28 The body and the brain

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1 Self-knowledge and the body

Does self-knowledge help? A rationalist, presumably, thinks that if does: both that self-knowledge is possible and that, if gained through appropriate channels, it is desirable. Descartes notoriously claimed that, with appropriate methods of enquiry, each of his readers could become an expert on herself or himself. As well as the direct, first-person knowledge of self to which we are led in the Meditations, we can also seek knowledge of our own bodies, and of the union of our minds and our bodies: the latter forms of self-knowledge are inevitably imperfect, but are to less important in guiding our conduct in the search after truth.

If our textbooks acknowledge the connections Descartes sought to make between metaphysics, medicine, and morals, the three principal branches of the tree of knowledge,' they focus on his elimination of contingency. Just as, we are told, Descartes excludes from the mental realm anything which smacks of accident, fallibility, or uncertainty (Icti alone passion or mortality), so he thinks we can, partly through objective knowledge of the body with which the soul is temporarily united, learn to restrict the scope of our desires, accept what we cannot change, and thus live better.

According to this interpretation, the metaphysics of the free rational mind required the contrasting reduction of all bodies to something, to fit a single micro-mechanical model. In a curious consensus across analytic history of philosophy, medical anthropology, feminist theory, dynamical cognitive science, and phenomenology, the assumption that Descartes stamped out context and particularity stretches into an image of Descartes as anti-magus, stripping nature and the body of all powers and activity. His objectification of the human body is, on this view, but one symptom of the mechanistic violation of an earlier enchanted world. Where once holistic herbalism and natural magicians embraced analogy and sympathy over representation and intervention, coupling earthly bodily realism with organismic ecologism, the Cartesian birth of modernity enforced divisions of philosophy from biology, science from history, power-mongering
manipulators of nature from the dead ecology which they exploit, and of active rational male observers from passive fragmented female bodies. Despite a marvellous debunking by T.M. Brown of attempts to set up Descartes as villain in New Age psychosomatics and 'liberatory ecolohism', and despite powerful warnings about fetishised 'false nostalgia' for 'some lost, but recoverable, perfection' in the pre-Cartesian world, this sad narrative of disenchantment remains its cultural force. Descartes, we are told, made the body just another object in a world 'not of meaning and love and laughter and tears ... but of material particles going about their lonely business' and the person subsequently disappeared from medical theory, since this 'materialization of flesh' 'takes the juice out of animate bodies, leaving only bare bones and pulp'.

From another direction, pragmatic critiques of the ideal of self-knowledge seek to undermine the very plausibility of finding truths about the self. Ian Hacking, for example, is sceptical about the idea, 'dazzling in its implausibility', that memory might provide a kind of 'scientific key to the soul' by uncovering 'facts' about what happened deep in personal history. From this point of view, the Cartesian confidence in the possibility of erasing the accidental effects of our specific education and experience, our bodily and psychophysiological quirks, as we embark on the Method, might be seen as a precursor of the characteristically modern error of basing a picture of how to live on some putative facts about inner sense. And in Adam Phillips' diagnosis, the body is the first casualty of Descartes' perverse quest for certainty about the self: because of the body's entanglement in dependency and risk, the expert relies on the mind, 'a fiction invented to solve the problem of wanting to make the turbulence disappear'. In theory as in life, difficult work is required to restore a sense of the erratic.

Some writers take a more positive view of Descartes' individualism, but still ascribe individuality only to Cartesian minds. Margaret Asheron, citing the encouragement which seventeenth-century women intellectuals like Mary Astell and Damaris Masham found in Descartes' concept of reason, emphasises a quite general notion of reasoning which is open equally to all. The only relevant differences are between humans and animals or machines, who do not reason at all: differences between humans, due to the idiosyncratic nature or history of individuals and their bodies, are less significant. A further, diverse group of philosophers who are engaged with quests for objective knowledge of self in contemporary 'dynamical' sciences of mind nevertheless share the negative appraisal of Descartes' efforts in this direction. They are united in opposition to 'a generally Cartesian picture of the nature of mind', by which cognitive processes are cut off from the world in 'a realm whose essence owes nothing to the accidents of body and surroundings'. Even if cognitive scientists have successfully dropped dualism, we are typically told, they have retained Descartes' persistent insidious explanatory divide: 'perception, thought, and action must be temporally distinct, and theoretically separable', while body and world are cycled to (respectively) a mere 'courier system' for sensory and motor messages to and from the thinking thing, and an alien source of input with which minds must sadly and indirectly interact.

In this paper I reject the interpretation of Descartes' dualistic view of the body as negative or as pathological as that expressed by Batail in Plato's Phaedo. I argue not just that the old moral psychologisation of disgust at the body is absent in Descartes, but that, positively, Descartes requests us to contrast full intimacy with our own body and our own peculiar past. He does wish for objective knowledge in these difficult domains, but this does not render his neuro- logical and ethics a universal prescription, for such objective knowledge is not necessarily knowledge of local phenomena, of the peculiarities of a person and, I will argue, Descartes was too firmly convinced that the body constantly changes its nature to have thought consistently that the process could come to an end.

I start with attention to the points in Descartes' work at which different, dynamics, and the erratic take centre stage, to sketch a more ambitious and more speculative interpretation of possible relations between human nature, medicine, and morals. Descartes told Burman that he did not like writing on ethics. He rejected the notion that philosophy should seek to regulate the behaviour of others: that, he wrote, is the business of kings and other authorities. The goal of his reductionism is a form of care of the self based on knowledge of one's own body and one's own history. When Adam Phillips worries over the ease with which even an apparently disruptive framework like Freudian psychoanalysis can become 'a covert continuation of the Cartesian project', as scientific optimism seeks to know and subsume the dynamic unconscious, he sketches a shadow, 'an Enlightenment' Freud whose aim is not self-knowledge, but tolerance of the impossibility of self-knowledge. I borrow Phillips' strategy, identifying glimpses of a slantway Descartes who also remembers that not everything can be remembered or accounted for, not every circumstance is circumscribed. For Descartes as for Freud, the sources of this preference for care over expertise lie in a set of views on the dynamics of the mind-body union.

