The Cartesian vision fulfilled: analogue bodies and digital minds

IAN HACKING
Collège de France, 75231 Paris, France

Current intellectual wisdom, abetted by philosophers of all stripes, teaches that the Cartesian philosophy is both wrong and dead. This wisdom will be overtaken by events. Present and future technologies – ranging from organ transplants to information coding – will increasingly make us revert to Descartes's picture of two absolutely distinct types of domains, the mental and the physical, which nevertheless constantly interact. We as humans are constituted in both domains, and also must inhabit them. This is less a matter of facts – for what a person is, is never simply a matter of fact – than of how we will come to conceive of ourselves in the light of the facts that will press in upon us.

I made up my title, 'Analogue bodies and digital minds', months and months, or maybe years, before I gave the lecture on which this paper is based, in order to provide an entry in the list of talks. But only a couple of weeks before the talk did I witness the parody of my title.

JAPANESE ROBOTS

It was on the last day of an exhibition, with the title 'Men and robots', and the subtitle 'Cybernetic fantasies' ('Hommes et robots – de l'utopie à la réalité. Fantaisies cybernetiques'). It was at the Maison de la Culture de Japon, in Paris. It had got a lot of hype in the French press, but the big number, dancing, chanting robots struck me, and my two companions, as absolutely abysmal. It was little more than a publicity event for Sony, who made the robots. But they did illustrate my title. For here were four little dancing robots, marvels of technical ingenuity, doing their thing, singing, dancing, falling over, tripping and being able to get up again. They were analogue human beings. They had faces and legs and sounds and whinings. Cute more or less American voices speaking English in Paris. How like life. But of course underneath these silly humanoids there were a bunch of digitised programs that enabled them to do what they do. Exactly the same is true of the robot called ASIMO, who performed earlier in the month in Paris, and who later entranced audiences at the Science Museum in London for a while. ASIMO is Honda's. Fujitsu has HOAP-2. NEC has PaPeRo. Robots that are analogue human bodies seem to be a project of every major Japanese manufacturer.

There is an analogue dog, which apparently is becoming popular as a very expensive pet. The geniuses who design these entities make them resemble living creatures. They are analogues. And the internal programs that enable them to do what they do are entirely digital. These entities are half way to passing the Turing Test: they can answer questions,

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although their most important property is to be able to pick themselves up after they trip and take a tumble. Even Turing did not think of that as a test of whether you are robot or dog. I hesitate to say that these things have minds, but their operating systems are digital while their bodies are analogues.

I have no critique of Japanese robots in general, especially the industrial ones. I am told that sixty per cent of the robots in the world are made in Japan. But they are not analogues of anything. They are functional. They put Toyotas together, without trying to look like Toyota employees. There was of course a transition. That is, if you try to transform a factory from mostly manmade to mostly machine-made, you will start by making machines that do repetitive operations better than people do, but sort of imitate people. Robotics passed through that age decades ago.

MANGA

In my opinion this event was hardly worthy of the attention of the high class Paris media. But there is an interesting ethnographic issue, of the difference between – at the extreme – the English relations to machines, and the Japanese. To quote from the somewhat hyper pamphlet for the exhibition, 'Now and in the future these autonomous machines accompany the Japanese, by day and by night, whether they are valued and controlled in the industrial sector and in hospitals, or gadgets that become delightfully indispensable in a home that is becoming more and more "intelligent", and in the office, as well as in the intimacy of one's own car. It is very likely that *homo japonais* from now on will live in perfect harmony with these new companions, these different kinds of robots.'

The differences in relationships to machines show up in endless ways, and in particular in films and comic strips. One is somewhat more conscious of manga and anime in Paris than in London. I know that there have been touring manga shows and so forth in London and in the UK, but since the BD, the *bande dessinée*, the comic strip, is such a central part of French culture, one is now surrounded by manga. I pass several specialist manga shops on my fifteen minute walk to work, plus a shop that sells many copies of a ten volume sequence telling you how to draw manga and create the stories, *Le Dessin des mangas*.

It is worth remembering that the classic post-war manga, *Metropolis* by Tezuka Osamu, is about a vast city populated by robots and people. That is late 1940s, and has set the stage for all subsequent work. Western imitation manga tends to emphasise weird sex and cruelty. Be careful searching the internet for manga, for you will quickly get hit by hentai sites, porn sites that lock on to your computer and won't go away. Japanese manga has not been like that at all. It has been about the relation between people and machines, and the possibility of integrating them.

I begin with these remarks to emphasise that I am about to discuss something thoroughly Western, which would not replicate in Japan, in fact which would not be intelligible in Japan. The Japanese had the good or ill fortune never to have a Descartes to form centuries of their culture. Indeed there are excellent Cartesian scholars in Japan, but the philosopher had no effect on the civilisation. Thus the first part of my title, 'The Cartesian vision fulfilled', is about a curiously Western vision of who we are.

