qualities come from nature; to her we owe all that we are. So why wouldn't I admire •people who have •excellent• natural qualities as much as •those who shine because of their acquired (as it were *borrowed*) virtues? All merit deserves respect, wherever it comes from; we only need to know how to measure it. There is value in

wit, beauty, wealth, and nobility,

although they are children of chance, just as there is in

dexterity, knowledge, virtue, etc.,

•which are not products of chance, i.e. are not *directly* given by nature. Those who have been showered with nature's most precious gifts should feel sorry for those who haven't; but they can be aware of their advantages without being vain about them, . . .

how La Mettrie ends that sentence: . . . *en connaisseurs*.

meaning: . . . as connoisseurs.

what he is getting at: . . . doing this in the spirit of someone who is interested in how nature's advantages are distributed—perhaps an expert on this topic—not favouring some distributions over others. (Compare: •an expert wine-critic versus •a spokesman for one particular vineyard.)

A beautiful woman who thinks she is ugly would be as ridiculous as a clever man who thinks he is stupid. Exaggerated modesty (a rare defect indeed!) is a sort of ingratitude towards nature. Honest pride on the other hand is the mark of a fine, great soul, indicated by manly traits moulded by feeling.

If organisation is the first asset, and the source of all the others, then instruction is the second. Without it, the best constructed brain would be wasted, just as the most handsome man would be merely a crude peasant if he didn't know how to behave in society. But •also, conversely, education is useless if spent on someone who is constitutionally incapable of **profiting from it**. . . . [La Mettrie's two-sentence expansion of this point includes an apparently irrelevant mention of 'the senses', a pun on *matrice* that can't be reproduced in English, a gynaecological analogue that doesn't fit very well, and a gynaecological anecdote that adds nothing.]

But a brain that is both well organised and well educated is a fertile and perfectly seeded plot of ground that produces a hundred times what it has received. (This figurative style of writing often lets the writer •express better what is felt and •add grace to truth itself; •but I now switch to something more literal.) When an imagination is raised by art—i.e. by human intervention in the form of education—to the splendid, rare dignity of being *intellectually first-rate*, it seizes exactly all the relations of ideas it has conceived, and easily takes in an amazing crowd of items so as eventually to deduce from them a long chain of consequences. These consequences are merely new relationships, born from a

comparison with the first ones, with which the soul finds a perfect similarity. In my view, that is how *the mind* is born. . . .

I say about truth in general what Fontenelle said about some truths in particular, namely that it must be sacrificed to social convenience. My mildness of character makes me avoid all disputes except in cases where a dispute would make the conversation sharper and livelier. Cartesians would be wasting their time charging in with their ‘innate ideas’: I wouldn’t put in a quarter of the effort that Locke did in refuting such fantasies. What’s the point of writing a big book establishing a doctrine—namely that there are no innate ideas—that was set up as an axiom three thousand years ago?

Following the principles we have presented and think to be true, the person with the most •imagination should be regarded as the one with the most •mind [*esprit*] or the most •intellect [*génie*], for these three expressions are synonymous; and when we utter different words or different sounds with no real idea or distinction attached to them, it is—I’ll say it again—an embarrassing blunder if we think we are saying different things .

So the finest, greatest or strongest imagination is the most suitable for both the sciences and the arts. I am not pronouncing on •whether it takes more intelligence to excel in the art of Aristotle and Descartes and their like than in that of Euripides and Sophocles and their like; or on •whether nature ‘spent’ more on producing Newton than on creating Corneille (though I strongly doubt that it did!). But it is certain that what gave these men their different triumphs and their immortal glory was their different uses of their imaginations.

When someone is said to have ‘little judgment but much imagination’, this means that his imagination, left too much

to its own devices and almost constantly engaged in looking at itself in the mirror of its own sensations, •hasn’t acquired a strong habit of examining closely those sensations themselves, and •is more deeply interested in things’ traces or images than in the truth of them, what they are •really• like.

Attention

It is true that the imagination’s springs [see note on page 2] are so lively that it can only glimpse or skim over the surfaces of objects unless it gets help from *attention*, the key to the sciences—the *mother* of the sciences!

Look at that bird on the branch—always seeming ready to take flight. The imagination is like that, always swept along by the swirl of the blood and the spirits: a trace left by one wave is washed away by the next. The soul chases after them, often in vain. It can count on missing the ones that it wasn’t quick enough to seize and pin down. Thus the imagination is constantly destroyed and renewed, just like *time*, of which it is an image.

Our ideas come into our minds in a fast-moving jumble, pushing one another along. If the imagination is to deserve its fine label ‘faculty of judgment’, it has to (so to speak)

use some of its muscles to stand upright on the brain’s •tight•ropes, staying for a while above a fleeing object •so as to contemplate it before it disappears•, and preventing itself from falling •off the rope• onto another object whose time for contemplation hasn’t yet come. If it doesn’t do that, it will express vividly what it has felt vividly; it will make orators, musicians, painters, poets—and not a single philosopher! On the other hand, if from childhood the imagination has been accustomed to

- disciplining itself,
- not being swept along by its own rush,

- stopping its ideas and pinning them down, and
- looking at them from every angle so as to see all sides of them,

then the imagination will be poised to judge. Its reasoning will enable it to take in the greatest range of objects; and its liveliness—which is always so promising in children, and only needs to be disciplined by study and exercise—to be of great value to the adult—will become simply the sharp and insightful vision without which scientific progress can't be made.

These are the simple foundations on which the structure of logic has been built. Nature laid them for all the human race, but only some have profited from them, while others have misused them.

Man and the other animals

Despite all the ways in which man is superior to the other animals, putting him in the same class as them is doing him a great honour. The fact is that up to a certain age he is *more* of an animal than they are, because he is born with less instinct.

Which animal would die of hunger in the middle of a river of milk? Man alone! . . . If he is armed only with what he is born with, he doesn't know that some food is good for him, that water can drown him, or that fire can turn him into ashes. Shine candlelight in a child's eyes for the first time and he will automatically stretch out his fingers to it, as though wanting to hold it in his hand, and examine it; he'll pay a price for learning how dangerous it is, but he won't need to learn it twice.

Or put him with an animal on the edge of a cliff; only he will fall. He will drown while the other will swim to safety. At the age of fourteen or fifteen he hardly glimpses the great

pleasures that await him in the reproduction of his species; an adolescent already, but he knows little about how to play the game that nature teaches animals so quickly; he hides, as though it were shameful to feel pleasure and to be made for pleasure, while animals glory in being *Cynics* [i.e. followers of the philosopher Diogenes, who claimed to return to his natural state and to reject social rules and conventions]. Having no education, they have no prejudices. But, again, look at that dog and that child who have both lost their master on the highway: the child is crying and doesn't know which way to turn, whereas the dog will soon find its master, having been helped more by its sense of smell than the child was by his reason.

So nature made us to be beneath the animals, or at least to exhibit vividly the great achievements of education, which is the only thing that can remove us from that level and eventually place us above the animals. But shall we extend that same distinction to

- the deaf,
- those born blind,
- idiots,
- lunatics,
- wild men, i.e. ones who have grown up in the forests with animals,
- those whose imaginations have been wiped out by hypochondria, or
- the brutes in human form who display only the crudest instincts?

No! These men-in-body who are not men-in-mind don't deserve to be put in a special class of their own. [It seems, then, that the 'same distinction' that is in question here is not that of being-above-the-other-animals but merely belonging-to-a-single-legitimate-class.]

I don't mean to ignore the objections that can be made,

against my opinion, in support of a basic distinction between man and animals. Some say that there's a law of nature in man, a knowledge of good and evil, that hasn't been engraved on the hearts of animals.

