Review of *THE FEELING OF WHAT HAPPENS. Body and emotion in the making of consciousness*. By Antonio Damasio. 385pp. Heinemann. £20. TLS £16. 0 434 00773 0

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'Consciousness is an entirely private, first-person phenomenon', and we must be grateful to Antonio Damasio for stating this obvious 'Cartesian' truth so forthrightly at the beginning of *The Feeling of What Happens: Body and emotion in the making of consciousness*, if only because it has been so often denied in the twentieth century—the silliest of all the centuries, philosophically speaking. Although Professor Damasio is well known for his book *Descartes's Error* (reviewed in the TLS, August 25, 1995), and although *The Feeling of What Happens* is a direct continuation and development of *Descartes's Error*, Damasio never uses 'Cartesian' as a term of pity or abuse—unlike most present-day philosophers and psychologists. Descartes was a great genius, as he knows.

What was Descartes's supposed error? To underestimate the extent to which mind and consciousness are bound up with the life of the body. He acknowledged the extreme intimacy of this relation, observing in his *Meditations* that 'I am not present in my body merely as a sailor is present in a ship, but . . . am very closely joined and as it were intermingled with it, so that I and the body form a unit'. Nevertheless he underestimated it, and sought to prove that consciousness could not be a physical process.

Some say he was motivated to do this by fear of the Inquisition (especially after its condemnation of Galileo), and this, if true, is understandable, because his scientific theories took him to the brink of a materialist position wholly unacceptable to the church. He gave an entirely mechanistic account of the physiology of the human body, for example, and, although he is now routinely scolded for his dualism, he spent his first 150 posthumous years under fire for being one of the great advancers of the materialist cause. Which he was—whatever else he was.

Descartes, in truth, is a natural ally of Damasio's, even if Descartes isn't a secret materialist, as some (including Julien Offray de La Mettrie, the author of *Man a Machine*, 1747) have tried to make out. Hume, in an early memorandum, notes 'a remarkable study to confirm the Cartesian Philosophy of the Brain. A Man hurt by the fall of a Horse forgot about twenty Years of his Life, and remember'd what went before in a much more lively Manner than usual', and this is exactly the kind of case that Damasio draws on himself. He may be the author of *Descartes's Error*, but he is also Descartes's heir—one of his true inheritors, engaged in just the mix of empirical work and philosophical-scientific theorizing that Descartes would have been engaged in himself, had he been alive today.

Consciousness can seem very puzzling. We know it exists—each of us knows from vivid personal experience what it can be like—but we cannot see how to integrate the private, first-

personal data of consciousness with the public, impersonal picture of ourselves as wholly physical objects delivered to us (with such authority and panache) by the natural sciences. One can, however, thicken lines of communication between different parts of what one knows without integrating them fully into a single theory, and this is Damasio's aim: 'the traditional worlds of philosophy and psychology have gradually joined forces with the world of biology', creating an 'odd but productive alliance' within 'the loose federation of scientific approaches currently known as cognitive neuroscience'. The hope is that it will advance our understanding of consciousness.

Damasio begins by dividing the problem in two. First, the old problem of 'qualia': how can processes in the brain engender, or constitute, or simply be, conscious experiences, conscious 'mental images' in Damasio's terminology—sights, sounds, tastes, smells, emotions, entertainings of thoughts, and so on? All these experiences have, essentially, a certain qualitative character or 'what-it's-like-ness' for those who have them as they have them; they constitute what Damasio calls the 'movie-in-the-brain'. But it is not as if we will find the what-it's-like-ness laid out before us, or somehow deducible from what is laid out before us, if we look long enough and hard enough at the brain from outside, using tools like eyes, scalpels, microscopes, functional magnetic resonance imaging, positron emission tomography, magneto-encephalography, and the best theoretical physics available. When we do this we find many brain structures—amygdalas, hippocampi, reticular activating systems, intralaminar thalamic nuclei, and so on; we also find neurons, axons, dendrites, synapses, neurotransmitters, sodium ions, potassium ions, electrons, protons and quarks. But none of this helps us in any way to understand how it can be that brain processes engender, or simply are, conscious experiences.

Damasio supposes that consciousness will eventually be explained neurobiologically, but I am not sure what he has in mind. A satisfying explanation would certainly require a revolution in physics (not just advances in neurobiology) of a kind currently unimaginable, and there are impressive a priori reasons for thinking that no such advances could ever do the trick. It may be possible to give some sort of evolutionary explanation of the prevalence of consciousness given its existence, and Damasio has some interesting thoughts along these lines; but an evolutionary explanation of this kind would not amount to any kind of explanation of how it is that consciousness can exist at all, given the nature of the brain as revealed by physics and neurophysiology, and Damasio has little to say about this.