New technologies, I shall claim, will change our, Western, vision of the relation between body and soul, but that does not generalise or universalise. This is a wholly insular paper,

about how technologies current in the West are changing Western conceptions of mind and body. I say technologies current in the West, and will glance at organ transplants. Organ transplants are rare in Japan. For two decades, there was only one disastrous Japanese heart transplant. Not because they can't do it – anything we can do they can do better – but because it is counter to another ethos, another morality, another conception of the body. I shall not pursue this sketchy ethnography, which I first learned from the detailed comparative anthropology by Margaret Lock, *Twice Dead*.[1]

I do on the other hand want to emphasise the fact that although some careless people might call this paper 'relativist', they would probably do so wrongly. I am a boring anti-relativist, which allows me to observe that as a matter of objective fact, some things have histories and are culturally embedded. One thing that is culturally embedded is Descartes, embedded in our history. Generations of dealing with his vision of mind and body are part of our history.

DESCARTES

Descartes is absolutely out of fashion among intellectuals and philosophers of most traditions. He is revered as a stylist. He is the honoured father of modern philosophy. Undergraduates love him for his scepticism about dreams. But his positive arguments and conclusions are in absolute disfavour. Two in particular are regarded as wrongheaded. One is his quest for certain knowledge with sure foundations, his foundationalism, as it is called. The other is his real distinction between mind and body, and his claim that they are two totally different substances, his dualism, as it is called. I have no desire to resurrect his search for certainty, or his belief that knowledge must have foundations. But as you will know from my abstract printed at the head of this paper: this return to dualism is less a matter of facts – for what a person is, is never simply a matter of fact – than of how we will come to conceive of ourselves in the light of the facts that will press in upon us. Thus I am not concerned with human nature, as a fixed item in the world. I am concerned with what we take our nature to be.

When I say that Cartesianism is wholly rejected, I do not mean to imply that no one is a dualist any more. Christians and Muslims traditionally believe in an immortal soul and a corruptible body, which may be resurrected in an afterlife. Soul and body are thus distinct, though not necessarily in the strict metaphysical sense of Descartes, that is, of two substances in the scholastic, or post-scholastic, sense encouraged by Descartes. Nothing that I will say here will reinforce the idea of an immortal soul, distinct from the corruptible body. It is quite a different sort of dualism that I envisage, one that is, I shall argue, a surprising simulacrum of Cartesian metaphysics. Let us first turn to Descartes himself.

THEOLOGY, PSYCHOLOGY AND THE WILL

Descartes had several different reasons to distinguish mind and body. Perhaps they may all be called philosophical reasons, but within the philosophy we can distinguish, among other reasons, what I shall call theological, psychological and metaphysical reasons. The reasons may, as is so usual with the word 'reason', be either grounds for belief, or motives for believing.

There was doubtless the *theological* motivation just mentioned. An immortal and corruptible soul cannot be connected, of conceptual necessity, to its present material body. It may be connected to body. The Christian doctrine of the resurrection of the body allows the soul to be connected now to its material body, and later to be connected to its resurrected and incorruptible form. Metapsychism, the idea of the transmigration of souls, allows it to migrate to successive embodied lives. That is a doctrine favoured more in the East than in the West, but it is one which had a certain currency among nineteenth century spiritualists. In whatever theory, my immortal soul can be connected to my body in only a contingent and temporary way. This is certainly *a* ground for a distinction between soul and body. I do not know the extent to which Descartes was moved by this as a *reason*, or the extent to which it was a wonderful *convenience*, in that he could appear to have a metaphysical theory consistent with and perhaps even making sense of the immortality of the Christian soul.

One group of *psychological* reasons for distinguishing mind and body involves choice, or in Cartesian terms, the will. Mr K decides to loosen his shirt collar, even if this annoys his boss. Dr L engages to learn Italian to keep her jaded and aging mind alert. Lord M resolves not to think about the loathsome ways in which he has deceived his wife. Ms N becomes afflicted with weakness of the will; she does not want to do anything much, not even get out of bed in the morning. What is melancholia, or what we now call depression, but weakness of the will? It was so called, even by William James, who had an attack of it, and was cured by courage and by philosophy. This 'will' seems like a will from nowhere, affected by states of the body, but with a life of its own. I doubt that there has ever been a human society that has not used regimens and medicines to improve the will. Two hours for the astronomy at the mentally peak time of the day. So many units of blood to be leeched out, or tablets of Prozac to be ingested, to diminish the melancholy. The will can be affected by material practice or treatment. But the will does seem like a will from nowhere that chooses, decides, resolves and in some way causes us to use our bodies to try to get what it wants.