My case rests first on an analysis, in the next three sections, of capacities which, according to Descartes, we share with other animals. Sections 2 and 3 argue for strongly dynamic interpretations of Descartes' views on body and on corporeal memory respectively. Then Section 4 backtracks to support more firmly the surprisingly complex form of 'automatic' responses which I attribute to Descartes' brain-and-body-machines. Finally, in section 5, I reintroduce the soul and the capacities for reflection which it allows in the human compound, showing how closely
Descartes thinks we must work with the body, its habits and its history, in deliberately moulding our associative responses with active mind. Immersion in Descartes' physiology and general natural philosophy shows how deeply Descartes cares about the vast range of human capacities which involve change in time. In the face of this bewildering range of critical attacks, the rehabilitation of the evil demon of modern philosophy of mind is of more than scholarly interest. These critics do often explicitly distance the Descartes whom they are merely 'invoking ... as an emblem' from the more complex views of the historical Descartes. But a cramped and implausible vision of 'modernity' too easily restricts it: it is not just historically crude to characterise modernity by announcing that 'from Descartes' time on, attention was focused on timeless principles that hold good at all times equally; the permanent was in, the transitory was out'.32 If we care about both self-knowledge and contingency, remembering that brains, for example, are both complex and particular, and that there can still be sciences of mind without the goals of control and total predictability, we might wonder if, paradoxically, Descartes himself could hint at the possibilities and the perils of what's become known as 'post-Cartesian agency'.

2 Bodies

Knowledge of the brain and body, Descartes claims, can help in two ways. The understanding of human and other organic bodies which I acquire in studying physiology aids the general quest for assured rules in medicine and for the blessings of health.33 But the physiological framework itself demands, second, attention to specific bodies: the body I will come to know best is not anonymous but particular. As natural philosopher I may seek to master my body as well as 'body' in general, but it escapes my will to dominate it because its boundaries are not firm, and because it is constantly changing. I may, and should, seek in turn to possess my body, to make it more securely my own, but all that this amounts to is inerminable attention to the shifting effects of its internal patterns, the true causes of which may always escape my notice.

In excelling mechanism to the biological domain, Descartes stresses the potential complexity of mechanical phenomena. The earthen machines described in L'Homme are importantly unlike the clocks and simple automata with which they are conceptually analogous, for their capacities far outstrip those we usually imagine or ascribe to them.34 Human and animal bodies are neither passive nor predictable, for, as one historian of physiology puts it, Descartes was 'a representative of the baroque, partial to a dynamic conception of nature'.35 But can this be so? Is it not the defining feature of the mechanismists' programme that nature should be drained of all activity, the organism being submersed by the machine?36 And even if Descartes failed to eliminate all dynamism from his picture of the body, won't this just leave him with an oddly Rococo physiology within a general physics of 'barren matter?'

Nature

Certainly Descartes, like Mersenne, sought sharp contrasts between nature and the active supernatural realm. But this is achieved through a minimal requirement that matter be inert, which comes to little more than the point that changes in motion must be due to the contact action of matter on matter, rather than to any ultimately intrinsic tendencies. Reminders that forces must ultimately derive from God in no way push those forces outside matter as we find it in natural philosophy: Descartes thinks it 'certain' that, once a body has begun to move, it 'has in itself for that reason alone the power to continue to move'.37 Since 'there is nothing anywhere that is not changing',38 and since 'there are infinitely many diverse motions that endure perpetually in the world',39 all bodies in nature always have power within themselves.40 Descartes bases his account of these motions on his understanding of the dynamics of fluids. In cosmology, solid bodies like planets, which are packed conglomerations of corpuscles, are 'embedded in a fluid which carries them along in a vortical motion'.41 This physics of circulation, displacement, and endless motion is secured by rejecting the void in favour of a plenum.42 Moving bodies are always surrounded by other bodies, which move as they move. There is no fluid-free part of the plenum, so bodies are always in mutual causal contact, with every natural interaction being part of a continuous field of interconnected interactions.

This means that the ideal fiction of atomic kinematics, the attempt to break down complex interactions into sets of isolated collisions in the void, is never a realistic goal in Descartes' corpuscularian hydrodynamics. Descartes does not start by thinking of bodies moving entirely without constraint, free of surrounding context; instead, he proceeds by assuming that 'systems of constraint are constitutive' of the phenomena under investigation.43 The full fluid cosmos, then, is causally holistic, with every context-dependent motion inevitably coupled with other motions.

This holistic mechanism cannot entail devaluing insinuation to emergent phenomena, to the ways in which wholes act differently from their parts. The physics is indeed reductionist, in the sense that all events are constituted by microscopic impacts and collisions, but this in no way entails that understanding of vertical or other complex motions can be achieved without attention to local and temporal patterns of change in their particular physical contexts. Correspondingly, mechanism did not require the elimination of puzzling and complex natural phenomena. Indeed, Descartes accepts some of the stranger facts of the organismic world; he rejects not the baffling phenomena (the bleeding of wounds on
the approach of the murderer, the weapon solve, sympathies, the maternal imagination imprinting on the foetus), but only certain candidate explanations of these phenomena which attribute thought or free will to corpuses.36

**Human bodies**

But this is not yet a dynamic **physiology**. Even if Descartes' physics is modelled more closely on the mechanics of fluids, does he not still close off the human body, rendering it a possession of the individual soul? Drew Leder clearly articulates the view that a Cartesian devaluing and demystification of the body worked to neutralise and subdue any corporeal threat, so that bodily events, including death, happen as if to another: 'the true self cannot be threatened by the demise of that which from the start was mere mechanism.'37 The triumph of 'the colder eye of science', it seems, silenced the human body, which was 'divested of its latent capriciousness'.38

But it is not true that in Descartes' work 'all spirits were effectively removed from nature'.39 as Catherine Wilson argues, 'there is no sudden impoverishment' in corpuscularian natural philosophy.40 The survival of troublesome 'animal spirits' at the very core of Descartes' physiological theories is not an accidental residue, a pan unlinearly transmitted between organicist and mechanical worlds. Descartes thinks of them primarily not in the bowels to which students are commonly directed, as the intermediates which 'solve' the mysteries of mind-body interaction, but as the impetuous nervous fluids which drive the brains of animate machines. Animal spirits (which are neither animals nor spirits) 'are mere bodies'.34 The finest, most subtle, fastest-moving parts of the blood, these spirits 'vary in strength depending on the differences in the particles which make them up'.35

It is customary to see the partial survival of ancient and Renaissance physiologies of humours and spirits in Descartes, if acknowledged at all,39 as a mark of his failure, of the extent to which the exuberant, radical ambition of his mechanism was bound to need illegitimate supplementing, to explanatory practice, from tradition and lived experience. In developing what Emily Groszholz labels a 'corpuscularized Galenism',41 Descartes, on this view, tacitly introduces old dynamically tinged annexations which enrich and thus violate a basically pure, static official mechanism. But the survival of non-linear feedback systems in physiology at which Groszholz bristles looks quite different if we do not assume in advance that mechanism and dynamics must be incompatible. The incorporation of spirits into pulsing body-machines was part of an adaptation, not a wholesale rejection, of older medical holisms. Bodies are still porous, spongy, thrown, fragile.
undertakes in turn to explain the causes of these variations: spirits can
differ in quantity, in the coarseness of their constituent particles, in their
degree of agitation, and in the uniformity or diversity of their size, shape,
and force.43