Rightly, I think, for there is nothing much to say, or that needs to be said. The standard formulation of the 'mind-body problem' rests on a huge and wholly unjustified assumption (this assumption, in fact, is Descartes's deepest error). It is not content with the obvious truth that matter and consciousness seem to us to be utterly heterogeneous things. It slides on to the claim that matter and consciousness are in fact utterly heterogeneous things, in such a way that it is mysterious how one could ever be the basis or 'realization' of the other. It shifts from a harmless and true epistemological claim about how things seem to us to a hunking megatherial metaphysical claim about how things are in reality.

Why? Why indeed? The root cause of the mistake is the unsupported assumption that current physics—or indeed ordinary experience, in its own modest but compelling way—gives us a pretty good fix on the fundamental nature of matter, and shows it to be utterly qualitatively unlike consciousness. It is only relative to this assumption that the existence of consciousness in a material world seems in any way mystifying, for there is nothing particularly puzzling about consciousness as it is in itself. We know just what it is like—or at least what certain forms of it are like. Consider an experience of blue or of giddiness. Consider it as it is in itself. You know what it is. So, if our best picture of matter makes it seem incomprehensible that matter should be the basis of (or simply be) conscious experience, all this shows is the inadequacy of our best picture of matter. Locke, Hume, Priestley, Kant and others were very clear about this, but few understand it today. Many now make Descartes's deepest error, in fact, with far less justification than him—while condemning him for his errors.

It is not in any way anti-scientific to claim that we do not have a good fix on the fundamental nature of matter. Current physics instructs us daily in how foolish it is to assume that we do (while providing a magnificent theoretical framework in which to express and exploit a great deal of information about the behaviour of matter). It is widely agreed that the current 'Standard Model' is unsatisfactory; the old quarrel between relativity theory and quantum mechanics remains unresolved; there is turmoil in general cosmology; and String Theory, after the 'second superstring revolution', is again pressing obscurely at the door.

The first problem of consciousness, then, the mind-body problem or qualia problem, is just a vivid proof of our ignorance of the nature of matter, and of the difficulty—seeming impossibility—of reconciling first-personal and impersonal data. There is no metaphysical mind-body problem, only an epistemological one.

The second problem of consciousness, according to Damasio, who makes a highly original departure at this point, is the problem of the self. If the first problem is how the 'movie-in-the-brain' is generated at all, the second is how 'the appearance of an owner and observer for the movie . . . is generated within the movie'. Damasio argues that all conscious experience involves some sort of sense of self: that, in 'engendering' qualia or conscious experience, the brain 'also engenders a sense of self in the act of knowing'.

What does this mean?

To help me clarify what I mean by *self* and *knowing*, I urge you to check their presence in your own mind right now. You are looking at this page, receiving sensory images, and constructing the meaning of my words as you go along. In parallel with this, your mind also displays something else. Besides the sensory images, there is also this other presence that signifies you, as observer of the things imaged. There is a presence of you in a particular relationship with some object. The presence is quiet and subtle, and sometimes it is little more than a 'hint half guessed', to borrow words from T. S. Eliot. In its simplest form, the presence of you is the feeling of what happens when your being is modified by apprehending something.

Some may think this unacceptably vague, metaphorical and unscientific, but in fact it is very

delicate and accurate (the phrase ‘the feeling of what happens’ is taken from Seamus Heaney). It is science at its best as it applies to this particular area of reality, and it is valuably varied and expanded in other parts of the book.

It may be objected that, when one is gripped by a book or film or game, one has no sense of self at all. Not so, in Damasio's view. The sense of self does not require explicit self-awareness. It varies on a long spectrum from full self-consciousness to something very much more muted and implicit and merely felt, and the case of being gripped by a film is simply an example of how things are for us down at the ‘hint half guessed’ end of the spectrum.

For much of the time, Damasio is operating in the peculiarly difficult region between phenomenology and physiology, working out an intermediate form of theoretical description which one might call ‘mental-functional’ description. His pivotal terms—‘proto-self’, ‘core consciousness’ and ‘core self’, ‘extended consciousness’ and ‘autobiographical self’—link tightly to neurophysiology on the one hand (he makes detailed claims, usually well-confirmed or testable, about the brain structures that subserve proto-self, core consciousness, core self, and so on) and to phenomenology on the other hand.