This talk of the will uses a more seventeenth century idiom than is common in secular life today. Our philosophers now teach a theory of action in which choices are a function of beliefs and desires. Mr K is hot; he believes a less constricted neck will make him more comfortable. He believes a loosened collar will not trouble his boss too much. He wants less discomfort; he also wants to be in the good graces of his boss. He makes a balance of utilities (wants) and probabilities (beliefs), and so decides what to do. Whether we adopt this contemporary model or a more ancient one, deciding what to do does not seem to take place anywhere. We say 'in the head'. Other civilisations have said 'in the heart'. Bodily metaphors abound, such as Pascal's: the heart has its reasons which reason cannot know. Thomas Nagel captured an almost universal sensibility when he wrote about 'the view from nowhere'. Nagel was discussing epistemology, but his wonderful phrase captures a psychological sensibility too. It is essential to recall that Descartes's theory of the will is an integral part of his philosophy. If the will is mental, then it is literally nowhere, for it is not in extended space.

DESCARTES AND THE PRINCESS ELISABETH

Nevertheless, neither of these motivations, theological or psychological, bears on Descartes's 'real distinction', which is found in his final and perhaps most technical work

of metaphysics, the first part of the *Principles of Philosophy*. A *real* distinction is not just a sound distinction, a right distinction, but a distinction in reality itself. But here we have a problem. For Descartes would, in the scholastic manner, lump together a logical distinction and what looks like a material distinction. I want to fix on his logical distinction, and in turn distinguish it from his material one.

Although most of the ideas of the *Principles* can be read with hindsight into the *Meditations*, they are probably an explicit response to his most careful critic, whom with irritating Frenchness I shall call the princess Elisabeth. This does not mean the one and only such princess, as Bertrand Russell taught us it would mean in English, but is simply the form demanded by the French language, as spoken by Descartes. She is also called Elisabeth, Princess Palatine, and the Princess of Bohemia. She was the granddaughter of James I of England and VI of Scotland, and the niece of Charles I. Her mother, Elizabeth Stuart, married well, becoming briefly Queen of Bohemia, roughly the area now known as the Czech Republic. She was a Protestant at the height of the Thirty Years War. The Protestants lost, in that region of the world, the Battle of the White Mountain, 8 November 1620. Her husband lost his throne. Indeed Czechs lost a country until Woodrow Wilson tried to put things right, recreating Czechoslovakia some centuries later. This queen became known as the Winter Queen, queen for one winter.

Elizabeth Stuart's daughter, the young princess Elisabeth, ended up in the only free country in the world, namely Holland, and had the best teachers. She mastered mathematics and all the ancient and modern languages, she was a whiz at what we now call physics. She knew history of the classical and contemporary worlds inside out, and was well versed in religion, as she had to be, the Protestant scion of Catholic Scots.

It is taken to be known that Descartes met the princess Elisabeth when she was about twenty-four,[2] but there is no proof of this. No date of meeting, for example. In any case, at the age of twenty-four the princess Elisabeth wrote to Descartes with some questions. First about metaphysics, and later, at greater length, about morality. The moral philosophy will for many readers today appear to be more important. But it is the metaphysics that concerns us. What she asked was, simply put, given your mechanical philosophy, Descartes, how can mind act on body, if they are two distinct substances?

I shall not copy her astute correspondence. Antonio Damasio, the eminent neuroscientist to whom I shall return later, writes in his book *Looking for Spinoza*, 'Princess Elizabeth of Bohemia, the sort of bright and friendly student we all wish to have, saw quite clearly then what we see clearly now: For mind and body to do the job Descartes required of them, mind and body need to make *contact*. However, by emptying mind of any physical property, Descartes made contact impossible.'[3] I do not believe that Damasio has quite captured the tone. This was not your bright and friendly student. This was the best educated and smartest woman in Europe. By the way, the French title of Damasio's book is *Spinoza avait raison* – 'Spinoza was right'. It was the third in a trilogy, of which the first was titled *Descartes' Error*.

I shall put it to you that there is a way to think about Descartes in which he may have been closer to recent thought than current wisdom proposes. But first. The striking thing is that in the initial correspondence, Descartes replied only evasively to Elisabeth. As if the question was a misunderstanding. A principle of hermeneutics says that if the smartest person of his generation appears to miss the point, well, think again about what he was

doing. Maybe he did not miss the point. It is we, his readers many generations later, who are missing the point.

Descartes was to write the *Principles*, which he dedicated to Elisabeth. Not a dedication in the manner of the times, asking an important person for patronage. A dedication out of real respect, for the princess had little patronage to give. Why not apply another principle of hermeneutics, that he meant what he said? 'This new book, which I dedicate to you, is my answer to your questions.' I shall so read Descartes.