A philosopher is entitled to reject any opinion that isn't based on experience—does *this* objection (this ·mere· *assertion*) have any such basis? Have we experienced anything to convince us that some ray of light has fallen on man and been denied to all other animals? If not, then we can't know empirically what happens inside animals or even what happens inside ·other· men, any more than we can *not* feel what happens inside ourselves. We know that we think and that we feel remorse, as an inner feeling forces us to admit only too well; but this feeling of ·ours doesn't enable us to judge remorse in ·others. So our beliefs about remorse in other men have to be based on what they say or on external signs, i.e. on their behaving in the way we do when we feel the pangs of conscience.

How could we know that speechless animals have been given the natural law? It would have to be on the basis of the 'external signs' that I have just mentioned, if there are any. The facts seem to show that they do. A dog that bites its master. . . .seems to repent the very next moment; it looks sad, upset, not daring to show itself, and admitting its guilt by its humble cringing. History gives us the famous example of a lion that wouldn't savage a man who had been thrown to it, because it recognised him as his benefactor. If only *men* would always show the same gratitude for kindness and the same respect for humanity! Then we wouldn't have to fear being met with ingratitude, or to fear these wars that are the scourge of the human race and the real hangmen of the law of nature. [A fairly widespread and lengthy war was going on in Europe while La Mettrie was writing this work—hence his reference to 'these wars'. He was sometimes involved in them as a military doctor.]

But a being

- to whom nature has given such a precocious, enlightened instinct,
- who judges, synthesizes, reasons and deliberates as far as the sphere of its activity extends and allows,
- who recognizes benefits received and who reacts to ill-treatment by pulling away and trying to find a better master,
- whose structure is like ours,
- who acts as we do, and
- who feels the same passions, pains and pleasures (more or less vividly, depending on the power of its imagination and the delicacy of its nerves)

—doesn't such a being show clearly that it has a sense of *wrongdoing* both in itself and in us, that it knows the difference between good and evil, and (in short) that it is ·morally· aware of what it is doing? Its soul displays the same joys, the same humiliations, the same setbacks as we do—would such a soul be able to look calmly and comfortably at the sight of a fellow creature being torn to pieces. . . .? The animals give us obvious signs of repentance and of intelligence, so why is it absurd to think that beings—machines almost as well-made as we are—were made like us to think, and to have a sense of ·the demands of· nature?

You may say: 'Animals are mostly ferocious beings that can't have any sense of the harm they do.' Well, are all *men* better able than the animals to distinguish vice from virtue? There's ferocity in our species as in theirs. Barbarous men who *habitually* infringe the law of nature are not as upset by what they have done as are those who break the law of nature for the first time and who haven't been hardened by bad examples. Animals and men are alike in this: they can be temperamentally more or less ferocious, and they become even more so when they are in fierce company. But

a gentle, peaceful animal living on bland food in the company of others like it will be opposed to blood and massacres; it will be ashamed of having spilled blood. There is perhaps this difference between them and us: for the animals everything is sacrificed to needs, pleasures and comfort, which they enjoy more than we do; and their remorse apparently doesn't have to be as strong as ours because our needs are not as strong as theirs. Habit blunts [*émousse*] and perhaps even stifles [*étouffe*] remorse, as it does pleasure.

If I am right about this, then almost everyone else in the world is wrong, and you may think that that isn't *fair*! Well, then, suppose for a moment that I am wrong. **(1)** Suppose that •even the most excellent animals don't know the difference between moral right and wrong; that •they have no recollection of kindnesses that have been done to them and no awareness of their own virtues; that •that famous lion I mentioned doesn't remember having refused to kill the man who was inhumanly and brutally thrown to it in the arena. •Now set that supposition alongside some plain facts. **(2)** Men from the same country, . . . from the same family even, identify one another as enemies, fight against one another, chain each other up, or kill each other, and they have no remorse because a prince is paying for these murders. What is the result of putting **(2)** these facts together with **(1)** the supposition that the law of nature was not given to animals? Man isn't moulded from a more precious clay; nature has used only one •kind of• dough, merely varying the yeast. So if animals are totally deprived of the inner feeling I have spoken about (the feeling that could lead to their repenting their conduct), then man *must* be in the same situation—in which case farewell to the law of nature and to all the fine books about it! The whole animal kingdom would be deprived of it. But we can run the argument the other way: If man can't avoid admitting that. . . •he can

always distinguish people who are honest, humane, and virtuous from ones who are none of those, and that •it is easy to distinguish vice from virtue by the special kinds of pleasure and revulsion that are their natural effects, then it follows that animals—being made from the same materials, with perhaps only a higher level of fermentation needed to make them the complete equals of men—must share in all the privileges of animal nature; and that thus there is no soul or feeling substance that doesn't have remorse. These reflections are strengthened by the following one.

Innocent criminals

The law of nature cannot be destroyed; its imprint in all animals is so strong that I'm quite sure that even the most savage and fierce of them have moments of repentance. I believe that if the wild girl from Châlons in Champagne really did eat her sister, she will have suffered for her crime. The same is true I think, of everyone who commits a crime, even if it was involuntary, i.e. was dictated by the person's temperament •in such a way that he couldn't help acting as he did•. For example:

- Gaston d'Orléans, who couldn't help stealing;
- a woman who was afflicted by the same vice during pregnancy and passed it on to her children;
- a woman who in her pregnancy ate her husband;
- another woman who cut her children's throats, salted their bodies and ate a piece every day as a snack;
- a daughter of a cannibal highwayman who became one herself at the age of twelve, although she had lost both parents at the age of one and had been brought up by respectable people;

not to mention the many other examples that fill the pages of reporters on the social scene and that all show that hundreds

of hereditary vices and virtues are passed on to children from their parents, just as the vices and virtues a wet-nurse are passed on to the children she suckles. So I concede that these unlucky folk mostly don't realise how bad their crimes are while they are performing them. For example, bulimia—so-called canine hunger—can extinguish all feelings; it's a madness of the stomach that one is forced to satisfy. But when those women recover their senses and are sobered up (so to speak), what remorse they feel when they remember murdering what they held dearest! What punishment for an involuntary evil that they couldn't resist and weren't aware of! But that is apparently not enough for the judges. Of the women I have mentioned, two were sentenced to execution by brutal methods [and he gives details]. I am aware of what the interests of society require. But I'm sure it would be better if all judges were first-rate physicians, because only physicians could tell the innocent criminal from the guilty one. How can reason govern a depraved or frenzied sense if it is that sense's slave?

But •if crime brings its own more or less cruel punishment, •if the longest habit of barbaric behaviour can't completely erase repentance from the most callous of hearts; •if they are torn apart by the mere memory of what they have done—why terrify weak people's minds with images of hell, demons, and walls of fire that are even less real than Pascal's?⁶ As an honest Pope once asked, why do we need to resort to fables in order to torment the miserable beings whom we put to death because we don't think they are punished enough by their first torturers, i.e. their own consciences? I don't mean that it is never just to punish

a criminal; I claim only that those in whom temporarily the will is corrupt and the conscience silenced are punished enough by remorse when they recover their senses. I would even go this far: nature should have spared those unlucky creatures—the ones who are driven on by irresistible necessity—from the punishments of remorse.

The criminal, the wicked, the ungrateful and those who are impervious to nature—miserable tyrants who don't deserve to live—may get cruel pleasure from their barbarity, but it won't do them much good, because they will have calm moments of reflection when their avenging conscience speaks up, testifying against them and condemning them to be almost incessantly *shredded* by their own hands. Anyone who torments men is tormented by himself; and the evils he suffers will be a gauge of how much evil he has caused.

