PHENOMENAL CONSCIOUSNESS

UNDERSTANDING THE RELATION BETWEEN EXPERIENCE AND NEURAL PROCESSES IN THE BRAIN

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To Maria

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The relation between the diverse experiences that we associate with consciousness and physical properties and how the former fit into our conception of the world has been proved very difficult and it is the central issue in the philosophy of mind. This book offers an overview of this hotly debated and rapidly developing topic – to a large extent owing to recent empirical developments – by focusing on the important philosophical and scientific work that has been done over the past thirty years in consciousness studies. This introductory approach is combined with an actual engagement in the debate and with an attempt to develop and defend a particular position.

The book has been developed on the basis of my teaching at the Departments of Philosophy of the Universities of Glasgow and Essex. The comments of my students have been invaluable and I wish to use this opportunity to thank them for their contribution. I also owe tremendous thanks to my teachers who led me to think about the way I should go about doing philosophy: Jim Edwards and Gary Kemp. Their philosophical insight and advice had a large influence on this work and made it far better than it could have been otherwise.

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The masters say that there is one power, by which the eye sees, and another power, by which it knows that it sees.

Meister Eckhart, *The Nobleman*

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INTRODUCTION

Philosophers of mind are frequently faced with the following question: if you are interested in the mind, why not study brain science or psychology or artificial intelligence as opposed to philosophy? Another question often asked is: how can philosophy possibly contribute to our understanding of the workings of the brain and the nature of cognition and perception in general; or how can it possibly add anything to the ever-increasing wealth of empirical findings brought to light by cognitive scientists and neuroscientists in recent years? Philosophers generally respond that philosophy is (partly) concerned to find out which sciences are relevant and in what way they are relevant. However, this may not seem satisfying enough since what the above questions really amount to is: why should the study of the mind be a topic for philosophy *at all* as opposed to the sciences?

Well, in doing philosophy we can study the sort of answer that *is* required and then leave science to fill in the empirical details. And the truth is that the question of how we come to know about the nature of the mind is particularly difficult and vexing. Take, for instance, the common-sense view about people's *mental* states, such as beliefs, emotions and perceptual experiences. The general – intuitive – idea seems to be (even among scientists) that people's mental states are *essentially private* and *inaccessible* from a third-person perspective. There is some sort of access, a certain *type* of access we seem to have to our mental states, such that a mental state such as a toothache, or an emotional feeling such as being in love, is enjoyed by a *single* subject: the person who finds himself or herself in that mental state.

Ask yourself the question: can your dentist, literally speaking, see, touch or hear your toothache? You might try to describe it to your dentist, or complain about it, and your dentist may then go about discovering that you have a decayed tooth with an exposed pulp. However, it seems that your dentist cannot really perceive nor have any access to your toothache by means of any of her five modalities: the feeling of pain is just for you – no one else can

have it. It seems that *you* can only have access to it by introspection or by reflecting on it and only *you* can really know what your toothache experience is like. Similarly with your emotional feeling: your best friend may notice a change in your behaviour, say absentmindedness or the speed of your reactions, and she might even be tempted to measure your blood pressure. Still, she will not be able to have any access to the feeling of love itself: the feeling of being in love is just for you – no one else can have it. It seems that it is nowhere to be seen or touched or heard, yet it somehow exists. This line of argument suggests that only you can really know in *what* kind of mental state you find yourself and only you can really know *that* you find yourself in that state. In other words, it seems that only you can really know that you have a mind.

This contrasts sharply with the knowledge or access we have of – unproblematically *physical* – tables, chairs, cars and people's bodies. There is no similar privacy there. Although there is a sense of ownership in play, physical objects are intersubjectively accessible and available for inspection. Further, physical objects frequently change hands: I can donate my car to a charity if I want to, be an organ donor or donate my body to science. No problem. No similar worries are raised here. Is this picture correct? Well, if it is then, given that the standard explanations in science are cast in objective terms (they are descriptive, they are given from a third-person perspective) and minds are subjective, it appears that minds and their mental states are not subject to the standard methods of science; they are *un*amenable to – direct – scientific investigation. This would mean that minds are not the sort of thing that can be studied by doing science. But even if this picture is not correct, its existence raises a deep philosophical question: is the mind susceptible to scientific investigation?