In fact Elisabeth may well have caused the death of Descartes out of an inadvertent attempt at patronage. For she wrote to the Protestant queen of Sweden, Christina, asking for help getting some land back for her family. As a side effect, Christina invited Descartes to Sweden, as a real piece of patronage. There, as is well known, he caught cold or worse, and died.

The princess Elisabeth ended up running a Protestant nunnery with large estates in Westphalia, basically being a farm manager and a religious manager at the same time. She is, oddly, a nice symbol of a Europe only once again coming into being today, a Stuart, hence a Scot, princess of Bohemia, namely the Czech Republic, best student in Holland, and a notable administrator in western Germany. Not to mention urging her uncle, Charles I, to allow religious tolerance for the English Quakers. These are hardly our topics here. But they do set the scene.

DESCARTES'S 'REAL DISTINCTION' BETWEEN MIND AND BODY

So how did Descartes respond, after much thought, to his young correspondent, on the question of dualism? He wrote, around section 50 of Book I of the *Principles*, explaining the real distinction as what I would call a logical and not a material distinction. Indeed I exaggerate. He still wrote in the language of 'substance'. We cannot use that language any more. Yes we have chemical substances, and the substance of an argument, and a man of no substance, but we no longer have the concept of ultimate substances. We cannot much disagree with Descartes because one of his cardinal concepts has gone missing. What we can attend to, is that when he finally responds to Elisabeth, the argument is couched entirely in logical terms. Every substance is characterised by a 'principal attribute'. That is, a property such that if something is of that substance, then it must of logical necessity have that attribute. As we all know, occupying space, or being extended, is a principal attribute. So is thinking. They are logically distinct. What you say about anything extended is different from what you say about anything that thinks. A logical distinction. A grammatical distinction.

Here I must be quite iconoclastic. There is one thing that Gilbert Ryle, one of the handful of great Oxford philosophers of all time, is said to have taught us. It is this. To say that on the one hand mind and matter are distinct substances is to make what he called a 'category mistake'. They are not substances at all, but more importantly they are of different categories. Mental predicates do not apply to strictly material things, and predicates of material things do not apply to the mental. It is inept to talk of 'mind' and 'matter' in the first place, when we are talking about people, but if we do, mind and matter are different ways of describing our experience. So Descartes was, in Ryle's opinion, entirely up the

creek. My iconoclasm is to suggest that Descartes's final response to the princess Elisabeth was to say much the same thing as Ryle, in the barely worked out idioms of an earlier age.

One can thus imagine, for a moment, a rather bland linguistic version of Descartes. True statements about individual mental activities, acts, processes and states are in no way translatable into, reducible to, or expressed by true statements about bodily activities, acts, processes and states. Mental events (as for short I shall call states, etc.) include beliefs, emotions, feelings, thoughts, intentions, thinking, reasoning, reflecting, imagining, choosing, deciding and so forth. Bodily events range from those that can be observed in daily life, to events in the brain or nervous system that cannot yet be detected by the best of neuroscience. Of course only creatures with brains can (e.g.) have beliefs or make decisions. Doubtless every mental event corresponds to events in the brain. But there is correspondence and correspondence. For example, the late Donald Davidson's 'anomalous monism' supports such an 'identity thesis' about *individual* events, but denies that any viable *kind* of mental event in any way corresponds to any viable *kind* of bodily event. In linguistic jargon, any *token* of a mental event is identical to some *token* of a bodily event, but *types* of mental events do not match *types* of bodily events. This is monism (mental tokens are identical to bodily tokens). It is anomalous – a-*nom*-alous – because (in Davidson's opinion) (a) all laws of nature are laws of the physical world connecting types of events whence (b) there are no laws of nature or even universal regularities concerning types of mental events.[4] Davidson, I am sure, would have been appalled at the idea that his anomalous monism had any contact with Descartes.

I make these preparatory remarks in order to encourage a revision of habitual readings. I did not originate this revision, but got the idea of seriously attending to the real distinction, as expounded in the *Principles,* from a young American philosopher giving a few lectures at Cambridge University about thirty-five years ago, whose name I have totally forgotten. You will find similar attention to these passages in a recent book by Marleen Rozemond, a young historian of philosophy at the University of Toronto.[5] I in no way wish to saddle these accomplished historical scholars with my more far-out notions, but only to say they may indicate that this way of looking at Descartes has something going for it.

BODY PARTS

Among historians of medicine there is a widespread doctrine that the body became seen as constituted and defined by organs around 1800. Michel Foucault's *The Birth of the Clinic* popularised this idea. We learned of the medical gaze that did not see through bodies to their humours in balance or imbalance. Instead it began to look *at* internal organs and tissues. Around 1800 one began to follow Bichat's maxim, 'Open up a few corpses!' Illness and disease became not a matter of the whole body, but were located in body parts and their pathologies.