On the other hand, there is so much pleasure in doing good, in feeling and appreciating the kindness we receive, so much satisfaction in practising virtue, in being good-natured, humane, tender, charitable, compassionate and generous (this word alone includes all the virtues), that I hold that anyone who is unlucky enough not to have been born virtuous is sufficiently punished just by that fact.

The law of nature

We weren't originally made to be learned, and our having become learned may result from a misuse of our organic faculties; and we'll have done this at the expense of the State, which maintains a crowd of idlers whom vanity has decked out with the label 'Philosophers'. •Nature created us all solely

⁶ In a group of people or at meals he always needed a rampart of chairs or a person near him on his left to block his sight of the terrifying depths that he was sometimes afraid of falling into—though he knew this was a delusion. What a terrifying effect of the imagination, or of a pathological circulation in one of the brain's lobes! A great man on one side, he was half mad on the other. •In Pascal•, madness and wisdom each had its department, its lobe. . . .

to be happy—yes, *all*, from the earthworm to the eagle up in the clouds. That's why •she gave all animals a portion of the law of nature; how refined a portion any given animal gets depends on what its organs, in their healthy state, can cope with.

How, these days, are we to define the law of nature? It is a *sentiment* [a French word that can mean 'feeling' or 'belief or opinion'] that teaches us what we ought not to do, steering by what we wouldn't like to have done to us. Dare I add to this generally accepted idea that in my opinion this *sentiment* [now he comes out with it: *feeling*] is only a kind of fear, a scare, that is as good for the species as it is for the individual? For perhaps we respect the purses and lives of others only so as to protect our own goods, our honour and ourselves, like the Christians. . . .who love God and embrace so many illusory virtues only because they are afraid of Hell.

You can see that the **law of nature** is only an inner feeling that belongs to the imagination, along with all the other things I have assigned to the imagination, including thought. So, obviously, it doesn't presuppose education, revelation or a legislator. You'll think otherwise only if you wish to confuse it with **civil laws** in the absurd way that theologians do.

The weapons of fanaticism may destroy those who uphold these truths, but they'll never destroy these truths themselves.

The existence of God

I am not questioning the existence of a supreme Being; on the contrary, it seems to me extremely probable that there is such a Being. But that doesn't prove that some one cult must be right, as against all the others; it is a theoretical truth that serves very little practical purpose. So that, just

as plenty of experience lets us say that religion doesn't imply perfect honesty, that same experience entitles us to think that atheism doesn't preclude it!

Who knows after all whether the reason for man's existence doesn't lie in his existence itself? Perhaps he was thrown by chance on a point of the earth's surface without knowing how or why, but knowing simply that he has to live and die, like mushrooms that appear overnight or flowers that grow beside ditches and cover walls.

Let's not get bogged down in attempts to think about infinity; we aren't built to have the slightest idea of it; and we're absolutely incapable of tracing things back to their origin. And it makes no difference to our peace of mind whether matter is eternal or was created, whether there is or isn't a God. It is stupid to torture ourselves about things that we can't know and that wouldn't make us any happier if we did manage to know them.

I am told to read the works of the defenders of Christianity [and he names some]; but what will *they* teach me? Or rather, what *have* they taught me? There's nothing to them but boring repetitions by zealous writers who add to each other only verbiage that is more apt to strengthen than undermine the foundations of atheism. The arguments that people base on the spectacle of nature aren't made any stronger by their sheer quantity: Either •the structure of one finger, one ear, one eye or one of the observations of Malpighi [a pioneer of microscopy] proves everything—proving it better than Descartes and Malebranche do—or •none of this stuff proves anything. It ought to be enough for deists, and even for Christians, to point out that throughout the animal kingdom a single purpose is achieved by an infinity of different means, *each* of which fits the purpose *precisely*. [Deism differs from theism in (a) not appealing to revelation for knowledge of God's existence or nature, and/or (b) not attributing to God any continuing interest in

the created world and/or (c) not regarding God as having many personal qualities.] For what stronger weapons could one have to flatten the atheists? If my reason doesn't deceive me, man and the whole universe seem to have been destined for this single cluster of purposes. Everything—sun, air, water, the organisation and form of bodies—is set out in the eye as though in a mirror that faithfully presents to the imagination the objects that are depicted there, in accordance with the laws that are needed for the endless variety of bodies that are used for seeing. We see everywhere ears of strikingly different shapes—e.g. in man, animals, birds, fish—but these different constructions are used for one single end. All ears are constructed in such a way that they are mathematically just right for one single purpose, namely hearing. The deist asks: 'Would *chance* be a great enough mathematician to achieve this variety of means to a single end?' He also points to the parts of animals that are obviously there for future use: the butterfly in the caterpillar, man in the spermatozoon, a whole polyp in each of its parts, the adult heart-valve in the foetal structure that it grows from, the lung in the foetus, teeth in the hollows from which they grow. . . . And as deism's supporters overlook nothing in their attempts to justify it, tirelessly piling proof upon proof, they want to take advantage of everything, even the mind's weaknesses in certain cases. 'Look', they say, 'at the Spinozas, the Vaninis, the des Barreaux, the Boindins—apostles of atheism—who do more honour than harm to deism. Their unbelief only lasted as long as their health did'; and the deists add that atheists nearly always renounce atheism when •their passions have weakened along with the body that is •their instrument.

That is certainly everything that can be said in favour of the existence of a God (though the last argument is trifling, because such conversions are short-lived—as soon

as the mind recovers. . . .its strength in the strength of the body, it nearly always returns to its former opinions and acts accordingly). Anyway it is a lot more than is said by the physician Diderot in his *Philosophical Thoughts*, a high-flying work that won't convince any atheist. [Diderot wasn't a physician though he did translate a large medical work. La Mettrie was a physician.] What is to be said in reply to someone who says [the quotation runs to the end of this paragraph]: 'We don't know nature at all; causes hidden deep within her may have produced everything. Look for yourself at Trembley's polyp! [See page 23.] Doesn't it contain inside it the causes of its own regeneration? Then why would it be absurd to believe that

there exist physical causes for everything that has been made, causes that govern and interlink the whole series of events in this vast universe with such necessity that nothing that happens could have not happened; that it is our absolutely incurable ignorance of these causes that has made us resort to a God. . . .?

Thus, •destroying chance isn't •proving the existence of a supreme Being, for there may be something that is neither chance nor God—namely, *nature*, the study of which can only produce unbelievers, as is shown by the way of thinking of all its most successful observers.'

So the 'weight of the Universe' won't bother the atheist, let alone 'crush' him! [La Mettrie here quotes phrases from Diderot.] All the *endlessly* recited signs of a Creator. . . ., however hard they are pushed, are obvious only to anti-Pyrrhonians, i.e. to those who have enough faith in their reason to think that they can *judge* on the strength of certain appearances; but, as you can see, atheists can fight back with other absolutely opposite appearances that may be just as strong.

The law of nature

Listen to the naturalists again! They tell us that •the same causes that enabled a chemist to create the first mirror by a chance mixture of certain materials are used by nature to create clear water, which the simple shepherdess uses for the same purpose; that •the movement that conserves the world could have created it; that •each body occupies the place assigned to it by its nature; that •the air had to surround the earth for the same reason that iron and other metals are produced by its bowels; that •the sun is as natural a product as that of electricity; that •it wasn't made to heat the earth and all its inhabitants (whom it sometimes burns) any more than the rain was created in order to make seeds germinate (which it often spoils); that •a mirror and water weren't created to enable us to look at ourselves in them, any more than was any polished body with the same property; and that •the eye is indeed a sort of spy-hole through which the soul can contemplate the images of objects as they are represented to it by those bodies; but that •there's no proof that this organ was really created, or placed in its socket, specifically for that purpose; that •Lucretius, Lamy and all past and present Epicureans might be right when they reverse the explanatory order that the deists and theists believe in, and claim that the eye sees only because it happens to be organised and placed as it is, and that the rules of motion that nature follows in generating and developing bodies ensure that it wasn't possible for that wonderful organ to be organised and placed otherwise.