The enterprise is complex, and I can only set out a part of it. One way to start is to consider the brain—the human brain, say. It is the entirely naturally evolved control centre of an entirely naturally evolved organism capable of movement through a complex external environment, and it is hardly a matter of surprise that many of its most basic operations are dedicated to the task of efficient navigation of this environment. We need to see, hear, smell, and so on. Large parts of the brain are accordingly dedicated to the processing of data from the external or ‘exteroceptive’ sense organs.

It is a point far less often dwelt on, but equally obvious on reflection, that the control centre of a successful and complex organism needs to be just as well informed about the internal states of the organism in which it is located as it is about the external environment. Success in life depends not only on the brain's monitoring of the surrounding environment, but also, and equally, on its monitoring of the condition of the body. It can't do a good job of getting the relationship between the organism and the surrounding environment right unless it has both these pieces of information.

The brain has accordingly evolved to monitor the body very closely indeed. It is constantly receiving ‘interoceptive’, ‘proprioceptive’, ‘kinaesthetic’ and ‘somatosensory’ information about the body. Different writers use these terms in varying ways; Damasio takes ‘somatosensory’ as primary. In his use it not only covers touch, with which it is often particularly associated. It also covers proprioception and kinaesthesia—reception of information about limb position, posture, location, orientation, and movement from the vestibular system and the ‘musculoskeletal system’ of muscles, joints, and tendons—as well as interoception: reception of information about the viscera (including the skin, the largest organ of the human body), the chemistry of the bloodstream and overall ‘internal milieu’.

The processes that underlie this rich, constant supply of internal information have been well studied biologically, but the idea that they are central to the study of mind and self has received less attention. There are precursors (including in the nineteenth century Wilhelm Wundt, Nietzsche, William James, and Ludwig Feuerbach, who in the 1840s wrote that 'the body in its totality is my self, my very essence') and the main ideas have been variously in the air, but Damasio takes them further with striking specificity, and now introduces his first key element, the proto self. The proto-self is the continuously updated, many-faceted representation in the brain of the state of the body. We are not conscious of it as such, but it is the deep foundation on which any conscious sense of self is built.

This is the first stage of the theory. The second takes us to basic consciousness, consciousness of the here and now: 'core' consciousness, and the 'core' self that is integral to it. Organisms as they evolve not only come to represent (1) objects, e.g. houses or horses (though Damasio makes a valuable Humean move in using 'object' for any object of attention, a thought or a pain as well as a house or a horse), and (2) themselves, i.e. their own internal state as imaged in the proto-self. They also come to represent (3) the relationship between the organism and the object: to represent the organism in the process of being modified by the object. This non-verbal, second-order form of representation fits them for efficient negotiation of their environment as nothing else could, and Damasio's hypothesis about consciousness is simply this: core consciousness occurs whenever such second-order representation occurs; it occurs when the brain is engaged in generating an 'account' of how the organism's state is being affected by the organism's processing of an object of attention.

This is not a hypothesis about how consciousness comes to exist at all, or about how it exists in the brain (that is the first problem of consciousness). It is just about when consciousness occurs, and about why some kind of sense of self, some core awareness on the part of the organism of itself, is integral to it. The core self is 'the protagonist of consciousness' moment by moment. It is a 'feeling-image', of the organism 'caught in the act of representing its own changing state as it goes about representing something else'. It is a transient entity, 'ceaselessly re-created for each and every object with which the brain interacts', and whatever its minimal form in lower non-human animals, it has very substantial content: Damasio characterizes it as a non-verbal, implicit awareness 'that there is an individual subject . . . that the images of any given object that are now being processed are formed in our individual perspective, that we are the owners of the thought process, and that we can act on the contents of the thought process' (my emphasis). 'You rise above the sea level of knowing, transiently but incessantly, as a felt core self, renewed again and again.'

Core consciousness necessarily involves a sense of self, then, but it is a sense of self 'about (sic) one moment' only, and ordinary human beings also, and crucially, have 'extended' consciousness. This awareness, described in the third part of the theory, reaches beyond the here and now to encompass past and future, and comprises in itself the 'autobiographical' self central to most people's lives:

a sense of self grounded in ‘a repository of memories for fundamental facts in an individual biography that can be partly reactivated and thus provide continuity and seeming permanence in our lives’.

