

CONSCIOUSNESS: STILL A MYSTERY

JOHN HICK

THE HUMAN BRAIN, WITH ITS ESTIMATED hundred billion nerve cells, is the most complex object in the universe known to us. During the last fifty or so years, the study of the brain has proliferated into a range of neurosciences—neurobiology now embraces neurophysiology, neuroendocrinology, neuropharmacogenetics, neuropharmacology, psychometrics, producing neurotechnologies and connecting with the growing neurogenetic industry, leading to neuroeconomics and neuroethics.


Research has made tremendous advances in mapping the functions of different areas of the brain. This has been made possible by the electroencephalogram (EEG) and more recently by positron-emission tomography (PET), single photon emission computer tomography (SPECT), and yet other methods of scan. All this, and other procedures, has revealed a great deal—though what is unknown remains vastly greater than what is thus far known. The agreed large-scale finding is that of the four lobes of the cerebrum: the occipital lobe is concerned with visual processing; the parietal lobe with movement, orientation, calculation, and certain kinds of recognition; the temporal lobe with sound, speech, comprehension, and some aspects of memory; and the frontal lobes with thinking, conceptualizing, and planning.

Given the accepted principle that every moment of consciousness has its neural correlates, the crucial question arises, Which produces which? Most neurophysiologists

work on some highly specialized area of brain research and are not particularly interested in the philosophical issue, as they see it, of the relationship between brain and consciousness. For it does not make any practical difference to them whether consciousness is identical with, or caused by, or only correlated with brain activity. But those who do concern themselves with this fundamental question distinguish between the easy problem and the hard problem. The easy problem—easy in principle—is to trace precisely what is going on in the brain when someone is consciously perceiving, thinking, willing, experiencing some emotion, creating a work of art, etc. The hard problem is to find out what consciousness actually is and how it is caused—assuming, as they mostly do, that it *is* somehow caused—by cerebral activity. This, says Steven Rose [Director of the Brain and Behavior Research Group at the Open University, UK], is “science’s last frontier” (*From Brains to Consciousness*; Penguin, 1999).

MIND-BRAIN IDENTITY

Mind-brain identity is the theory that consciousness simply is neural activity. A particular episode of conscious thinking, and the particular electrochemical processes taking place in the brain at the same time are not two distinct processes, one physical and the other nonphysical, but are one and the same physical event. This is the materialist account of our mental life as a transient series of electrical discharges and chemical changes in the grey matter inside our heads. ➤



BrainPaint software takes information communicated directly from the brain via EEG biofeedback technology and creates visible real-time fractal images that correspond to different states of being. Studies are under way at UCLA to determine the effect of this enhanced feedback loop on the brain's capacity to self-organize. For more information visit www.brainpaint.com or www.consciouscreativity.org.

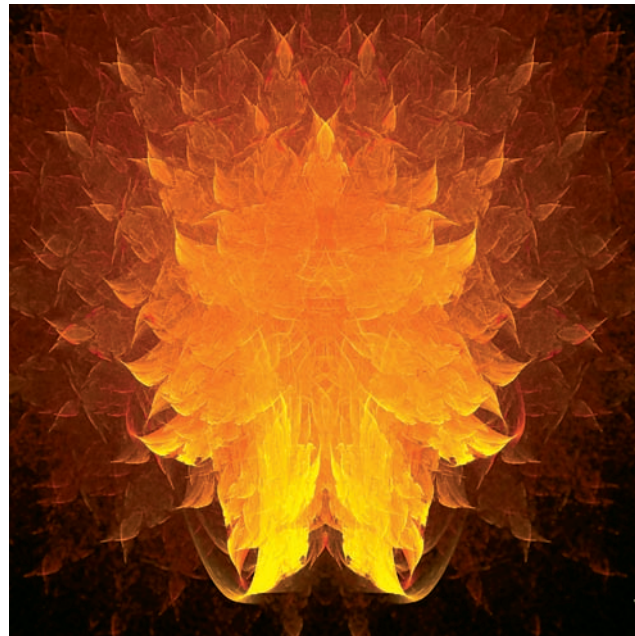
This position is encouraged by the fact that it is possible to trace, with increasing precision, the neural correlates of conscious episodes. Indeed today we all—whatever our other differences—take it for granted that for every change taking place in consciousness there is a corresponding change taking place in some area of the brain. So long as we stick to observed correlations, without engaging in further speculations . . . we are on solid common ground. The danger, however, that pervades much of the literature is to treat correlation as being the same as identity. For while there is an immense body of evidence for consciousness-brain correlation, to suppose that any accumulation of this, however extensive, is proof of their identity is a simple logical error.