Those are the cases for and against—a summary of the great reasons that will always divide philosophers: I'm not choosing a side. 'It's not in my power to decide so great a controversy between you.' [La Mettrie says this in a line of Latin poetry, quoting Virgil.] That's what I said to a French friend

of mine who is as free-swinging a Pyrrhonian as I am, a man of great worth who deserves a better fate. His reply was very curious. 'It is true', he said, 'that the cases for and against shouldn't trouble the soul of a philosopher, who sees that •nothing is demonstrated clearly enough to force agreement, and indeed that •the signs offered in support of one side are immediately destroyed by ones presented in support of the other. Yet', he said, 'the universe will never be happy unless it is atheistic.' Here are the reasons given by this *dreadful* fellow [La Mettrie is of course joking, as with the words 'infected' and 'poison' below.]. If atheism were generally accepted (he said), all the branches of religion would be destroyed, cut off at the roots. No more theological wars, no more soldiers of religion—those dreadful soldiers! Nature, now infected by sacred poison, would get back its rights and its purity. Mortal men, deaf to all other voices, would calmly follow only the spontaneous promptings of their own individual being, which are the only ones that it is dangerous for us to disregard, the only ones that can lead us, along the pleasant paths of virtue, to happiness.

Such is the law of nature: anyone who obeys it strictly is an honest fellow who deserves the confidence of the whole human race. If someone doesn't follow it scrupulously, he is either a knave or a hypocrite, whom I distrust; he can't avoid that by conspicuously going through the motions of belonging to some other religion.

After that let the light-minded populace think differently, let them dare to claim that it's dishonest not to believe in revelation, that we need some religion—any religion—other than the religion of nature. How miserable! How pitiful! And what a good opinion each person gives us of the religion he has embraced! We aren't trying here to seduce the rabble into giving us their votes. 'We couldn't get any votes from those people by using these arguments'. Anyone who erects

altars to superstition in his heart is constitutionally built to worship idols and not to care about virtue.

But since all the soul's abilities depend so much on the specific organisation of the brain and of the whole body that obviously they *are* nothing but that very organisation, the machine is perfectly explained! ·Don't try to fend off this thesis by claiming that man is special, not like other animals·. Suppose that man alone received the law of nature as his heritage, so that he was alone among animals in having

- that delicate conscience that is so easily wounded,
- that ·capacity for· remorse that is no more foreign to matter than thought is, and no doubt
- other moral features as well,

would that make him any less of a machine? ·Absolutely not·! Those differences between man and the others could be upshots of his having

- a few wheels and springs more than the most perfect ·non-human· animals have,
- a brain proportionately closer to the heart and thus receiving more blood,. . . .
- and perhaps—how do I know?—unknown causes.

Then would the machine's organisation suffice to explain everything? I'll answer this again: Yes. Since thought obviously develops with the organs, why shouldn't the matter that the organs are made of also be capable of remorse once it has, in the course of time, become capable of feeling?

Thus 'the soul' is an empty term, with no idea associated with it; a good mind should use it only to refer to *the part of us that thinks*. Given the slightest principle_c of movement, [see note on page 12] animate bodies will have everything they need to move, feel, think, repent and (in brief) to conduct themselves ·appropriately· in the physical realm and in the moral realm that depends on it.

I'm not *supposing* anything. I am claiming that all the old

problems about matter, life, and mind have been definitively solved. If you don't yet believe this, here are some empirical data that will completely satisfy you.

Self-moving body parts

1. All animal flesh palpitates after death, and the more cold-blooded the animal is and the less it perspires, the longer this goes on. Tortoises, lizards, snakes etc. bear this out.

2. Muscles separated from the body contract when they are pricked.

3. The bowels retain their peristaltic. . . .movement for a long time ·after death·.

4. A simple injection of warm water reanimates the heart and the muscles, according to Cowper.

5. A frog's heart, particularly when left in some warm place, moves for an hour or more after removal from the body. If the movement seems to have vanished beyond recovery, you only need to prick the heart and this hollow muscle beats again. . . .

6. Francis Bacon, a first-class author, speaks in his *History of Life and Death* of a man convicted of treason whose heart was torn out while he was still alive, and thrown into the flames; for seven or eight minutes this muscle jumped up and down, first to a height of one and a half feet and then gradually tailing away.

7. Take the heart out of a chicken embryo and you'll see the same thing. . . . The warmth of one's breath alone revives an animal that is on the point of death in a pumped-out vacuum flask.

Boyle and Steno have reported similar results with pigeons, dogs, rabbits, pieces of whose hearts move just like whole hearts. . . .

8. Caterpillars, worms, spiders, flies and eels show more of this same phenomenon, and the movement in the cut-off parts increases in hot water because of the fire it contains.

9. A drunken soldier cut off the head of a turkey-cock with a sabre. The animal stayed upright, then it walked, then ran; when it ran into a wall it turned round, beat its wings, and ran some more until it fell down. As it lay there its muscles went on moving. I saw this myself; and one can easily see more or less the same phenomena in kittens or puppies whose heads have been cut off.

10. After polyps have been cut up, they don't just *move*; within eight days each piece *generates a new animal!* I'm sorry for the naturalists' theory of reproduction—well, actually, I am *pleased*, because this discovery about polyps teaches us never to draw general conclusions, even from the most abundant and decisive empirical evidence.

I have given many more facts than are needed to prove beyond all doubt that each tiny part of an organic body moves according to its own principle_c. And to prove that these movements don't depend on the nerves, as voluntary movements do, because they occur without the moving part's interacting causally with the circulation, ·i.e. with the animal spirits that circulate through the nerves·. Now, if this force can be observed even in fragmentary fibres then it must also be present in the heart, which is a particularly complex structure of fibres. I didn't need Bacon's anecdote to convince me of this. It was easy for me to deduce it from •the perfect structural likeness between human and animal hearts, . . . and from •the fact that in corpses everything is cold and flaccid. If executed criminals were dissected while their bodies were still warm, the same movements would be seen in their hearts as are observed in the facial muscles of decapitated people.

The principle_c of motion in whole bodies or in chopped-up

parts of them is such as to produce movements that are not disorderly as has been thought, but completely regular, both in warm whole animals and in cold incomplete ones. My opponents will have to resort to denying *countless* facts that anyone can easily verify.

If I am now asked *where* in our bodies this innate force—·this principle_c of motion·—resides, I reply that it is obviously situated in what the Ancients called the *parenchyma*, i.e. the very substance of the body-parts, excluding

the veins, arteries, nerves, in short, the entire body's organisation.

The result is that each part (·which may be too small to include any aspect of the body's organisation·) contains its own 'springs', more or less strong ones depending on that part's needs.

The 'springs' of the human machine

[The link in English between 'machine' and 'mechanical' is pretty obvious; in French it is even more so: *machine, machinal*.]

Let's look in more detail at these springs of the human machine. *All* the body's movements—

vital,
animal,
natural, and
automatic

are carried out by them. Aren't all these mechanical?