The problem of the relation between the various experiences that we associate with consciousness and physical properties and how it fits into our conception of the world has proved very difficult. Arguably, consciousness did not come to the higher animals as a sudden illumination. As with life originating in the pre-biotic world, consciousness came secretly and surreptitiously into a hitherto mindless world. Mammals have a cerebral cortex qualitatively similar to ours. It has been argued that consciousness occurred initially in the primitive cerebral cortices of evolving mammals such as the basal insectivores of today. It appears that consciousness is built on the anatomical and functional properties of the mammalian neocortex. However, unlike the case of life, consciousness poses a great mystery. There are a number of purported answers to the question of how physical systems that can be exhaustively explained objectively in terms of function and structure can give rise to consciousness, but none of them appears to be satisfactory. In the case of life, we had to appeal to the biological level for an explanation.

Unlike the case of consciousness, life was eventually reduced to a number of such biological functions as reproduction, development, growth, metabolism, self-repair and immunological self-defence. However, in the past thirty years, with renewed interest in studies of consciousness and the revival of neo-Cartesianism, consciousness has acquired the status of a real mystery.

Contemporary neuroscience is teaching us that our mental states correlate with neural processes in the brain. However, although we know that consciousness arises from a physical basis, we do not currently have a good explanation of *why* and *how* it so arises. Pain experiences for instance, correlate with C-fibre stimulation in the brain, but even if we know that the feeling of pain correlates with C-fibre stimulation and that, say, the existence of such pain states depends on the occurrence of such neural events (i.e. the feeling of pain is a product of the brain), we still want to know why it does not correlate with a neural state of another kind or why it is pain rather than the feeling of elation or an itch that correlates with that particular kind of neural state. This leads us to the more general question of why is it that there holds such a correlation *at all*. Trying to answer such questions raises the problem of the explanatory gap.

The explanatory gap problem has emerged into prominence in the second half of the twentieth century owing to the developed scientific worldview and the difficulty of fitting consciousness into the scientific domain, but the underlying idea, namely that human experience or consciousness cannot be fully explained by mechanical processes, is not new. Some 350 years ago, for instance, John Locke claimed in A*n Essay Concerning Human Understanding* that there is no similitude, that is similarity, between the ideas of secondary qualities (e.g. red or blue sense impressions) and the insensible particles of matter that in different degrees and modifications of their motions cause these ideas. According to him, it is not impossible to conceive then that "God should annex such ideas to such motions and that he should also annex the idea of pain to the motion of a piece of steel dividing our flesh, with which that idea has no resemblance" (1989: bk II, ch. VIII, §13).

Around the same time, Gottfried Leibniz wrote about the supposed "Mill of Perception" in his *Monadology* that:

> one is obliged to admit that *perception* and what depends upon it is *inexplicable on mechanical principles*, that is, by figures and motions. In imagining that there were a machine whose construction would enable it to think, to sense, and to have perception, one could conceive it enlarged while retaining the same proportions, so that we could enter into it, just like into a windmill. Supposing this, one should, when visiting within it, find only part pushing one another, and never anything to explain a perception. Therefore

> it is in the simple substance, and not in the composite or in the machine that one must look for perception.
>
> (1965: 17, emphasis added)