Some neuroscientists, such as Andrew Newberg [author of *Why God Won't Go Away: Brain Science and the Biology of Belief*] and V. S. Ramachandran [Director of the Center for Brain and Cognition at the University of California, San Diego], speculate, very interestingly, beyond the accepted common ground. So do many contemporary philosophers of mind. For them it is important to set aside the testimony of introspection, in which the flow of consciousness of which we are directly aware seems to be different in nature from the physical changes known to be taking place at the same time in the brain. This appeal to the ordinary experience of us all is dismissed as “the primitive psychological taxonomy of ordinary language” (Paul Churchland in *Matter and Consciousness*; MIT Press, 1988), concerning which Churchland says, “We cannot expect that folk psychology represents anything more than one stage in the historical development of our self-understanding, a stage the neurosciences may help us to transcend.”

Developing this, Churchland says:

The argument is deeply suspect, in that it assumes that our faculty of inner observation or introspection reveals things as they really are in their innermost nature. This assumption is suspect because we already know that our other forms of observation—sight, hearing, touch, and so on—do no such thing. The red surface of an apple does not look like a matrix of molecules reflecting photons at certain critical wavelengths, but that is what it is. The sound of a flute does not sound like a sinusoidal compression wave train in the atmosphere, but that is what it is. The

warmth of the summer air does not feel like the mean kinetic energy of millions of tiny molecules, but that is what it is. If one's pains and hopes and beliefs do not introspectively seem like electrochemical states in a neural network, that may be only because our faculty of introspection, like our other senses, is not sufficiently penetrating to reveal such hidden details (Matter and Consciousness, p. 15).



This is a systematic begging of the question. In our ordinary introspective experience we see a red-colored apple, that is, the visual field of which we are conscious contains the red-colored shape that we call an apple. Our visual awareness does not profess to tell us anything about the apple's inner atomic or chemical structure. Ignorance of this does not affect the character of the *qualia*, the content of our field of consciousness. Our direct awareness of this at a given moment is incorrigible, or infallible. It cannot be mistaken, although any inferences we may make from it can. And so the fact that, physically, the redness of the surface of the apple is (as Churchland correctly says) a matrix of

molecules reflecting photons at certain critical wavelengths does not in any way render introspection “deeply suspect”—and the same with his other examples. Introspection is awareness of the content of our consciousness, and this content remains the same whether we are aware or ignorant of modern physics. If we are knowledgeable about it, we can introspect that awareness too.

THE IDENTITY THEORY

The basic problem is that not even the most complete account of brain function reaches the actual conscious experience with which it is associated. As Thomas Nagel argued in his famous 1974 article “What Is It Like to Be a Bat?” (*Philosophical Review*, 1974), when we know all there is to know about the bat’s anatomy, physiology, mode of location by sound rather than sight, etc., we still—assuming that they have some level of consciousness—do not know what it is like to be a bat.

The point is often put in terms of the law of identity, namely, that if A is identical with B, then they have the same attributes. But mental states are not located at some point in space, whereas brain states are; the conscious sensation of pain, for example, can be sharp or dull or throbbing, but no part of the brain itself goes dull or becomes sharp or starts throbbing. If I prick my finger, the attributes of my consciousness of pain certainly do not seem to be the same as the attributes of the firing of a series of neurons in my brain.

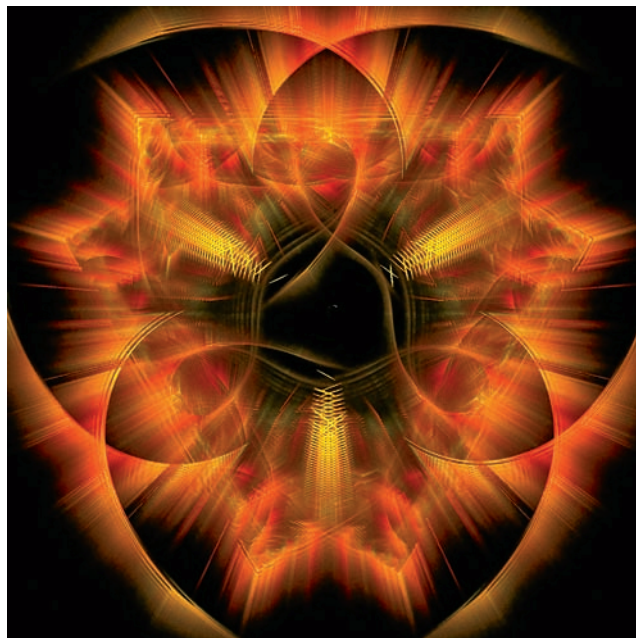
The most direct observations, beginning in the 1950s, have been made when surgery has been needed on the brain. It has then sometimes been possible to do very interesting experiments by asking the patient, who is awake (the brain itself containing no pain nerves), to report what is going on in consciousness as different parts of the cortex are stimulated. Suppose, then, a neurosurgeon has exposed a patient’s brain