It is hard, I suggest, to overestimate the pivotal role which these
differences in the nature and flow of animal spirits play in Descartes' picture
of brain and body. The differences derive in part from changes in the nature
of the blood from which the particles which compose animal spirits are fil-
tered or separated.44 Descartes devotes a lengthy passage to explaining
that 'whatever can cause any change in the blood can also cause change in
the spirits'.45 These factors include a wide array of internal and external
influences. The qualities of food and the nature of the rhythmic digestive
processes, the nature of air inhaled and mixed with blood in respiration,
and the disposition of the liver which elaborates blood going to the heart
all affect the abundance and degree of agitation of the spirits produced by
that blood.46 Gall bladder and spleen must remove, respectively, parts of
the flammable and of the inflammable components of the blood before it
reaches the heart; and 'the little nerve that ends in the heart' modulates
the flow of blood into and out of the heart, so that it 'can cause a thou-
sand differences in the nature of the spirits'.47

The continuous influence of all these factors on blood and thus on
animal spirits connects or couples the human body, 'with its interactive
openness',48 with the physical and social world. Descartes has broken from
the cosmobiological tradition which identified bodily spirits with quintes-
sential cosmic spirit; but this identity had never been ubiquitous among
spirits theorists, and certainly was not required to force attention to the
dangers and difficulties of the ceaseless exchange of fluids between body
and world.49 Malebranche, introducing his account of the passions, draws
on this physiological holism in arguing against the Stoic view that our hap-
iness depends only on ourselves. We are joined, as a result of sin, by our
body 'to all sensible things', and it is God's will that all created beings
'should depend on one another'. After the Fall,

we are to some extent joined to the entire universe. . . . There is now
no one who is not both joined and submitted to his body and
through his body to his relatives, friends, city, prince, country, clothes,
house, land, horse, dog, to this entire earth, the sun, the stars, to all
the heavens.50

It is hard to get more holistic than that. This is a field of multiple simul-
taneous interactions in which everything simultaneously affects every-
thing else. Changing external parameters like diet, climate, social interaction,
and stress, which change at a relatively slow rate, directly affect the fast
dynamics of internal state variables of blood and spirits: but because the
spirits partly cause behaviour, changes in those external parameters are
themselves partly caused by the internal processes with which they are
coupled.51

The body and the brain

Now we can apply this biophysics to the brain. Animal spirits, once sepa-
rated from the blood, pass from the pineal gland through the cerebral ven-
tricles and into the brain. There they flow through brain pores, to which
Descartes assigns a central explanatory role. Pores are like 'the spaces that
occur between the threads of some tissue; because, in effect, the whole
brain is nothing but a tissue constituted in a particular way'.52 The brain is a
net of mesh of filaments with pores between them. The pores are affected
by the motions of animal spirits in three ways. Pores can be 'diversely
enlarged or constricted by the force of the spirits that enter them'; and,
second, the filaments 'can be flexed rather easily'.53 Most important here,
the filaments 'can retain, as if made of lead or wax, the flexure last received
until something exerts a contrary pressure upon them'.54

The harmonious functioning of the body depends on the spirits, the
pores, and the distribution of spirits through the pores.55 This distribution
of spirits is unceasing, since the spirits are in continual motion.56 Flowing
into the brain from the cavities, they trace figures by their motions
through the pores. Descartes uses both 'trace' and 'figure' for these
explicit, transient patterns of motions at a time. The spirits in the neural
system keep the filaments 'so tense' that figures are easily transmitted.57

There are two distinct kinds of 'trace' or 'figure' in play in Descartes'
account of brain processes. There are transient patterns of spirit motions,
but there is also the pattern of filaments and pores, an architecture of
connections which is itself modifiable but which does endure longer than
the motions.58 These are the flexures which, Descartes suggested, can be
retained over time.

As well as this distribution of spirits through the cavities and pores of
the brain, the spirits figure in a less direct relation or balance between the
brain and the body. Not all particles of blood are fine and lively enough to
pass up through the carotid artery to the brain and become animal spirits;
others are drawn instead to 'the organs designed for generation'.59 As
Desmond Clarke shows, a specific hypothesis of a link between intellectual
activity and male fertility, based on the 'dependence and communication
which obtains between the spirits of the brain and those of the testicles',
quickly became enmeshed in Cartesian physiology, so that 'those who
weary their imaginations by study are less suitable for procreation, while
those who, on the contrary, displate their minds in debauching women
are not as suitable for study'.60 While in L'Homme Descartes himself did
'not wish to enter further into this matter', I will suggest below that he did
take related problems about control of the distribution of spirits to have a
significant moral force.
3 Memory

One key problem in physiology which animal spirits had long been used to answer was muscular motion. Many, like Descartes, thought that spirits flow from the nerve into the muscle in contraction. This balloon or inflation theory of muscular motion would become increasingly important in debates about the existence of animal spirits from the 1660s onwards. But the influence of animal spirits was not restricted to straightforwardly physiological topics; spirits were requisite theoretical entities in Renaissance accounts of memory, dreaming, and imagination, and of emotion, moods, and madness. Descartes knew how thoroughly Renaissance psychologists, in what Burton called 'those tedious tracts De Animal', employed animal spirits to embed cognitive function in the body. He followed tradition in extending the scope of spirits theory from the physiological to the emotional. Differences in the abundance, coarseness, agitation and uniformity of the particles of spirits alter our humours or 'natural inclinations'. Unusual abundance excites movements that give evidence of generosity, liberality or love; coarseness or strength of the spirits gives rise to confidence or courage, agitation to promptness, diligence and desire, and so on. In the Passions, these physiological-fantastical accounts of the peculiarities of spirit motions are further developed: in hatred, for example, gall entering the blood from the liver boils up and causes spirits going to the brain to 'have very unequal parts' and to 'move very strangely'.

So the thoughtless zombies of L'Homme, who can imitate all human actions, are not restricted to capacities we take to be physiologically basic. They can not only move, breathe, sleep and wake, nourish themselves, digest, and reproduce; they also have what are to us mental capacities like sensation, memory, imagination, and emotion. Even commentators who prefer a more austere interpretation of 'Cartesian mechanism' than that which I am advocating agree that Descartes' description 'models activity which looks very much like cognition'.