The knowledge that some of these parts might be injured or ill did not help much. Bones would repair themselves when aided by bandages and splints, but for a full century and a half we could not do much for diseased or defective body parts. All that has changed. We have learned how to repair or replace large parts such as hearts, and experts predict that we are on the verge of being able to repair tiny ones, that is, genes that are not

quite right. We have learned how to transplant organs. We can buy them, somewhat illicitly, if we are rich enough, and sell them, if we are poor enough. We may be able to grow body part repairs from stem cells or even cells from our own bodies. Freeze your placenta, some mothers are told, your child will be able to use it much later in life in order to make repairs or even to grow its own spare parts. A team in South Korea successfully clones stem cells, all purpose building blocks that can be used for repairs. So they no longer have to be extracted from aborted foetal material.

Genetic material, loosely called genes, is now routinely transferred from an organism of one species to an organism of another species. Ordinary taxonomy is no barrier at all, we can move genetic material from a flounder to a plant, from a bacterium to a tree. And if, as common metaphor has it, genes are information, then the population of Iceland has not exactly sold but leased its genes to a joint American–Icelandic corporation supported by venture capital.

These possibilities, only a few years old and still developing, may produce a complete change in the way in which we conceive of our relationship to our bodies. Once we could alter a body only superficially by amputating, or, less permanently, by painting it, decorating it or mutilating it. Or more gradually. By exercise or sloth; by excess (too much) or asceticism (too little). The surface of the body was always pretty much an objective 'other' that we could decorate or mutilate, tattoo or pierce. But we could not get inside effectively except by eating and drinking. Now we can.

Surgeons do not like to have their work called 'engineering', but they have become ingenious engineers. There is no inhibition about the label 'genetic engineering'. In consequence of these new options, our bodies are likely to become *more* 'other'. It is seldom noticed that we seem to be edging closer to fulfilling a simplistic version of a Cartesian dream, whereby bodies just are machines in space, composed of machine parts, while the mind, the self, the soul, itself inhabits another realm. Most Western intellectuals now opine that Descartes's two categories, the mental on the one hand, and the extended or bodily on the other, were a terrible mistake. They may be forced on us again, as the result of our technological prowess.

In this paper I shall not address ethical questions, although of course I must mention them. I do not discuss practical ones, which arise aplenty. I am preoccupied by how our relationship to our bodies may have changed in the past generation, twenty-five years. Even questions of life and death have mutated because of the needs of body-part exchange. We have revised our conception of what it is to be dead. We have made up a new criterion for death: 'brain death'. That was done chiefly – or maybe only – because of our new relationship to interchangeable body parts. We had to decide when it was all right to take a 'living' organ from a body that was still 'alive', for example when heart and lungs were still at work with the aid of a machine, a ventilator. (On this, once again see Margaret Lock's *Twice Dead*.[6])

We can transfer body parts from one person to another, or from a cadaver to a sick but living person. We also move bits of body around from one part of a person to another part of the same person. Skin grafts take skin from the back of a person whose leg is terribly burned, and graft that skin on to the leg. More dramatically, a woman who needs radiation therapy for ovarian cancer will normally lose her ability to bear her own child. Neat solution: remove the relevant parts of the ovary to her arm, where it appears to continue unimpaired, and from which eggs may be taken for later fertilisation.

ARTISTIC VERSIONS

I am always delighted to find that truth is at least as strange as fiction. There is a novel by Will Self, called *Cock and Bull*, in which a vagina opens on a man's knee. And now in real life we have an ovary in a woman's arm. I have not read this book, and learned about it only from the draft of a fascinating essay by A. S. Byatt, whose final form was printed recently in the *Guardian Review*.[7] Byatt described a number of what may be called 'strange body-part' works of fiction, including *Cock and Bull*. The title was 'The feeling brain and the thinking body'. That was the mock-Cartesian title the *Guardian* chose for the piece, in reference to certain ideas of Antonio Damasio, whom she discusses. She also mentions some work of mine, about which she is, with all courtesy, less enthusiastic. But Byatt's original title was 'Body, soul, mind and the wet stuff', where the 'wet' alludes to Sherrington's vision of the body.

Actually it may be the visual artists who got there first. My favourite happens to be Hans Bellmer with his extraordinary 'dolls' in which limbs and other body parts are liberally rearranged. Perhaps performance artists have the keenest insight. The Frenchwoman Orlan regularly undergoes plastic surgery to turn herself into successive new beings, modelled on everyone from Venus through Diana to the Mona Lisa. The Australian Stelarc, who does things to his body that I find absolutely gross, has long urged growing an extra ear. He started with an ear behind an ear, but the ear has migrated down his arm near to where, I suppose, someone else's ovaries could be implanted. Here is a quotation stating his vision. 'The body is mass produced, but at the moment it doesn't have any replaceable parts. OK, we're making artificial organs. But this is just a medical approach. What we really need is a design approach. If you have a heart that wears out after 70 years, this is to me an engineering problem. We should start to re-engineer the body.'[8] Who is listening to whom? The extra ear project was presented at grand rounds for consulting surgeons at the Radcliffe Hospital, Oxford, on 5 March 1999.