- the body draws back, struck with terror at the sight of an unexpected precipice,
- the eyelids blink under the threat of a blow,
- the pupils contract in bright light to protect the retina and dilate to see objects in the dark.

And aren't all *these* also mechanical?

- the skin's pores close in winter to keep the cold away from the blood-vessels,
- the stomach heaves when upset by poison, by a little opium or by any emetic, etc.,
- the heart, the arteries and the muscles contract during sleep just as they do when the person is awake,
- the lungs unceasingly do their job as an active bellows.

And aren't these mechanical as well?

- all the sphincters of the bladder, the rectum, etc. do their work,
- the heart beats, contracting more strongly than any other muscle,
- the erector muscles make a man's penis go erect, like that of an animal that masturbates, and even of a child, who can have an erection when that part is stimulated.

The last example, incidentally, shows that the penis has a special kind of 'spring' that isn't yet understood, producing effects that haven't yet been well explained despite all our knowledge of anatomy.

I shan't spend any longer on all these subordinate little springs that everyone knows. But there is another more subtle and wonderful one, which drives them all. It is the source of all our feelings, all our pleasures, all our passions and all our thoughts; for the brain has muscles for thinking as the legs do for walking. I am talking about the instigating and impetuous principle_c *the soul* [he gives the Greek word that was Hippocrates' name for it]. This principle_c exists and is located in the brain at the starting-point of the nerves, through which it exerts its control over all the rest of the body. [See note on page 12 regarding 'principle_c']. This explains everything that can be explained, even the surprising effects of diseases of the

imagination.

But in order not to become bogged down in profusion of poorly understood details, I'll have to limit myself to a few questions and reflections.

Why does the sight, or the mere idea, of a beautiful woman cause special movements and desires in us? What happens then in certain organs—does it come from the very nature of those organs? Not at all! It comes from the interplay between those muscles and the imagination. [He also calls this interplay 'a sort of *sympathie*', using this word in its early modern sense in which it refers to a kind of causal copying, echoing, or the like; as when by playing an open-string G on one violin starts a slight trembling in the G-string of another nearby violin.] All we have here is *one* spring that is •set going by the sight of beauty and •arouses another spring that was sound asleep until the imagination awoke it. And how can this happen if it isn't due to the chaotic tumult of the blood and spirits, moving with astonishing speed and swelling the hollowed-out organs?

Since there is obviously causal interplay between mother and ·unborn· child⁷, and since it is hard to deny the facts reported by Tulpius and by other equally trustworthy writers. . . ., we believe that *that* is how the foetus feels the effect of its mother's impetuous imagination, as soft wax receives all sorts of impressions, and that the mother's desires can be imprinted on the foetus in a way that we don't understand. . . . In saying this I am making amends to Malebranche, ·who accepted this theory, and· who was excessively mocked for his 'credulity' by authors who hadn't observed nature closely enough and wanted to subject it to their ideas.

Look at the portrait of the famous Alexander Pope, the English Voltaire. The efforts and strains of his genius are etched in his face. It is totally convulsed, his eyes are

⁷ At least through the blood-vessels. Mightn't there also be some through the nerves?

starting out of their sockets and his eyebrows are lifted by the muscles in his forehead. Why? Because the root of his nervous system is *in labour* and his entire body is bound to feel the effects of such a difficult birth. Where would all these phenomena come from if there weren't an internal string pulling on the outer ones? To bring a *soul* into the explanation of them is to be reduced to *the intervention of the Holy Ghost!*

For if what thinks in my brain is not a *part* of that organ and thus of the whole body, why, when I am lying calmly in my bed planning a book or conducting an abstract line of reasoning, does my blood begin to race? Why is my mind's fever transmitted to my veins? With that question in mind, look at men of imagination, at great poets, at men who are enchanted by a well-expressed feeling or who are bowled over by. . . the charms of nature, of truth or of virtue! By their enthusiasm, and by what they tell you they have felt, you'll judge the cause by its effects. From the *harmony* between the inner life and the outer you will discover the material unity of man. (Of course 'harmony' was made famous in this context by Leibniz; but a single anatomist, Borelli, was better acquainted than any Leibnizian with the harmony that unites a man. Think about it: if

- the tautness in the nerves that produces pain causes the fever that disturbs the mind and saps its will; if conversely
- an overactive mind disturbs the body and lights the fire of consumption [= tuberculosis] that carried off Bayle at such an early age; if
- some external stimulus makes me want—forces me to desire ardently—something that I didn't care about the moment before; and if
- in turn brain-events stir up the same lust and the same desires,

why divide into two what is obviously only one? 'But what about the power of the will?' That leads nowhere. The will does indeed issue commands, but it receives and must obey a hundred commands for every one that it gives. When the body is in its healthy state, it obeys because a torrent of blood and spirits force it to do so, because the will has as its executives an invisible legion of fluids that move faster than light and are always ready to do its bidding; what a marvel all this is! But just as the nerves exercise this power, they also thwart it. Can the best will and the most violent desires of an exhausted lover bring back his lost energy? Alas, no, and his will is the first to be punished because in certain conditions he can't help *wanting* pleasure. What I said before about paralysis etc. is also relevant here.

You're surprised by jaundice! Don't you know that bodies' colours depend on the colours of the lenses through which we look at them! Don't you realize that the hue of objects is that of the bodily humours (at least for us, the helpless playthings of a thousand illusions). [Re 'humours', see page 3.] But remove that yellow hue of the eye's aqueous humour and make the bile flow through its natural filter, and the soul will have new eyes and will stop seeing yellow. Isn't sight restored to the blind by removing a cataract? and hearing to the deaf by clearing out the Eustachian tube? . . . Our lovely soul! and our powerful will that can't do a thing unless the body's disposition allows it to, and that changes its tastes with age and fever! It's not surprising that philosophers have always aimed at bodily health as a way to preserve the health of the soul. . . . The diet that suits the body is always the one that reasonable physicians say should come first if we want to educate the mind and to raise it to a knowledge of truth and virtue, which are only empty sounds amid the disorder of diseases and the uproar of the senses! Without the rules for maintaining good bodily health,

Epictetus, Socrates, Plato and the rest would be preaching in vain: moral teaching won't do any good for someone who isn't endowed with sobriety, the source of all the virtues, as intemperance is the source of all the vices.

More about the organisation of the human body

What more is needed. . . .to prove that man is only an animal, i.e. a system of springs that wind each other up without our being able to say at which point on the human circle nature began? These springs differ from one another—if at all—only in their locations and in their force, and never in their nature. So the soul is only a principle_c of motion, a tangible material part of the brain that we can safely consider as a mainspring of the whole machine, which visibly influences all the other springs and seems indeed to have been made first; in which case all the others are a mere by-product of it. We'll see this through some reports I'll make of observations concerning various embryos. [La Mettrie uses the word *émanation*, rather roughly translated here by 'by-product'. The word was mostly used for theological and metaphysical purposes that he scorned, and his selection of it was probably meant ironically.]

A special feature of our machine is that every fibre in it, right down to the smallest, *oscillates*, and this natural oscillation is like that of a clock—it sometimes winds down. It must be renewed when it dies down, strengthened when it grows feeble, and weakened when it is oppressed by too much strength and vigour. That is what constitutes the only true medicine.

[The word 'chyle' in this paragraph—it's the same word in French—refers to a kind of material in the digestive system which is caused by the intake of food and causes various life-processes in the body.] The body is nothing but a clock whose *horloger* [= 'someone who makes or repairs and maintains clocks'] is newly formed chyle. When the

chyle first comes into the blood, nature's first concern is to stimulate in it a sort of fever (the chemists, who are obsessed by furnaces, had to take it as a sort of fermentation!). This fever speeds the ·animal· spirits on their way; and they then mechanically stimulate the muscles and the heart as though they were sent there on the orders of the will.