Figures transmitted by or in the incessant motions of animal spirits are 'imprinted in the internal part of the brain, which is the seat of Memory'. This is achieved through bending or rearranging brain filaments so as to alter the intervals between pores through which the spirits will flow in future. The spirits 'trace figures in these gaps, which correspond to those of the objects'; on the repetition of a pattern of input, more enduring changes are made in the pores, so that figures can be more easily formed again, in the absence of the specific stimulus. The pattern of the pores, which constrains the patterned flow of spirits, is itself altered over time by the differing motions of the spirits. These patterned motions are not themselves stored, but merely 'retained in such a way that previous figures can be recreated. Even if a particular input is only partially represented, recognition may still occur if the connected pores have been disposed so as to open together more easily.'
functions, although there can be no Cartesian science of the self-conscious mind, there can and must be sciences of memory, imagination, dreaming, and so on.

But if this whole spirits-and-traces fantasy refers only to implicit memory, memory where there is no conscious reference to the past, is corporeal memory really a true kind of memory at all? Implicit memory, understood merely as the non-conscious effects of past experience on ongoing brain processing, may be important for biological success, but is it not a far cry from the explicit, subjective autobiographical remembering characteristic of beings like us?

The first response to this objection is to note that Descartes definitely does see corporeal memory as a genuine kind of memory, albeit one not unique to humans: he stresses that it is the most notable effect of memory that ‘without there being any soul present in this machine, it can naturally be disposed to imitate all the movements’ of true humans. So Descartes is not confused in attributing memory to animals as he tells Elizabeth, impressions can be formed in animal brains by, among other things, the traces of previous impressions left in the memory, or by the agitation of the spirits which come from the heart.

My point here is not merely to support the increasing consensus that the ‘beast-machine’ doctrine still allows sentence memory, memory, and imagination to animals rather it is to stress just how Descartes thinks that the soul, when it does play a causal role, must build on and use precisely these associative mechanisms among spirits and brain pores. He continues his point in the letter to Elizabeth by urging that ‘in man the brain is also acted on by the soul, which has some power to change cerebral impressions’. I will suggest in the final section of this paper just how literally Descartes takes the moral importance of this power of the soul. But I must first provide a more thorough response to the objection I just canvassed. Surely, without a soul, the only kind of ‘memory’ possible would be reflex action, mere automatism? Is not the fact that Descartes’ physiology of memory excludes consciousness not enough for us to dismiss it, as it seems ‘clear that the one thing Descartes was not explaining was the psychologizability of memory’?

4 Automata

Put this way, the objection to my reading of Descartes on corporeal memory trades on a dichotomy between two kinds of response to the world. One form of response is inflexible, wholly stimulus-driven, while the other is incorporeally mediated conscious action. The first form covers all animal behaviour and much human behaviour, and the second characteristics true human action. I argue in response that this is not an exhaustive classification, and that Descartes accepts an intermediate form of interaction with the environment, including a wide class of responses of great interest to him and to us.

Owen Flanagan describes the impoverished world of the ‘Cartesian automaton’, restricted, because it is only body, to automatic reflex behaviour:

the complete system of wired-in reflex arcs exhausts its behavioral potential. What a particular automaton does, how it in fact behaves, is the instantaneous result of the interaction between the environment and the wired in area.

The point of Descartes’ fables of automata, on this view, is to exclude the contingencies of individual experience from consideration in natural philosophy, for these automata are ‘readily repeatable, and by definition not particular, nor the subjects of a specific history’. It is the consequent intelligibility of automata that is ‘the fundamental point of Descartes’ mechanical philosophy’.

But there is no reason to accept that hard-wiring or biology, or both, hand, and current stimuli, on the other, must be the sole determinants of machine behaviour. The example of memory makes this easy to see. In the memory processes of the automaton, the effects of experience are transmitted over long temporal gaps, and are causally involved in behaviour mediated by complex internal processes. The determinism invoked is not a simple stimulus/response link, for the corporeal causes act holistically. To put it another way, memory shows that an automaton’s physiology changes over time. Automata with different histories, different experiences marking their brains and bodies, will (como Flanagan) respond differently, and one automaton will respond differently to the same stimulus at different times, after new experience has modified the pores and folds of its brain.

There are, of course, cases in which biology and environment are jointly sufficient causes of behaviour. Descartes’ account of reflex phenomena is ‘short on detail about the specifics of neuroplumbing’, but it seems clear that swallowing, blinking, coughing, sneezing, yawning depend only on fixed, hard-wired arcs. This kind of automatic behaviour is like the immediate, fixed chain between the passage of air through organs and the particular sounds the organs produce. Let us call this simple automatism. Here the penile gland is not involved; the switch from sensory to motor response occurs when the existence to a brain pore or tube is opened by the motion of a nerve fibre, and animal spirits from the ventricles enter and are carried through the nerve tubes to various muscles.

Simple automatism is thus significantly different from processes like corporeal memory, which we might call a case of complex automatism. Memory requires ideas to have been traced in spirits on the surface of the gland, and to have been transmitted as figures to the moveable pores of the brain, which incur enduring changes as a result. Reflex pathways are
which the soul is united. It is just because bodies-machines are weak and exist in history, because hair turns white, that need for the capacity for response to be extended over time. Remembering, on the other hand, is not simply automatic, even though it need not involve the soul.

There is evidence for this distinction between different classes of response available to Descartes’ automata in his attitude to explanation by reflex. There are hard-wired immediate unconditioned reflexes in humans and animals; sheep run from wolves, and humans throw out their arms when falling without the assistance of any soul. But there are also much longer-term, yet still wholly physical, responses in which corporeal memory is at work. Some are cases we would call ‘conditioned responses’, the acquisition of learned associations where there is no natural relation between a representation and its ‘meaning’. If you whipped a dog five or six times to the sound of a violin, it would begin to howl and run away as soon as it heard that music again. Setters can be trained, against their natural inclinations, to stop at the sight of a partridge and run towards it on hearing a gun.

However, rather than conceptually isolating these conditioned responses in dogs-machines, or linking them with simple reflex automata (as Flanagan’s picture would lead us to expect), Descartes couples them with more complex human cases which he considers equivalent in principle. The case of the dog howling at the music of whipping comes in the context of a discussion of individual differences in judgements of beauty: judgments often differ, Descartes argues, because of traces left by individual history. Music which makes one man want to dance may make another want to cry, because different ideas are evoked in memory; if the latter man has ‘never heard a galliard without some affliction befalling him, he would certainly grow sad when he heard it again’.