Why is it that certain neurophysiological processes in the brain are accompanied by *experience*? How can the richness of our mental lives arise from, as Vilayanur Ramachandran puts it, "the flux of ions in little bits of jelly – the neurons – in the brain" (2003: 112)? As Thomas Huxley once put it, this seems "just as unaccountable as the appearance of the Djinn when Aladdin rubbed his lamp" (1900: 210). This problem of *how* physical processes can give rise to experience is currently referred to as the "hard problem" of consciousness (after Chalmers 1996). To be sure, there are other problems in consciousness studies besides the hard problem, and none of them is easy. There is, for example, the problem of what we are conscious *of* or *where* in the brain consciousness arises. However interesting these questions and useful their corresponding findings may be, most philosophers currently agree that they do not give any insight into *what* explains the occurrence of our *subjective feels*; namely, to *why* physical states are accompanied by experience at all. How can the fine-grained phenomenology of conscious experience arise from neural processes in the brain? How does a set of action potentials (nerve impulses) become like the feeling of pain in one's experience?

Responses to this challenge vary widely. David Chalmers (1996) himself, for instance, thinks that the hard problem lies outside the domain of science. He thinks no explanation is possible unless we add *proto-consciousness* to our basic inventory of natural categories: a proposal not very different from what our proto-explanatory gapists above have suggested. Colin McGinn (2004) proposes that human beings are cognitively closed with respect to the solution to the problem. According to the so-called "mysterian", the explanation of the hard problem is beyond our powers of understanding; just as our ancestor *Homo habilis* cannot understand the truths of quantum physics or solve mathematical problems, we cannot solve the hard problem.[1] On the other hand, as it were, there are philosophers who take the opposite view. According to them, the explanatory reduction of consciousness in naturalistic terms *is* tractable (e.g. Block & Stalnaker 1999; Tye 2000; Rosenthal 2006). Finally, there are philosophers who think that the hard problem of consciousness is a fiction of bad philosophy and, as such, need be not explained, but explained away (e.g. Patricia Churchland 1983, and possibly Dennett 1991a).

In addition, there are now a large number of empirical findings brought to light by cognitive scientists and neuroscientists, such as the phenomenon of blindsight, change blindness, visual-form agnosia and optic ataxia, mirror recognition in other primates and split-brain cases (to mention but a few). The recently uncovered phenomena in the brain and behaviour are

immensely relevant to the nature of the explanatory gap problem (or the hard problem of consciousness). It is our task to determine the extent to which these phenomena confirm or confute philosophical accounts of perception and consciousness or suggest new philosophical approaches. Furthermore, there are now a number of criticisms and recent developments in some of the most popular naturalistic theories of consciousness of the past couple of decades, such as representationalism, that need extensive treatment.

In this book, I aim to explain the key concepts that surround the hard problem of consciousness and to articulate and assess several important approaches to it, thereby giving a comprehensive treatment of the phenomenon in light of recent developments in the field. I aim to give the reader something definite and stimulating to think about, rather than to present a careful and disinterested survey of the state of the subject. In addition, and throughout the book (except Chapter 1) I attempt to defend a particular position: I formulate a higher-order thought theory of consciousness and I argue that taking consciousness to essentially involve such higher-order thought, when suitably developed, renders the explanatory reduction of consciousness in naturalistic terms tractable.

The structure of this book is as follows. In Chapter 1, I survey the main philosophical positions on the nature of mentality, thus locating the subject matter of the book within broader discussions of the mind–body problem. In Chapter 2, I explain the notion of "phenomenal consciousness", thereby disentangling it from other commonly used concepts of consciousness and I show more exactly why phenomenal consciousness is held to be the "hard" problem of consciousness as opposed to the "easy" problems. In addition, I clear up the relation between the notions of "phenomenal consciousness", "experience" and "qualia" that have been the source of so much controversy in contemporary philosophy of mind.