Those, then, are the causes of life, the life-forces, which through a hundred years keep the body's solids and fluids in the perpetual motion that they require. [A hundred years? Perhaps La Mettrie thought that this would be a normal lifespan if people had reasonable luck and lived healthy lives. On page 25 he speaks of Bayle's having been killed by TB at 'an early age'; Bayle lived to be 59 years old, a fairly *late* age by 17th century standards.] Do the solids contribute more to this activity than the fluids, or less? Who knows? All we do know is that the solids would soon grind to a halt without the help from the fluids. The liquids act on the vessels through which they circulate, *jolting* them into becoming and remaining elastic. That is why the natural spring of each substance ·in the body· is still more or less strong, according to the remaining vestiges of life; the spring is the last thing to die. So it is very true that •this strength in the animal parts can be preserved and increased by the strength of the circulation; but •it doesn't depend on the circulation, because, as we have seen, it doesn't even need the member or organ to be whole!

Yes, I know that this opinion hasn't been well received by all scientists, and that Stahl above all had only contempt for it. That *great chemist* wanted to persuade us that the soul alone was the cause of all our movements; but that is the talk of a fanatic, not a philosopher.

Efforts have already been made to destroy Stahl's hypothesis, but there is no need for that. All we need is to glance at a violinist. What suppleness! What nimble fingers! His movements are so rapid that they hardly seem to be strung

out in time. So I challenge the Stahlians—those experts on everything that our soul can do—to tell me how the soul could possibly carry out so rapidly so many movements in so many different places so far away from it. It is like supposing a flautist who could play brilliant cadenzas on countless holes that he doesn't know and can't even put his fingers on.

. . . .But perhaps Stahl was even more blessed by nature •as a man than •as a chemist and •medical• practitioner—why not? Perhaps he (the lucky mortal!) was endowed with a different soul from other men; a sovereign soul which, not content with having some control over the voluntary muscles, had no trouble holding the reins of all the body's movements and could suspend, calm or arouse them at will! With such a despotic mistress—controlling the heartbeat and the laws of circulation—there would doubtless be no fever, no pain, no loss of energy, and no shameful impotence or embarrassing erections. The soul decrees and the springs act, tighten, or relax. How could the springs of Stahl's machine have broken down so soon? [He lived to the age of 73.] With such a great doctor in residence one should be immortal.

However, Stahl wasn't alone in rejecting the principle of the oscillation of organic bodies. Greater minds than his did without it when trying to explain the heart's movement, the erection of the penis, etc. One has only to read Boerhaave's *Institutions of Medicine* to see what laborious and seductive systems that great man was forced to give birth to with the sweat of his great genius because he wouldn't credit the heart with such striking power.

Willis and Perrault were lesser minds •than •Boerhaave• but were careful observers of nature. (The famous •Professor from Leiden got most of his knowledge of nature second-hand, from the writings of others.) *They* seem to have rejected the principle, that I am discussing, in favour of a soul generally spread throughout the body. But in their

hypothesis—which Virgil and all the Epicureans had before them, and which seems at first sight to get support from the facts about polyp—the movements that survive after the death of the animal come from a remnant of the soul, preserved in the parts that contract although they're no longer stimulated by the blood and the spirits. From this we can see that these writers, whose works are much better than all the fables of philosophy, were mistaken only in expressing themselves badly, using obscure and meaningless terms. (The same trouble as with writers who credited matter with the power of thought!) For what is this remnant of the soul but the Leibnizians' 'motive force'? That was a bad label for it, but Perrault in particular really had an idea of it. See his *Animal Mechanics*.

Feeling and thought

Now that it has been clearly demonstrated—against the Cartesians, the Stahlians, the Malebranchians and (though they hardly deserve a mention here) the theologians—that matter moves by itself, not only when it is organised (as in a whole heart, for example). but even when that organisation is destroyed,

human curiosity would like to know how a body's being initially endowed with a mere •breath of life leads to its being graced with •a capacity for feeling and even •for thinking. And to satisfy this curiosity, good God, what efforts have been made by some philosophers! And what rubbishy nonsense I have been patient enough to read on this subject!

Experience teaches us only this:

If one or more fibres still have some movement, however little, it takes only a jab for this barely existent movement to be kicked back into life.

This can be seen in the host of empirical facts that I have adduced to disprove various systems. This is a constant: movement and feeling take turns in arousing each other, both in intact bodies and in those same bodies when their structure is destroyed; not to mention certain plants that seem to exhibit the same symptoms of feeling and movement combined.

But in addition, many excellent philosophers have demonstrated that •thought is only a capacity to •feel, and that the rational soul is merely the sensitive soul when it is contemplating ideas and reasoning! This is proved by the simple fact that when feeling is lost thought is lost also, as in apoplexy, lethargy, catalepsy, etc. ‘The soul thinks just as much during comas, despite not remembering the ideas it has had’—what a ridiculous claim!

Concerning this development, it is folly to waste one’s time trying to discover its mechanism. We don’t know what movement really is, any more than we know what matter really is. There’s no way of discovering how matter comes to move unless, like the author of *The Natural History of the Soul*, we revive the ancient incomprehensible doctrine of substantial forms! [The author in question is La Mettrie himself; his *Natural History of the Soul* was published a year before *Man—Machine*. During that short interim he became impatient and dismissive of various parts of the earlier work, including its tolerant treatment of ‘substantial forms’ and—as we shall see soon—its hostility to the thesis that animals are machines.] So I am as reconciled to not •knowing how inert simple matter comes to be active and organised as I am to not •being able to look at the sun except through a red lens. And I am equally at peace about nature’s other incomprehensible wonders, about the production of feeling and thought in a being which in the past seemed to our limited sight to be a mere lump of clay.

Solving two ‘riddles’

If you’ll just grant me that

- organised matter is endowed with a motive principle, which is the only thing distinguishing it from unorganised matter (come on now! can you refuse to accept the most incontrovertible observations?); and that
- everything that happens in animals—and everything that makes one animal unlike another—arises from differences in how they are organised (and I have proved that well enough);

I can solve the riddle of substances, and the riddle of man. It turns out that there is only one of them in the universe, and that man is the most perfect one. [In that sentence, ‘one of them’ must mean ‘one ‘substance’, and ‘the most perfect one’ has to mean ‘the most perfect substance’. We’ll see on page 33 that La Mettrie really does think that the entire material universe constitutes a single substance; so presumably he means here that man is the most perfect *portion of* substance.] Man is to the apes (the cleverest animals) what Huygens’s planetary clock is to one of Julien Leroy’s watches. It took more instruments, more wheel-assemblies, more springs to show the movement of the planets than to show or announce the time; it took the mechanical model-maker Vaucanson more skill to make his •flautist than his •duck; and now we can extend this line of thought further: Vaucanson would have needed even more skill to make a •mechanical •speaker; but we can’t go on regarding a talking machine as impossible, particularly at the hands of a new Prometheus. Continuing the line of thought: nature used more skill and more apparatus to construct and maintain a machine that could continue through a whole century marking all the ‘beats’ of the heart and the mind. We can’t tell the time from the pulse, but it is at least the barometer of heat and liveliness, from which we can judge

the nature of the soul, ·this being abstractly comparable with judging what the time is by looking at a clock·. I am not mistaken; **the human body is a clock**, a huge and complex and finely designed clock. How well designed? Well, if the cog-wheel that marks the seconds happens to stop, the one that marks the minutes goes on turning, as does the wheel marking the quarter-hours; and similarly with the others, when the first ones are halted by rust or some other cause. For we know—don't we?—that when several ·blood·-vessels are blocked, that doesn't stop or suspend the main movement in the heart, which is like the mainspring of the machine. . . . And we know—don't we?—that when the optical nerve is compressed and no longer lets through the images of objects, this loss of ·sight doesn't spread to interfere with ·hearing, any more than the loss of hearing, through the failure of the relevant nerve, involves the loss of sight. Similarly, we know that someone in an epileptic seizure can ·hear without being able (for a while) to ·say that he can hear; and a deaf person can have his language-nerves in good order so that he mechanically reports all the dreams that come into his mind. Such phenomena don't surprise enlightened physicians, who know what to expect from man's nature. Incidentally, of any two doctors the better and more trustworthy will always be, in my opinion, the one ·who knows more about. . . .the mechanics of the human body and ·who walks away from 'the soul' and all the upsets that this figment of the imagination causes in fools and ignoramuses, and ·who concentrates solely on *pur naturalisme* [= roughly 'on the plain empirical facts'].