So not everything, in dogs any more than in humans, is innately wired in, for the movements of the brain change in the course of experience. Cartesian automata are not the uncanny ‘Neurosap’ Nimble sprightly puppets which only seem to be moved from within, feared by vehement English defenders of free will like Stalworth and More. Once set in motion, they really are moved by changing internal states; they lack only the asocial autonomy attributed by Descartes to souls which will and act freely, and judge rationally. The long-term workings of corporeal associative memory are extremely flexible, and the motions of experience and individual learning history do apply. The diverse causal factors involved in registering, integrating, and acting on information include ‘previous brain episodes’ and non-social bodily events, as well as current environmental inputs ‘this is the model of an automaton, to be sure, but not one which operates by reflex’.

The natural philosopher’s desire to master and possess nature, then, is inevitably limited by the complexity and the flexibility of the bodies with

5 Passions

This plasticity of response in the machines with which souls are united is the basis for the neurological strand of morality. We need knowledge of our own internal processes as much because of the hopes and opportunities they afford us as because of the dangers with which they threaten us. But where Toulmin, for example, suggests that this is a recipe for ‘moral escapism’ by dividing us from our body, that Descartes’ ethics ‘relieves us of all responsibility’, the passions by treating them ‘as mere effects of causal processes and taking them out of our hands’, I argue that Descartes urges the awesomely difficult moral task of excavating, managing, and correcting a vast and changing array of psychophysiological associations. Moral life is not the imposition of norms onto bodies from outside the causal field, but the slow, reciprocal adjustment of internal causes.

The organic automata of L’Homme Économe without a soul. But, unlike them, we do have souls; in the fabular context, Descartes tells us that ‘God will later join a rational soul to this machine’. What difference, then, will the soul make to this marvelously intricate engine? It may, first, make significant qualitative differences: animals, Descartes retorts to Fromontius, ‘do not see as we do when we are aware that we see, but only as we do. Using familiar material from the Passions, I hope to show just how far removed these processes of the union are from the bewildering kind of ‘interference’ of inner and outer lives of which Ryle accused Descartes.

Some of the ways by which souls act on bodies are nothing at all like the direct and uncausal para-mechanical interventions of a ghostly governor; instead, they extend or apply the medicinal treatments of disease characteristic of ‘pre-modern’ medicine in the psychophysiological realm. The soul’s occasional influence on the bodily states of associative memory is in only imperfect way of instituting better habits in the wayward dynamics of spirits and brain. Descartes does indeed acknowledge the kind of pips
between self and body which cosier Wittgensteinian and phenomenological philosophers repudiate; theory provides straights for identifying, coming to terms with, and occasionally healing these troublesome traces and "wounds received by the brain".186

At the end of the Passions, Descartes says that he has described two quite different classes of 'remedy' for the passions. One he calls the 'most general' remedy, as it can be employed when the other fails: when tempered by a passion or action which the intellect repudiates, we should call up other, opposing thoughts at will, seek to postpone action if appropriate, or simply distract ourselves with different thoughts. This strategy is readily applicable, Descartes says, and is the only remedy most men ever use.187

But the advice on life embodied in most of the book, and in many of Descartes' recommendations to Princess Elisabeth is based on the other, much more difficult remedy, through which we can find wisdom and joy; those who are most moved by the passions, who have sufficiently prepared themselves by this method, are capable of enjoying the sweetest pleasures of this life.188 This second remedy requires, says Descartes, 'foresight and diligence', and long training. It is based on a single psychophysical principle, aptly dubbed the Principle of Habituation by Stephen Voss.189 Descartes calls it 'the principle which underlies everything I have written about [the passions]'.

According to this associative principle, particular physical movements in the brain and body are joined with thoughts and passions. These linkages depend on 'mature or habit', and they can occur between thoughts, on the one hand, and overt bodily movements and internal motions of the brain and inwards, on the other. They are of various different kinds and strengths. I want to work briefly through the varieties of connection, and in doing so to demonstrate how thoroughly this principle, introduced immediately after a reprisal of Descartes' associative account of memory,190 is integrated with that account.

The causes of these connections between bodily motions and thoughts or passions are all opaque to us as acting and thinking subjects: the correlations were set up either before our awareness, or beyond and beyond it. Any modifications we seek to make to psychophysiological responses must be just as indirect as our knowledge of them. As the will does not have the power to excite or displace the passions directly,191 it is constrained to employ 'indirect': this is 'artifice' or, we might say, (psychological) work in which knowledge of our nature and, most importantly, of our own history and experience, is laboriously brought to bear on the landscape of our pores and passions.

There are, first, fixed connections. Some movements of the brain cause passions by 'institutions of nature', insitituted by God. These are generally to our benefit, for the preservation of life. They are parallel to the unconditioned reflex phenomena described above, but also include, for example, the emotional extensions of basic attraction and repulsion, such as sexual desire and the fear of death. When they become further associated with specific stimuli, these responses may be altered; Descartes does not think that 'the touch of an earthworm, the sound of a rustling leaf, or our shadow' must forever bring dread because of our aversion to the threat of death they seem to bring.192 Indeed, eradication of the fear of death is, he tells Mersenne, 'one of the main points in [his] own ethical code'.193 The precise sense in which they are 'fixed', then, is only that their institution depends simply on God and on the given nature of the machine, not on any historical or individual experiences.

The power of these 'biological' or natural connections is sometimes seen as the main threat to the good life. On this understanding of Cartesian ethics, Descartes 'offers the hope that by careful training, and the regular exercise of our will, we can become not the slaves but the masters of our biological inheritance'.194 This gives the impression that Descartes was the enemy, in moral life, to the finity of biology, the rigidity of the machine's programming, which is the task of the will to overcome. It might seem that the conclusion to the Passions confirms this interpretation, as Descartes says that he has told us how to 'correct our natural faults'.195 But the institutions of nature do not reach all that deeply: by themselves they are neither the main problem, nor the major hope. The 'natural faults' in question are not, I submit, this limited class of fixed connections between brain movements and specific passions, but rather the (fixed) mechanisms which, in contrast, support or ground variable connections, which are in fact Descartes' main concern. Not finity, but our fixed tendency towards uncontrolled plasticity, is the problem.