Proto-self grounds core self, core self grounds autobiographical self. This is the structure in barest form, and Damasio has worked it out in considerable detail. But it needs to be interpreted with care, for it is not as if there are two fundamentally different types of subjects of experience, on Damasio's view: core selves and autobiographical selves. It is rather that there are two different types of sense of self. Nor is it as if there are two fundamentally different types of conscious episodes (short-term core-consciousness episodes and longer-term extended-consciousness episodes). It is rather that there are two different types of contents of consciousness: core content, here-and-now-representing content that can exist without any autobiographical memory at all, and extended content, historically aware content of the sort that flourishes in human minds and is typically centred round a sense of the autobiographical self.

This is the issue on which Damasio is most likely to be misinterpreted, unless I have misinterpreted him myself. One might put the point by saying that core selves exist in a sense in which autobiographical selves do not. Core selves are the actual subjects or poles of conscious experience, moment by moment. They are what we know to exist when we register the metaphysical truth that an experience cannot exist without a subject of experience. They in their concatenated transience are what the existence of the apparently continuous, persisting self actually (and deceptively) consists in. Autobiographical selves do not exist in this sense. All actual experiences, including all experiences that incorporate a sense of the autobiographical self, are experiences had by core selves existing in rapid succession. An autobiographical self is a matter of a certain kind of content; it is not a different kind of subject of experience.

The Feeling of What Happens has been criticized for its difficulty, and it is a lot easier to read if one grasps this complexity from the start. It is well worth the trouble. It shows great strength and persistence of thought—a happy power of following through—and there are acute discussions of the various brain lesions and pathologies that help us to understand the biological nature of consciousness precisely by interrupting its normal operation and display—persistent vegetative state, coma, locked-in syndrome, akinetic mutism, epileptic automatism (which includes absence automatism), asomatognosia and transient global amnesia.

Damasio's account of the structure of emotion is also extremely useful, but it raises new terminological difficulties, because emotions are not even conscious states, according to his definition, and feelings need not be conscious states either. He distinguishes between (1) ‘a state of emotion’, which is never conscious; (2) ‘a state of feeling’, which is engendered by an emotion and is also not conscious in itself, although it can come to consciousness; and (3) ‘a state of feeling made conscious’, which is by definition conscious. The trouble is that all the things we ordinarily think of as feelings and emotions are conscious, so that this way of putting things is likely to cause confusion and encounter unnecessary opposition. But the basic idea is sound and valuable.

The isolation of (2) as a separate category is particularly important. One could express the idea behind it by saying that there are unexperienced qualia. Logically impossible, some will say; but certainly true, in the sense in which it is intended. Damasio gives an example: 'we often realize, quite suddenly, in a given situation, that we feel anxious or uncomfortable, pleased or relaxed, and it is apparent that the particular state of feeling we know then has not begun on the moment but rather sometime before'. An even better example, perhaps, is the experience of coming to consciousness of the patterns before one's closed eyes as one lies awake in the dark, thinking or waiting for sleep. It is evident that one does just that—come to consciousness of the patterns—and that they are already going on before this happens. This simple phenomenon—this little insight into one of matter's everyday forms of life—is I think of great importance when it comes to the study of consciousness.

Damasio moves freely between the neurological and philosophical domains, and his speculative verve will trouble specialists on both sides. He is always adjusting, embroidering, summarizing, reopening and recasting the statement of his central theses, and the constant variation may bother those who like definitions tight. But it is effective in building up the reader's grasp of a complex pattern. It is an instructive record of Damasio's struggle to map out relations between ideas that are clearly closely interconnected, but in ways that are very hard to nail down. Now, perhaps, he could express the heart of his position effectively in 100 pages (adding a *Prolegomena* to his *Critique of Embodied Reason*); but only because he has gone through the struggle recorded here and in Descartes's Error.

Could the body be primordial in the evolution—phylogeny—of the sense of self without being equally indispensable in its ontogeny—its development and persistence in the individual case? Could brain activity of which one is not conscious, and which is not registered by any of Damasio's somatosensory mechanisms, be part of what grounds the sense of self? Might not features of the field of consciousness that lie outside the focus of attention be part of what grounds the sense of self? Many questions arise; there is much more to be said. Damasio's theory invites integration with James Gibson's 'ecological' insights into the origins of the sense of self (in, for example, *Reasons for Realism*, 1987) and Donald Stern's broadly speaking psychoanalytical insights (in *The Interpersonal World of the Infant*, 1985). For the moment, though, it stands on its own, a powerful book, thrilling at times, a major contribution to the great Cartesian tradition of the human mind's study of itself.