and, with instruments registering its electrical activity, is tracing the successive coordinated firings of the neurons correlated with the patient’s reports of what is going on in her mind. Suppose, for example, she is visualizing a mountain scene with a blue lake in the foreground and pine trees beyond it growing in a green swathe up the lower slopes of a mountain range. Does it really make sense to say that the electrochemical activity that the surgeon is monitoring with his instruments, taking place in the grey matter that he can see in front of him and can touch, literally *is* that visualized mountain scene which forms the content of the patient’s consciousness? It makes sense, whether true or not, to say that the brain activity *causes* the conscious experience. It makes sense, again

whether true or not, to say that there could be no conscious experience without that brain activity. But does it make sense to say that the brain activity literally is, identically, the visualized scene occupying the patient’s consciousness? To me, that is counter-intuitive to the point of absurdity.

However, there is more to be said. For it has become clear in the philosophical discussions that what are apparently two different things *can* sometimes nevertheless be identical in spite of displaying

different attributes. They can be the same thing described in different terms and perhaps in different relationships to ourselves. The identity of the morning star and the evening star is a standard example—they are both the planet Venus. Again, we all know what we mean in ordinary language by a flash of lightning in the sky. But that same phenomenon is described by the physicists as “the massive, sudden discharge of the collective electrical charge generated by the movement of many slightly charged water droplets or ice crystals that form the clouds.” So, in spite of the fact that they are described quite differently and in entirely different terms, the lightning and the electrical discharge are in fact the same thing. ➔



BRAINPAINT

But does this help to make brain-consciousness identity plausible? It does not. When we take examples of two things which are both uncontroversially physical, like the morning star and the evening star, or a flash of lightning and a cloud-generated electrical discharge, we are begging the question—which is not whether two *physical* phenomena can be identical, but whether physical and *mental* phenomena can be identical. In the flash of lightning example, instead of taking the electrical discharge as the second term of the analogy we should take the conscious seeing of the flash of light. The question is whether that conscious episode is itself something physical.

But cannot this experienced flash be described on one level as neuron firings, mainly in the occipital lobe, and on another level as the conscious sensation of seeing a flash, so that the neuron firings and the conscious experience are the same thing described in different terms for different purposes? The answer is No. The question is how a conscious experience can be identical with a physical event in the brain, as distinguished from being precisely correlated with it; and to assume that the correlation constitutes identity simply begs that question. The belief that they are identical is not an experimentally established fact or the conclusion of a logically cogent argument but an affirmation of naturalistic faith.

So neurophysiological language and psychological language are two different ways of speaking about the same thing, namely, the functioning of the brain, but are selecting different attributes of it for attention.

There is a question as to whether the identity thesis is a genuine scientific hypothesis. Most of us today accept Karl Popper's doctrine that while a large-scale scientific hypothesis can never be absolutely verified if true, it can, at least in principle, be decisively falsified if false. But within the parameters of normal science there is no possible observation

or experiment that could ever decisively contradict mind-brain identity if it is false, and accordingly it is not a scientific hypothesis. In moving from examples of two apparently different physical objects or events being the same object or event differently described to the idea that brain and consciousness are related in the same way, we have moved from a scientific hypothesis to a theory that is in principle unfalsifiable. That Venus appears at dawn in the east and after sunset in the west could be empirically falsified, if it were false, by for example sending up a satellite observer to trace its path. Likewise, that a flash of lightning is an electric discharge could be experimentally falsified by finding that there is no electrical activity taking place. But there is no way in which the idea that an electro-