So not nature, but what Descartes calls 'habit' (habitude) is the moral key. The term covers various kinds of variable connections between motions and thoughts or passions. Habits are grounded in dispositions, which in turn are grounded in the arrangements of physical parts.196 Habitude reaches much further beyond the individual than does the English 'habit': all the teachings of childhood are sedimented in associations: the route by which culture intrudes into the soul is by way of the brain. Descartes thus has a physiological basis for worry about our perceptive views of the world. He does not hold the intellectualist view that everything implicit in our forms of life must be explicitly encoded in the brain. This would require the equally implausible separate rooting out and challenging of each and every belief.197 Memories do not have to be stored independently or discretely to be causally active; there are no independent storage boxes which can be either full or empty, only the sets of folding pores in the net of the brain. Our bodies thus hold cultural forms of life not as quasi-theoretical axioms, but as nested sets of causal tendencies, realised differently in each brain. Descartes' psychophysiology makes the kind of total epistemological reevaluation, and wholesale destruction of false beliefs, which mainstream interpretations attribute to him, quite incoherent. We should reject these interpretations, and acknowledge instead that Descartes
accept the inevitability of working with our prerelative cognitive equilibrium, while seeking also to hone in on the more damaging of the inconsistencies and anomalies, accretions of the (social and individual) past, which we have internalized.

So in addition to the ways that culture has, since childhood, soaked through the pores of the brain, there are also more particular 'habits'. Striking examples of these psychophysiological accidents of experience are phenomena of single-trial learning. Some dispositions of the brain can be acquired by a single action and do not require long practice; it takes only one nasty surprise in a favourite food to produce a permanent abhorrence.118 These are the most extreme cases of the kinds of individual differences in which Descartes was keenly interested. They offer a physiological basis for his remark to Elizabeth that 'each of us is a person distinct from others whose interests are accordingly in some way different from those of the rest of the world';119 difference, or history, arises already in the body and is not due solely to the possession of a separate soul. There is nothing natural about the experiential coupling of affliction with the hearing of a galliard. The cases Descartes typically describes are, like this, instances of aversion, in which a peculiar response to the smell of a rose or to the presence of a cat is due to some earlier individual trauma: in line with his general acceptance of associations set up before birth, he notes that someone, for example, may have 'sympathetically felt the sensation of their mother who was shocked by cats while pregnant'.120 This extends backwards in developmental time the stress on the dual sources, in nature and habit, of association: just as natural connections may have been instituted in the womb,121 so there is no principled reason why the 'habituals' of the mother may not have influenced association. It is in 'this' context that such aversions may be imprinted on or in a subject's brain 'till the end of his life'.122 without the subject ever being aware of it. The clear acknowledgment of this kind of permanent opacity of the operation of association marks the limit to the possible deprogramming and reprogramming of the body-machine by the soul.123 But, fortunately, sometimes modification is possible. The point of the difficult remedy described throughout the Passions is to teach how we can apply ourselves 'to separate within ourselves the movements of the blood and spirits from the thoughts to which they are usually joined'.124 This is the context of the story to which I referred earlier: about altering the associations in the brain of a sewer towards guns and partridges, with a little 'industrie' the movements of the brain can be changed in humans, just as trainers can change them in animals, and, in general, movements of the brain can by habituation (habitude) be separated from the passions to which they have previously been linked, and joined again with others.125 This is a slightly different sense of habituare, referring now not to the (past) setting up of an association, nor to the association thus set up, but to the potential process of intentional alteration of the brain by the self.

Descartes tells Chanut of his own experience of this kind of indirect changing of the brain in a story often quoted as a model in this context:

'
... when I was a child I loved a little girl of my own age who had a slight squint. The impression made by sight in my brain when I looked at her cross-eyes became so closely connected to the simultaneous impression which aroused in me the passion of love that for a long time afterwards when I saw persons with a squint I felt a special inclination to love them simply because they had that defect. At that time I did not know that was the reason for my love; and indeed as soon as I reflected on it and recognized that it was a defect, I was no longer affected by it.'126

This makes Descartes' hopes about the efficacy of intentional changes to the brain, and of the resulting moral improvement, seem wildly ambitious: working through is not so much harder than remembering or repeating after all. Schools see the Passions as Descartes' most extreme expression and defence of 'total manery and... full autonomy', where complete fulfillment of the rationalist programme is uniquely envisaged; Gombrich remarks on Descartes 'deep optimism' about the prospects for these investigations into the physiological genesis of passions.127 Descartes does indeed announce, at the rhetorically charged finale of sections 1 and 3 of the Passions, that this method can lead even 'weak souls' to 'acquire a quite absolute dominion over all their passions if one employed enough skill (industrie) in training and guiding them';128 and that the Principle of Habituation, sufficiently well employed, acts as preparation 'against all the contingencies of life'.129

Just as we return, then, to the encompassing rationalism I invoked at the beginning of the paper, by which total expertise on the self is to be put to work in proto-technological control of one's own body? What will prevent this headlong rush for mastery degenerating into a behaviourist nightmare, in which those who employ the skill in training and guiding might be authorities rather than oneself? Even though only thoughts are directly in our power, does this psychophysiological scheme not render almost everything else about us ultimately accessible to the manuading soul?

But Descartes did know that the effects of the past, traumatic or simply unnoticed, are not so easily retraced and worked through. The point that some accidental associations from the personal past may remain 'never unkindnes'130 is enough to challenge his 'reckless optimism about the power and autonomy of the will'.131 The Cartesian soul is to be, as Adam Phillips sees it, an enraged bureaucratic, furiously cataloguing unmanageable emotions, making sure everything is accounted for in a system without secrets.132

First, we can note that the story Descartes tells Chanut is not necessarily
a genuine case of the intentional alteration of association. Descartes does say that he 'reflected' on the true historical cause of his associations, but the very fact that it was undone immediately suggests that this was more of an accidental discovery than the careful investigation of psychological history which, Descartes acknowledges, can be a long and uncertain process which few people achieve. 10

We might, further, invoke Malebranche's much more pronounced sense of human limitation, pointing out that it arises from precisely Descartes' considerations about memory and association. Traces in memory are inevitably confused together, with the 'unruly' animal spirits often exhausting the will in its attempts to lead them into 'new and difficult channels'. 11 Malebranche repeatedly invokes the principle of habituation, noting that, in passion, many traces are stirred up by animal spirits 'swirling irregularly in their brain', and that the soul, which is 'continually constrained to have the thoughts tied to these traces', can become 'as it were, enslaved to them'. 12 The most determined attempts to impose some fixity or solidity on them may fail to render us 'impepsible': sometimes the 'motion of the spirits can be so violent that they occupy the soul's entire capacity'. 13 It is true that 'before the Fall, the soul could erase the brain's images' and 'instantaneously arrest the disturbance in the brain's fibres and the agitation of its spirits merely by considering its duty'. 14 The psychophysiological consequence of the Fall, then, is just the possible failure of the project of reconstituting the body and the brain with the intellect.