So let the writer calling himself Charp make fun of philosophers who have considered animals to be machines. How different is my opinion! [Charp was the pseudonym under which La Mettrie published his *Natural History of the Soul*; see note on page 28.] I believe that Descartes would have been an admirable man in

all respects if, born in an age that he didn't need to enlighten, he had understood ·the value of experiment and observation and ·the danger of straying from them. But it is just as fair for me to make true amends here to that great man for all those petty philosophers who make bad jokes and mimic Locke and who, instead of laughing impudently in Descartes' face, would have done better to realise that without him the field of philosophy might perhaps still be waste land, like the field of right thinking without Newton.

No-one denies that this famous philosopher made many mistakes; but he understood animal nature, and was the first to demonstrate perfectly that animals were mere machines. After such an important discovery, requiring so much wisdom, it would be ungrateful of us not to pardon all his errors!

I see the errors as compensated for by that great admission. Descartes *goes on and on* about the distinction between the two ·kinds of· substances, but it's obvious that this was only a trick, a stylistic device to get the theologians to swallow the poison—poison for *them*, that is—hidden behind an analogy which everyone is struck by except for the theologians who can't see it at all. ·I am talking about the analogy—the great over-all similarity—between men and the other animals·. It's *that*, it's that strong analogy, that forces all scholars and true judges to admit that men—

those haughty, vain, self-praising beings who are marked off by their pride more than by the label 'men'—are basically only animals and upright-crawling machines. They all have that wonderful *instinct* which education transforms into *intelligence*. It is located in the brain or, when the brain is missing or ossified, in the brain-stem; never in the cerebellum [and he gives a reference for evidence for this].

There is nothing contradictory about

(1) being a machine and (2) being able to feel, to think and to tell right from wrong like telling blue from yellow; that is,

(1) being a mere animal and (2) being born with intelligence and a sure instinct for morality,

any more than there is about

•being an ape or a parrot and •being able to give oneself pleasure.

... Who would ever have guessed in advance that a drop of liquid ejaculated in mating would give rise to such divine pleasure? or that there would be born from it a little creature who would be able one day, given certain laws, to enjoy the same delights? Thought incompatible with organised matter? That is so far from right, I believe, that thought seems to be a property of matter, like electricity, power to move, impenetrability, extension, etc. [La Mettrie is here using 'property' in a traditional sense in which a 'property' of a thing of kind K is a quality that (a) is not included in the essence or definition of K but nevertheless (b) must be possessed by everything of kind K. It somehow •follows from K's essence but isn't •included in K's essence.]

Do you want some more empirical facts? Here are some unanswerable ones, all showing that man is exactly like animals both in his origin and in every respect that I have taken to be essential to the comparison between them.

From sperm to man

I appeal to the good faith of our observers. Isn't it true that a man starts off as a worm that *becomes* a man just as a caterpillar becomes a butterfly? The most serious authors [he names one] have told us how to go about *seeing* this little animal. All curious observers [he names one] have seen it in the man's semen and not in the woman's; only fools have

been hesitant to accept this. [In that sentence, 'curious' translates *curieux*, which can also mean 'careful', painstaking'.] As each drop of semen contains an infinity of these little worms at the start of the journey towards the ovary, only the most skilful or the sturdiest has the strength to penetrate the ovary and implant itself in the egg provided by the woman, which provides its first food. Sometimes a little worm •doesn't have to get into the ovary because it• catches an egg in the Fallopian •tubes; and this egg is carried by these •canals to the womb, where it takes root like a grain of wheat in the ground. It grows enormously through the next nine months; but it is like the eggs of other females—and like the other eggs of this same female—except for its skin (the 'amnion'), which never hardens, and dilates tremendously. You can tell that this is so if you compare a foetus found in place and ready to hatch with other little embryos that have hardly started. (I once had the satisfaction of seeing this for myself in •the womb of• a woman who had died just before giving birth.) •The comparison is easy to make•, because at that time the tiny animal—which is imprisoned in the amnion and trying automatically to see the light of day—breaks out by pushing its head against this membrane, like a chick emerging from its egg. Something that I haven't seen pointed out anywhere else is this: the enormous stretching of the amnion doesn't make it any thinner. In this it is like the womb, whose very substance swells up with infiltrated fluids, independently of how far its vessels are filled up and spread out.

Let us look at man inside and outside his shell. Let's examine the youngest embryos—four, six, eight or fifteen days old—under a microscope, after which we can do it with the naked eye. What do we see? Only the head: a little round egg with two black dots that indicate the eyes. Before that, when everything is more formless, we can see only a pulp which is

- the brain, in which are formed from the outset the origin of the nerves, i.e. the source of feeling, and
- the heart, which already in this pulp is able to beat. This embryonic heart. . . .may already owe part of its liveliness to the influence of the nerves.

Then we see the head pushing out a gradually lengthening stem, which opens up to form first •the thorax, in which the heart has come down and settled, and then •the belly, which is separated from the thorax by a dividing wall (the diaphragm). These two cavities produce further features: one of them yields the arms, hands, fingers and hairs; the other yields the thighs, legs, feet, etc.; the only difference we know of between arms etc. and legs etc. is their difference of position, which fits them to balance or support the body. It—the entire development of the embryo—is a striking example of vegetative growth! Don't write off the comparison with plants as absurd. The hair that covers the tops of our heads corresponds to leaves and flowers of plants. Nature's luxuriance shines out *everywhere*. . . .

Nature is so uniform that we start to get a sense of the analogy between the animal and vegetable kingdoms, between man and plant. Are there perhaps animal plants, i.e. plants that grow in the vegetable manner but also fight like polyps or do other things that are specific to animals?

So there you have just about everything that is known about reproduction. Some great men have said this:

What leads to the formation of the eyes, the heart, the stomach and finally the whole body is the fact that body-parts attract each other, and are caused by their own natures to join together and to occupy such and such places.

They may be right. But experience deserts us in the middle of these subtle inquiries, so I'm not going to make any guesses, and will treat anything that my senses don't perceive as

though it were an impenetrable mystery. In the next paragraph I give an example of such a blank wall.