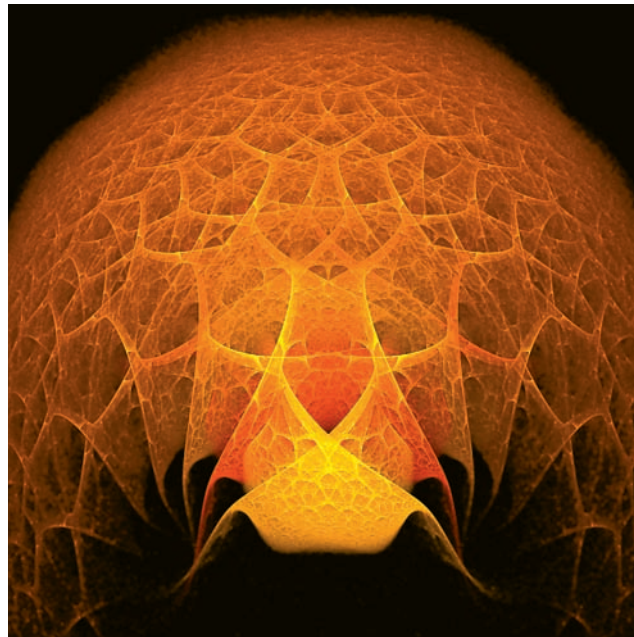
chemical event and a moment of consciousness are identical is falsifiable if false. The identity thesis is a theory stemming from a presupposed naturalistic philosophy, not a scientific hypothesis such that we can even imagine what could constitute its falsification if it is false.

The only way in which mind-brain identity would become falsifiable is to recognise parapsychology as a genuine science. For it is then possible that extrasensory perception (telepathy) or out-of-the-body experiences, which

are incompatible with the identity thesis, might be authenticated. The dilemma for materialists, however, is that they do not allow research in these areas to be admitted as evidence.

FILLING IN THE GAPS

Some philosophers of mind who lean strongly toward mind-brain identity are appropriately cautious about claiming too much. However, many other philosophers of mind are convinced, with a dogmatism that matches that of any medieval theologian, that consciousness is identical with cerebral activity. In contrast to this, insofar as the



BR. AIN WAVES

neuroscientists have turned their attention to the question, they are much less dogmatic. Indeed, there is now a widespread acceptance that the nature and status of consciousness remains a sheer mystery. And clearly if we do not know what consciousness is we cannot know that it consists in the electrochemical functioning of the brain. V.S. Ramachandran says that “despite two hundred years of research, the most basic questions about the human mind . . . remain unanswered, as does the really big question: What is consciousness?” (*Phantoms in the Brain*, William Morrow, 1998). And Roger Penrose of Oxford, one of our most distinguished writers about science, adds that “conscious actions and conscious perceptions—and, in particular, the conscious phenomenon of understanding—will find no proper explanation within the present-day picture of the material universe, but require our going outside this conventional framework to a new physical picture” (from an essay in *From Brains to Consciousness*, edited by Steven Rose, Penguin, 1999). He believes that this new physical picture will be found where the micro-physics of the quantum world merges into the macro-physics of the observable world, which includes the human brain.

But this new physics is a hope, something that may or may not come about in the future, and the belief that if it does come about it will prove to be the key to the nature of consciousness is likewise only a hope. Steven Rose concludes that “the issue of consciousness lies beyond mere neuroscience, or even psychology and philosophy” (*From Brains to Consciousness*, 14), and in his most recent publication he adds:

Small wonder that, almost drunk with the extraordinary power of these new [neuroscientific] technologies, the neuroscientists have begun to lay claim to that final terra incognita, the nature of consciousness itself. (*The 21st-Century Brain*, Jonathan Cape, 2005)

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And finally, Antonio Damasio, Head of the Department of Neurology at the University of Iowa College of Medicine, says, “If elucidating the mind is the last frontier of the life sciences, consciousness often seems the last mystery in the elucidation of the mind. Some regard it as insoluble . . . [A]t the moment the neurobiological account is incomplete and there is an explanatory gap” (*The Feeling of What Happens*, Harcourt, 1999). But there is, surely, more than just a gap that a more complete knowledge of the brain may one day bridge, because no knowledge of the workings of the neural networks, however complete, can convert correlation into identity.

And so it is absolutely not the case, in spite of being so widely assumed within our culture, that mind-brain identity is a scientifically established fact. Its status is that of an article of naturalistic faith. This faith is supported by the ingenious work of those philosophers of mind (this being one of the most active areas in philosophy today) who produce ever-more sophisticated theories, often with only token reference to the work of the neuroscientists, to avoid the conclusion at which so many neuroscientists have arrived, namely, that the nature of consciousness is a mystery. 🌐

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