Descartes' sense of sin is not so pronounced; yet, since so much of the picture of plasticity in brain and body which I have outlined dictates against the notion that our psychophysiological capacities are perfectible, there is at least some interpretive ground for refusing to take his high rationalist rhetoric of toilings after self-correction too seriously. To take it at face value and then to convict Descartes of over-intellectualist moralising is at least equally troubling. In arguing that Descartes imagines an end to inquiry about the self, a final termination to the self-analysis, such interpretations trade on just the picture of a static, rigid body which, I have suggested, is entirely foreign to Descartes' physiology. For as long as the union of soul and body continues, the brain and its spirits churn and change away, shifting the grounds of the associative dispositions which it is the work of the soul to refigure.

Notes


5. Ian Hacking, *Renewing the Soul* (Princeton, 1995), 209, although Hacking does not deal with early accounts of self-knowledge, and would likely reject my knowledge about memory before the nineteenth century' (219).
10. AT v.178. For these quotations see also John Cottingham, *Carnelian rhetoric, reason and the passions*, *Revue Internationale de Philosophie* vol. 190 (1990), 195–216. 196. My discussion of the passions is much indebted to Cottingham's.
11. Descartes to Chanut, 20 November 1647, AT v. 87.
12. The material on memory and automatism, in particular, is developed more fully in my *Philosophy and Memory: Descartes in conversation* (Cambridge, 1996), especially 55–81. Here I employ it in detailed discussion of the role of psychology in the quest for self-consciousness.
16. AT v. 62.
20. Descartes to Mercurex, 29 October 1640, AT vi. 213.
22. For these quotations and a thoroughgoing account of this interpretation see Stephen Gaukroger, *Descartes: an intellectual biography* (Oxford, 1991), 231: here I draw further implications of Gaukroger's defence of forces among the corporeality by applying it to the case of physiology. Richard Gale offers another suggestive picture of the relations between physics and physiology in *Descartes' Medical Philosophy: the organic solution to the mind-body problem* (Baltimore, 1983); among other different in strategy, I am more concerned than Carrier to integrate the physiology and memory theory of L'Homme into an overall interpretation.
23. Gaukroger, *Descartes*, 412; see for example AT x. 50–83.
25. Gaukroger, *Descartes*, 247–8; AT viii. 79.
26. See *Principes* IV, art. 187 (AT v. 308-9); compare *L'Homme* AT x. 177 and
William R. Shea, *The Magic of Numbers and Motion* (Cambridge, MA, 1991), 111-25. Aspic Ribot-Hesprits, in her *Introduction* to Descartes, *Le Monde, L’homme* (Paris, 1996), pp. x-xii, claims that Descartes was seeking to eradicate the marvellous; but in my view he attacks not the wonderful phenomena themselves, but only the ignorance which makes the learned wonder at them.


31. AT xi. 335; AT vi. 129.

32. Descartes to Vosnia, 15 June 1643, AT iii. 689.

33. Descartes helped medicine veer from the organicist, mind-body approach, which prevailed from Hippocrates to the Renaissance* (Damasio, *Descartes’ Error*, 254). The error of such talk of a radical split is clearly revealed by the wonderful notes on Descartes’ sources in both Hall’s and Ribot-Hesprits’ editions of *L’homme*.


42. AT xi. 141–68.

43. D. Sepper, *Descartes’ Imagination* (Berkeley, 1996); Baker and Morris, op. cit.

44. AT xi. 163-4.

45. AT xi. 128-32. In the earlier preview of the remaining contents of *L’homme* (AT xi. 133), Descartes foreshadowed his discussions of muscular motion, of breathing and other reflex phenomena, and of the external senses. He then described the topic of the final long session, which in fact consisted of accounts of memory, dreams, and so on, thus: ‘after that I shall explain in detail all that happens in the arteries and pores of the brain, what pathway the animal spirits follow there, and which of our functions this machine can imitate by means of them’.

46. AT xi. 169.

47. AT xi. 130; Descartes to Vosnia, 19 June 1643, AT III. 600.

48. AT xi. 167-70.

49. AT xi. 167-8.

50. AT xi. 169-70.


52. See the Philosophy and Memory Special Issue, 31-49.


55. AT xi. 176.

56. AT xi. 171.

57. AT xi. 165-6.

58. AT xi. 171.

59. AT xi. 175.


61. AT xi. 128. The interconnected nature of all body fluids, with continual cycles running between blood, sperms, spirits, humours, sweat, tears and so on, is marked also in Descartes’ acceptance of a neural circulation equivalent to that of the blood: see Edris Clarke, *The Neural Circulation*, *Medical History* vol. 22 (1978), 291-307. On Renaissance assumptions about the interconvertibility of body fluids, see also Thomas Laqueur, *Making Sex* (Cambridge, MA, 1990), 35-45; 103-8.


63. AT xi. 134-7; AT xi. 335-6.


65. AT xi. 166-7.

66. AT xi. 404-5; compare L’homme, AT xi. 169.


68. AT xi. 177.

69. AT xi. 128.

70. AT xi. 178-9.


72. AT xi. 185.


74. AT xi. 415.

75. AT xi. 113.

76. Since the account of hatred, Descartes’ theory of corporeal memory is consistent from *L’homme* to the *Passions* (see AT xi. 380). This is enough to challenge John Morris’ claim (‘Patterns-Recognition in Descartes’ Automata’, *Int* vol. 60 (1969), 431-60) that Descartes’ references to a non-physical ‘intellect-
mental memory' from 1640 onwards were driven by his belief that the room-in-the-brain problem was insoluble. For other suggestions on why Descartes added sketchy remarks on intellectual memory to his thorough and complex theory of (corporeal) memory, see Richard Joyce, 'Cartesian Memory', Journal of the History of Philosophy vol. 55 (1997), 375-93, and Sutton, op. cit., 67-73.

80 AT xi. 183.
81 Marjorie Grene, Descartes (Brighton, 1985), 47-8.
82 AT i. 316.
83 Gaukroger, op. cit., 207-9, 392-4; Baker and Morris, op. cit., 91-100.
85 Owen Flanagan, The Science of the Mind (2nd edition, Cambridge, MA, 1991). S. Compare Otto Mayr, Authority, Liberty, and Automatic Machinery in Early Modern Europe (Baltimore, 1986), 66: 'To animals it was the brain that, consisting entirely of memory and therefore capable only of initiating preprogrammed action, corresponded closely to the mechanical program controlling automata. Mary's interpretation of mechanistic physiology as intrinsically authoritarian overemphasises the passivity of the early modern machines which served as Descartes' models: in fact, as he acknowledges elsewhere (42-54, 124; compare Baker and Morris, op. cit., 91-4), machines and automata were just as strongly associated with unreliability, uncertainty, and fragility.'
86 Rea, 'Denying the body', 661.
89 AT xi. 149-150, 316. See Georges Cagesilin, La Formaison des Concept de Rêve aux XVIIe et XVIIIe Siècles (Paris, 1955), 29-30; and, for a different account of the mechanisms involved, Jean-Marc Beyssade, 'Rêve, sommeil, alerte et les sénestés somnolents selon Descartes', in J.-L. Marion, ed., La Passions de la Raison (Paris, 1983), 115-30.
90 AT xi. 155-6.
91 AT xi. 149. 'The cavity F' to which Descartes refers here is not the pineal gland, but the ventricle.
92 AT ct. 294.
93 Descartes to Mersenne, 18 March 1630, AT i. 154.
94 Pavis, AT iii. 570.
95 AT i. 153-4.
98 Descartes to Huygens 5 October 1637, AT i. 458.
99 Toussaint, op. cit., 41.
100 AT xi. 143. Among the numerous references to the soul in L'homme compare