Stelarc is, incidentally, philosophically very well informed, with the names of Merleau-Ponty, Heidegger and La Mettrie cropping up all over the place. He says his conception of the engineered body is not *necessarily* a return to Descartes. He is much concerned with our selves as bodies in-the-world, and that is a right instinct, one of many that is in tension with the Cartesian thrust to which I am drawing attention.

Then there is the astonishing exhibition, half art, half science, which originated in Germany. It was, despite much determination by the authorities to ban it, a massive success in London. It then went back to Munich, again after fierce legal battles with the authorities, and on to Chicago and Los Angeles. It is called 'Body worlds. Körperwelten'. Dr Gunther von Hagens began by obtaining cadavers freely willed by their owners when alive. He flays them, head to toe, and 'plasticates' them in such a way that all the organs are fully visible. Corpse after corpse is on disconcerting display. Here we have a cadaver, pensive at the chessboard, all organs on view. A famous instance is a plasticated knight on his plasticated charger. Plasticated mother and foetus. Rooms full of cadaver-statues. Von Hagens has played around the world on television, showing his endless care in preserving bodies after death, with the motto of '*Endliche Unersterblichkeit*', sort of ultimate immortality. Not immortality of the soul, but of the incorruptible body.

Since a great many people find these activities disgusting, Western governments do their best to prevent them. They have not been able to prevent the exhibitions. Not only are

there no laws on the books, but there is a long tradition of using preserved cadavers and their parts for medical teaching. They were exhibited in places like anatomy theatres to which anyone might go. In her story 'Body art', A. S. Byatt makes good use of a vast collection of preserved body parts that have been willed to a teaching hospital, and which now ought to be catalogued and put on public display.[9] In fact a few years ago my colleague Jean-Pierre Changeux organised an exhibition of historical preserved bodies and body parts at the Collège de France – it was fully open to the public. So it is a little hard to prohibit 'Body worlds'. Especially when, on the outskirts of Paris, there is a little visited but magnificent veterinary museum at Alfort (musee.vet-alfort.fr). There we have the corpses of animals and humans preserved, by similar techniques, by Honoré Fragonard (1732–96), cousin of the more celebrated painter of the same name. They include a knight on horseback that von Hagens has imitated, and something that even the German doctor would not dare to exhibit today: three human foetuses dancing a jig.

Western governments have, however, been largely able to stop the plastication of their citizens. If you click on von Hagens's websites you can, at one click, go through the motions of willing your dead body to his enterprise. But in fact that will not happen for it has been found to be forbidden under various statutes. I understand that he now chiefly works with Chinese who have been executed for criminal offences.

Von Hagens exhibits real body parts. Or almost real. We might say that they are Cartesian, extended, occupying space. Plasticated organs and corpses are odourless. Like the Cartesian body, they can be seen but not smelt. I was struck by a flyer for the London show. There are quoted soundbites of remarks by previous visitors. One teenager is quoted, 'You can really *see* how the body is completely different from the mind.' Who was this spontaneous young Cartesian?

TENSIONS

I would be the last to contend that the effects of modern technologies are unequivocal. There is another phenomenon that affects vastly more people than organ transplants. I mean the rapid evolution of mood-altering drugs, especially those used to diminish depression, the Prozacs of our time. We have always had mood-altering drugs, alcohol, hashish, nicotine, sugar, coffee. But the designer drugs are more or less specific, and they will undoubtedly have a vast effect on how we conceive of ourselves, our minds, our souls. By ingesting or injecting a substance into our bodies, we affect our minds. Nikolas Rose, head of the sociology department at LSE, has written powerfully on this counter tendency.

Now can we lose our ordinary sense of our bodies, as that through which we live in the world. Rather than dwelling on this I would like you to reflect on a powerful passage about the body in Nadine Gordimer's novel *None to Accompany Me*. 'The sacred human body is only another object that can be patched together, like a tyre.' Cartesian enough. But read on, about Oupa, a legal clerk, a secondary figure in the novel. He is in hospital after a relapse from a quick recovery after a shooting. The primary character, Vera, visits:

> On a high bed a man lay naked except for a cloth between the thighs, a body black against the sheets. Tubes connected this body to machines and plastic bags, one amber with urine, the other dark with blood. The sister checked the low of a saline drip as if twitching a displaced flower back into place in a vase; the man had his back to them, they moved slowly round to the other side of the bed.