It so seldom happens that in intercourse the partners' seminal fluids actually meet that I'm tempted to think that the woman's fluid has no role in reproduction, which would clash nastily with the theory that development is all a matter of the coming together of bodily parts. **Objection to this thought**: How can we explain the facts of reproduction without help from the handy coming-together-of-parts, which accounts so well for the fact that children sometimes resemble their father and sometimes their mother? **Reply to that objection**: Should the fact that we are in trouble with an explanation be allowed to outweigh *facts*? It seems to me that in copulation the male does everything, whether he's doing it in a sleeping woman or in one who is eagerly sexually involved. And if that is right, then the development of the embryo could be fixed for eternity in the seed, the little worm, of the man. But all this is far beyond the reach of even the best observers. Not being able to get a grip on any of this, they can't judge what the mechanism is by which bodies are created and develop, any more than a mole can judge how far a deer can run.

Reconciling ourselves to our ignorance

We're real moles in the field of nature; our range is hardly bigger than a mole's; and when we put limits on things that don't have any, that is our pride speaking. Our situation is like that of a watch. . . .that said:

'What! Was I made by that stupid workman? I who can divide up time, I who can mark so exactly the sun's course, I who can call out the hours that I mark? No, that's impossible.'

We, ungrateful wretches that we are, similarly despise ‘the common mother of all the kingdoms’ as the alchemists call her. We owe her everything; she really has in an inconceivable way created everything; but we imagine—or rather we postulate—a cause that is higher than her. [French doesn’t distinguish personal from impersonal pronouns; but in this paragraph ‘she’ seems right for Nature, given La Mettrie’s *mother* metaphor. Anyway, his topic here is nature, or matter; you’ll see that he outright equates these.] No, there’s nothing *low* about matter—only crude eyes see its most brilliant productions and don’t recognize that it’s *matter* that is at work in them; and those productions are indeed brilliant, for nature is not a worker of limited ability. She produces millions of men with more ease and pleasure than a watchmaker has in creating the most complicated of watches. Her power shines out as clearly in the creation of the lowest insect as in that of the most splendid man; she doesn’t put more effort into the animal than into the vegetable kingdom, or more into the finest intellect than into an ear of corn. So we should judge what is hidden from our view and our researches on the basis of what we can see; and we shouldn’t push the limits out further by our imaginations. Observe the behaviour of the ape, the beaver, the elephant, etc. If it’s clear that they couldn’t act as they do without intelligence, why should we deny that they have it? And if you agree that they have a soul—I’m talking to you fanatics!—you have lost the argument. You may want to protest:

‘We haven’t conceded much. We have said nothing about the nature of the animal soul, but now we do say something, namely that it is mortal, unlike the human soul.’

But anyone can see that that’s an arbitrary statement [meaning something like: . . . that you are just making this up as you go along]. It is obvious anyone that the animal soul must be mortal if

ours is, and immortal if ours is; the two kinds of soul must suffer the same fate, whatever that may be. So you have escaped out of frying pan into the fire!

Break the chains of your prejudices and arm yourself with the flaming torch of experience, and then you’ll honour nature in the way it deserves, instead of drawing derogatory conclusions from the ignorance in which it has left you. Just *open your eyes*, and when there is something you don’t understand, let it go. Then you will see that a labourer whose mind and knowledge don’t stretch beyond the edges of his furrow is not essentially different from the greatest genius, as would have been shown by dissecting the brains of Descartes and Newton; you will be convinced that imbeciles and idiots are animals in human form, just as a clever ape is a little man in another form; and you’ll be convinced that, since everything depends absolutely on differences in organisation, a well-constructed animal who has learnt astronomy can predict an eclipse, and one who has exposed his intellect and good eyesight to what he could learn at the school of Hippocrates and at patients’ bedsides can predict recovery or death. It is through this sequence of observations and truths that matter comes to have the admirable property of thought joined to it, though we can’t see *how* they are joined because the subject of this attribute is essentially unknown to us.

I am not saying that every machine, or every animal, perishes completely or takes on another form after death—I don’t know anything about that. But to insist that an immortal machine is a fantasy or a ‘being of reason’ is to reason absurdly; as absurd it would be for a caterpillar to see the remains of its fellow caterpillars and lament bitterly the fate of its apparently dying species. The soul of this caterpillar (yes, every animal has one) is too limited to understand the changes of form that nature brings about.

Even the cleverest of them could never have imagined that it was to become a butterfly! It's the same with us. Do we know any more about our fate than about our origin? So let us give ourselves over to incurable ignorance, on which our happiness depends. [In the French text it is clear that our happiness depends on our ignorance, not on our acceptance of it.]

The moral advantages of La Mettrie's view of man

Anyone who thinks in this way will be wise, just, calm about his fate and consequently happy. He will wait for his death without fearing it or wanting it; cherishing life and finding it almost unintelligible that someone's heart might be corrupted by dislike of this delightful place; he'll be full of respect for •Nature; full of gratitude, affection and tenderness in proportion to...the kindnesses •she has shown to him, happy to sense her •within himself• and to be present at the enchanting Theatre of the Universe. He will certainly never destroy nature in himself or in anyone else. More than that: he will be full of humanity and will love the sign of it even in his enemies. [This means that he will love whatever-it-is about others that shows them to be *human*, not ...that shows them to be *humane*]. Look at how he will treat others. He will pity the wicked without hating them; he'll think of them as merely men whose construction was bungled. But his pardon for the defects in the construction of their minds and bodies won't detract from his admiration for such beauties and virtues as they have. Those whom Nature has favoured will seem to him more worthy of respect than those whom she has treated as a wicked stepmother would. Thus we have seen that the materialist in his thought and speech will do homage to something that others quite wrongly refuse to honour, namely the •natural gifts that people have, which are the source of all their •acquired ones. The materialist

ignores the grumblings of his vanity and is convinced that he is only a machine, i.e. an animal, and he won't ill-treat his fellows; he knows too much about the nature of their •bad• behaviour. . . .

what La Mettrie writes about that behaviour: ...dont l'inhumanité est toujours proportionnée au degré d'Analogie prouvée ci-devant.

literally translated: ... the inhumanity of which is always proportional to the degree of analogy proved above.

meaning: ...??.

Following the law of nature given to all animals, he doesn't want to do to others what he wouldn't like others to do to him.

Let us then conclude boldly that man is a machine and that the whole universe contains only one substance. . . .

end of sentence: *diversement modifiée.*

literally translated: variously modified.

the point La Mettrie is making: The material world is just one big lump of stuff. We can mark off parts of it, but all that differentiates one part from another is their having different qualities, different •'modes'; so they should be thought of as basically not material things but just regions of the one stuff that happen to be •'modified' in ways that differentiate each from the surrounding regions.

This is *not* a hypothesis built up using questions and suppositions; it is *not* the work of preconceived opinions of mine. It isn't even the work of my unaided reason: I regard reason as a very uncertain guide, and I wouldn't have been willing to follow it if the way hadn't been lit up for us by the torch (so to speak) of my senses. That is what happened: experience spoke to me in reason's favour, so I worked with them in combination.

But you must have seen that I have allowed myself to draw conclusions—always through the most rigorous and immediate reasoning—only from a multitude of physical observations that no well-trained and informed person will question. And those are the only people I accept as judges of the conclusions that I draw from these observations; I disqualify any man who is full of his own opinions but isn't an anatomist or educated in the only branch of science that is relevant here, namely the study of the human body. What could the weak reeds of theology, metaphysics and the Aristotelian philosophy departments do against such a

firm and solid oak? Those reeds are childish weapons, like practice foils that can give pleasure in fencing but can never wound an opponent. 'Weak reeds'? Do I need to explain that I'm talking about the empty, trivial ideas and the overused, pathetic reasoning about the supposed incompatibility of two substances that incessantly touch and move each other and will go on doing so as long as there remains the shadow of a prejudice or of superstition on earth? Here is my system, or rather the truth, unless I'm greatly mistaken. It is short and simple. If anyone wants to argue against it now, let them!