especially, for similar locations, AT xi. 171, 178. It is unlikely that the promised section of the overall project of Le Monde on the soul was written and lost, as Ribal-Hoffmann concludes (Introduction, xii-xiii). Le Monde, including L'homme, should be seen as unfinished.
103 As I say, this is a straightforward reading of a text carefully analysed in similar directions by others. I am particularly indebted to Peter Sloterdijk, Descartes and the Enlightenment (Kingsport, 1980), 144-72; to Cottingham, 'Cartesian Ethics', op. cit., and to John Cottingham, Philosophy and the Good Life (Cambridge, 1998), ch. 5. See also Anthony Lewis, The French Moralists (Oxford, 1984), especially 279-282; John J. Riem, Descartes: his moral philosophy and psychology (Brighton, 1978), especially 84-96; Jeffrey Barnard, 'Passion as "Confused" perception or thought in Descartes, Malebranche, and Huschenson', Journal of the History of Ideas vol. 53 (1992), 297-495; and Vance G. Morget, Foundations of Cartesian Ethics (New Jersey, 1994), 149-71. But it is rare for this material to be understood in the light of the physiological accounts of memory and association with which, I argue, it is closely linked. My reading of Descartes' psychosomatics differs a little from that of Denis CSL Chene (ch. 29 of this volume). I do not find such a severe developmental shift in Descartes' views from the early 1650s to the late 1640s (for a chronological account similar to Chene see Gaukroger, Descartes, 387-8); this is because I do not see the earlier physiological theory as in any sense incompatible with psychosomatic therapy, and because I do not see the later psychosomatic theory as in any sense less neurally inspired. Similarly, Toussaint's complaint that Descartes' physiological interests thus anticipate "biomedical science" more than they could "medical clinics" (Cosmopolis, 70) founders not so much on the false dichotomy between the two forms of medicine, which has of course had its historical effects, as on its neglect of the extensive, careful, and expectant aspects of the therapies which Descartes' dynamic physiology requires.
104 Malebranche, The Search After Truth, 607.
105 Pavis, AT ii. 468-9.
106 AT xi. 498.
107 Stephen Voss, ed., The Passions of the Soul (Indianapolis, 1989), 42, n. 43.
108 AT xi. 357; AT xi. 568-9.
109 AT xi. 566.
110 AT xi. 362-3. 365-6.
111 AT xi. 381-2.
112 AT vi. 490-1.
113 John Cottingham, "The Self and the Body: alienation and integration in Cartesian ethics", Seventeenth-Century French Studies vol. 17 (1995), 1-18. 11. But in his later paper 'Cartesian Ethics', Cottingham acknowledges the force of our "past psychological history" as well as our physiological make-up. In Philosophy and Memory Trauma, I too misleadingly described the associations which Descartes thinks we need to correct as primarily biological (102).
114 AT xi. 486.
115 See the entries for diaphanie and Ambitie in Voss' outstanding lexicon, in his edition of the Passions, 136, 140.
116 See Rea, 'Denying the Body', op. cit.
117 AT iv. 295.
118 AT vi. 295.
120 As described for primitive connections between movements and love, hatred,
joy, sadness, and desire in the Description, AT xi. 407-11; and compare Descartes to Chanut, 1 February 1647, AT iv. 605-6.

121 AT vi. 429.

122 For this terminology, see Schools, Descartes and the Enlightenment, 168-9; Cottingham, Philosophy and the Good Life, 90-2.

123 AT xi. 486.

124 AT xi. 309-70.

125 6 June 1647, AT v. 57.

126 Schools, Descartes and the Enlightenment, 170-2; Cottingham, 'Cartesian Ethics', 216.

127 AT xi. 579.

128 AT xi. 486.

129 AT xi. 429.


131 Phillips, Terms and Experts, 96-100.

132 AT xi. 486.

133 Malebranche, The Search After Truth, 141, 586.

134 Ibid., 303, 151.

135 Ibid., 308-9.

136 Ibid., 369: compare 359: ‘we know that before his sin man was not the slave but the absolute master of his passions’.

29 Life and health in Cartesian natural philosophy

Dennis Des Chene

Introduction

In a letter of 1657, Descartes, then forty-one, writes that he has less leisure than he once had, since ‘the white hairs that hasten my way are warning me that I should not study anything but how to slow them down.’ The Discours, published that same year, had already proposed that ‘if it is possible to find a way to render men in general wiser and more able than they have been until now, I believe that it is in Medicine that one must look for it.’ Writing to the Marquis of Newcastle a few years later, Descartes goes so far as to say that ‘the conservation of health has been at all times the principal end of my studies.’ That, no doubt, is hyperbole. But even if it would be too much to call Descartes’ philosophy a medical philosophy through and through, there is no doubt that the preservation of human health was one of its chief aims.

It is curious, therefore, that within his natural philosophy there seems to be no place for a normative conception of well-being. We have, on the one hand, the project of a scientific medicine—one of the crowning glories of the tree of knowledge—and on the other, a world—that of Le Monde, L’Homme, and the Principia—which, though it certainly allows for the description of the human body, is not merely indifferent to, but is designed to exclude, notions that would seem requisite to defining the aims of any medicine; life, health, disease. Such notions must, it would appear, refer to ends; but ends are rigorously banished from Cartesian physics.

There was, it turns out, more than one way to make up the loss. The first I call biosomics. Its object is the body alone, regarded as a pure instrument, whose ends are imposed upon it in just the way that time-keeping is imposed upon a clock. The second I call psychosomatics. The object of psychosomatics is not the body-machined alone, but rather the union of mind and body. The union is a proper subject of teleological properties, and thus of normative predicates defined in terms of them. For the body-machined, health and sickness are external valuations, but for the union they are genuine properties.