Oupa. A naked man is always another man, known only to a lover or the team under the shower after a match. Friendship, an office coterie, identifies only by heads and hands. The body is for after hours. Even in the intimacy of the injured, on the road, bodies retain their secrecy. Oupa. His fuzzy lashes on closed eyes, the particular settle of his scooped round nostrils against his cheek; his mouth, the dominant feature in a black face, recognised as such in this race as in no other with an aesthetic emphasis created by highly developed function, since we speak and sing through the mouth as well as kiss and ingest by it – his mouth, bold lips parted, fluttering slightly with uneven breaths.[10]

ANALOGUE BODIES

Now I return to the two metaphors of my title. I think that the idea of interchangeable body parts works very much at the level of physical, spatial, analogues. A healthy organ that resembles, in shape and function, an organ of mine, replaces a defective organ of mine. A kidney that is like mine replaces it. It does not matter much in principle whether it is an actual organ taken from another human being, or the analogous part from another animal, or an analogous machine. At present actual human organs are most easily inserted into my body. Artificial hearts do not work well yet. Chimpanzee hearts present lots of problems. Yet I have every confidence that they will work. When we move to hips, hip implants for injured persons work analogously to the hips with which they were born. Corneas are replaced by corneas taken from dead young motorcyclists. But also for other visual problems, amazing little plastic lenses are now routinely inserted into defective eyes. Mine, for instance: I would be blind without them. Dental implants are now standard. An object analogous to a tooth is implanted into the jaw, in such a way that it bonds with the jawbone.

Of course none of this is simply mechanical. A body is not a machine made of metal. A lot of body chemistry must be known to trick the body into accepting the analogous insert. That is true even for dental implants. It took a long time to learn how to trick the body into not rejecting a replacement kidney. The immune system must be suppressed, often to the point of making the body dangerously susceptible to disease. But these are all thought of as technological problems. The next challenge is entire face-grafts for horribly burned or mutilated patients. The faces of cadavers – skin, nerves and bone – will be grafted onto the unfortunate patients. Three teams are known to be ready to go, one in London, one in Kentucky, and one at the Henri-Mondor hospital outside of Paris. Fact will be far stranger than the performance art of Orlan.

The body is regularly being treated as other. A year or so ago I had one of the typical plumbing problems of elderly males. For a while I had to walk around with a large number of tubes and bags attached to me. If I had gone on stage, uncovered, it would have been performance art to make Stelarc look tame. I have been totally cured, or re-engineered, after an operation, now pretty routine, but difficult and dangerous only a few years ago. I watched it on television, being anaesthetised only from the waist down. The surgeons themselves do it all on TV, with cunning probes. And if you request it, they will hook up a second TV for the patient. I can assure you that there is nothing to convince you more of the difference between mind and body than to watch some of your organs being re-engineered in real time, on television. That body on TV was other than me. Descartes would have loved it, for he taught that our bodies are just a bunch of tubes and valves, his words.

Even sex change technology is strangely a matter of analogy. The sex organs of a member of one sex are surgically and chemically modified so as to be analogous to the sex organs of members of the opposite sex. Cloning, you might argue, is a matter of something more than analogy. The aim is to produce a creature genetically identical to another. But the resultant creature is not identical. At most it starts with the same DNA. There are lots of open questions. How old is the clone? The age of the creature from which it was cloned? Or its birth age, that is, a younger version of the original? There is much to find out there, and no one should be dogmatic, but whatever we find out, the clone is at best a close analogy to the original, and not identical to it.

In short, I think the metaphor of analogous body parts works well.

DIGITAL MINDS

Minds, on the other hand, we represent as information processors. And in this age we represent the processing of information by sequences of binary digital operations. Here I am less confident of the metaphor, which I find a bit dated. For fifty years, brain science was concerned with cognitive processes, such as perception, linguistic ability, pattern recognition, memory of various types, or problem solving. Many cognitive scientists favoured the idea of what they called modules, as models of how the brain works. The metaphor of a module was in turn taken from computer architecture.

Thus for the past fifty years, one could find in the paired metaphors of bodily analogy and digital processing, a simulacrum of Descartes's dualism. Not because there were two different substances, but because the analogue and the digital represent two different ways of talking, of representing. They are two different logical, and I would say, grammatical, categories.

But things are changing. The digital metaphor was used to discuss what brains can do, at a time when brain science was in its infancy. We knew very little about the insides of a brain, and we were obsessed with cognition. Now we know a lot more about what a brain is doing, thanks to advances in technology, brain scans, proton emission tomography, magnetic resonance imaging and the like. And there is a lively new interest in the emotional life of the human being, and how it works in the brain and body as a whole. These two phenomena imply that the metaphor of the brain as a digital processor may soon fade. For we are no longer concerned simply with cognition. And we now no longer need to model the brain by digital processing. These sea changes are events of the 1990s.

FROM COGNITION TO EMOTION

Antonio Damasio is the contributor to the new focus on emotion who is best known to the general public. I mentioned him above. This is not the time to explain some of his research. Happily he himself does so better than anyone else. He is of course no dualist; we saw that his first book was called *Descartes' Error*. But let me give the full title: *Descartes' Error: Emotion, Reason, and the Human Brain* (1994). Then came *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (1999). Finally the book whose title in French is *Spinoza avait raison*, namely *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain* (2003). Those are the key words, right up front. But there is a feature of his theorising that is less often attended to. He is not a dualist, but there is a sense in which he is a 'trialist'. He has

a theory of the triune human being. For Damasio we are not one or two but three. A human being is a *neurologically nested triad* of mind, brain and body.

This is not an enlargement of Descartes's universe, as traditionally construed, from two substances to three. There is only one stuff. Very roughly, the mind is in the brain, and the brain is in the body. A mind is a part of a part of a body. But it is more complicated than that. Within the human organism of flesh and blood, one part, the brain, monitors the body, and another part, the mind (still flesh and blood), monitors the brain and its monitoring of the body. This is not a simple trinity: 'nesting' is the name of the game. And there is an evolutionary sequence in which these three entities emerged.

This sequence has to do with life itself. What *is* life? Here is a one-sentence stab at recent biological metaphysics. A living being is a self-regulating organism that so regulates itself that it tends (a) to go on existing and (b) to generate other creatures much like itself. Most recent popular biology is about (b), the selfish gene and much more of that. Damasio, a brain scientist, is concerned not with any old living thing, but with creatures, and in particular creatures with the most complex brains, namely the human race. He thinks of mind, brain and body, of feelings and emotions, of core-consciousness and consciousness, of self, of joy and sorrow, in terms of (a). They are all involved in the struggle for survival, not of the species, but of each of us, as individuals. Bodies survive better if they are monitored by something later in evolutionary history, namely brains. And brains nested in bodies survive even better if they are monitored by a new evolutionary development, namely minds. Joy is what humans feel, with their minds, when their brains and bodies are in self-regulating equilibrium.

DIGITAL, NO. ANALOGUE AND 'OTHER', YES

This kind of exploration leaves the digital mind in the dust. So I have to retract half of my title, 'digital minds'. The dancing, chanting, Sony robots with which I began have analogue bodies and digital brains. Our brains are flesh and blood, and our minds are not digital. Where then is my vaunted vindication of Descartes? It is in the other half of my title, the analogue bodies. It is in the sense of my body as something other – something mechanical, subject to engineering, and with interchangeable parts. A body as already envisaged by Descartes.

NOTES

1. M. Lock: *Twice Dead: Organ Transplants and the Reinvention of Death*; 2001, Berkeley, CA, University of California Press.
2. For an idea of what the princess Elisabeth looked like, call up image NPG 340 in the National Portrait Gallery's online catalogue, www.npg.org.uk/live/search/asearch.asp. You can sense at once that this is a young woman in whom any sensible philosopher would take an interest.
3. A. Damasio: *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain*, 188; 2003, New York, NY, Harcourt.
4. Cf. for example the essays 'Mental events' and 'Philosophy as psychology' in D. Davidson: *Essays on Actions and Events*; 2001, Oxford, Clarendon Press. For updates, cf. discussions by B. Ramberg and B. Vermazen, with Davidson's replies, in L. Hahn (ed.): *The Philosophy of Donald Davidson*; 1999, Peru, IL, Open Court.
5. M. Rozemond: *Descartes's Dualism*; 1998, Cambridge, MA, Harvard University Press.
6. M. Lock: *Twice Dead* (see Note 1).
7. A. S. Byatt: 'The feeling brain and the thinking body', *Guardian Review*, 2004, 14 February.

8. Quoted in *I-D magazine*, February 1992.
9. A. S. Byatt: 'Body art', in *Little Black Book of Stories*; 2003, London, Chatto & Windus.
10. N. Gordimer: *None to Accompany Me*, 200, 206; 1995, London, Penguin.

Ian Hacking (ian.hacking@college-de-france.fr) was elected to the chair of Philosophy and History of Scientific Concepts at the Collège de France in 2000. From 1983 he was a professor at the University of Toronto, where he is now University Professor Emeritus. Before that he was chair of the Philosophy Department at Stanford. His books include *The Emergence of Probability* (1975), *The Taming of Chance* (1990), *Mad Travelers* (1998), *The Social Construction of What?* (1999) and most recently *Historical Ontology* (2004).