Next (Chapter 3), I consider the commonly held assumption that the qualitative properties of our sensory experiences, such as a pain or an itch in one's finger, are essentially conscious. That is, if one is in a mental state with one of these properties then one is in a conscious state. According to most philosophers, although many types of mental states such as thoughts, desires and beliefs can occur unconsciously – and hence "mentality" is not synonymous with "consciousness" – our qualitative states or properties are nevertheless essentially conscious, involving a different kind of consciousness: "phenomenal consciousness". In other words, some philosophers seem to think that mental qualitative properties somehow carry a (unique) kind of consciousness within themselves. If that is so, that is, if "seeing something bluish" and "seeing something yellowish", for instance, are essentially conscious, then consciousness is unanalysable and it is very unlikely that we could get any informative explanation of what being conscious consists

in. However, by appealing to recent neuroscientific findings and to some philosophical thought experiments, I argue that we have no reason to hold on to this long-standing tradition. To this effect, I present and assess the Chalmers–Block view, for two reasons. First, it provides an exemplary case of a well-worked and highly influential variant of the idea that our sensory and perceptual states are essentially conscious and, second, it exemplifies that this assumption is consistent with a wide range of positions in the subject in that Chalmers is a non-reductive functionalist (ontological dualist) and Ned Block is an anti-functionalist reductionist (not a dualist).

In Chapter 4, I present and discuss Franz Brentano's notion of intentionality and consider whether phenomenal consciousness can be understood in intentional or representational terms. I consider phenomenal externalism, currently one of the most popular naturalistic approaches, and discuss in detail the main argument for the view, that is, the argument from transparency of experience. In addition, I look into Michael Tye's and Fred Dretske's neo-Brentanian naturalist versions of intentionalism and show that they do not hold what they promise. In effect, I argue that all versions of first-order (dispositionalist) intentionalism (including Daniel Dennett's) fall short of accounting for the relevant phenomena. I conclude that a theory of what it is to be conscious *of* should be kept distinct from a theory of what the objects of this consciousness are.

In Chapter 5, I specify the problem of the explanatory gap more exactly and present the kind of explanation that is required to close it. It will become clear that this neo-Cartesian challenge is indeed a very serious challenge to all physicalist and non-physicalist accounts of consciousness. I consider the main approaches to the problem (including brain-identity theory, panpsychism, McGinn's mysterianism and John Searle's biological emergentism), and becomes apparent that we are left with an unbridgeable – at least in the foreseeable future – explanatory gap: an appeal to neuroscience is the wrong level of explanation, and non-reductive and non-physicalist accounts fall short of providing the required explanation. But there is an alternative. I suggest that we should look for an explanation at the cognitive level.

In Chapter 6, I look at the main higher-order intentionalist (or representationalist) approaches. It is generally a central commitment of such theories of consciousness that they provide a reductive account of consciousness. But how exactly such theories are reductive has not been explored in much detail. In this chapter, I formulate a reductivist higher-order thought theory of consciousness and show how we can employ this theory in order to solve the problem of the explanatory gap. I conclude by addressing some of the standard objections to higher-order thought theories of consciousness, including the recently emerged and widely accepted idea that the content of our perceptual experiences is non-conceptual.

1. THE NATURE OF THE MIND

1.1 SUBSTANCE DUALISM

In this chapter, I shall present the main philosophical positions on the nature of mentality, such as substance dualism, physicalism and functionalism. This will enable us to locate the subject matter of this book within broader discussions of the mind–body problem. In this section, I shall look at substance dualism and, in particular, at the Cartesian conception of the mind. René Descartes' project in the *Meditations on First Philosophy* is a quest for indubitable truths. Descartes famously applies the method of universal doubt to "all things" in an attempt to empty the mind completely of all traditional views and preconceived ideas in order to show beyond all further doubt that truth is possible. To do this, he lays down three increasingly powerful layers of doubt. He begins his enquiry by doubting the "deliverances" or the "testimony" of the senses. Surely there is a clear sense in which our senses can deceive us; cases of perceptual error, such as illusions and hallucination, are suggestive enough. His next step was to claim that he sees "so manifestly that there are no certain indications by which we may clearly distinguish wakefulness from sleep that I am lost in astonishment. And my astonishment is such that it is almost capable of persuading me that I now dream" (1996: 13). According to Descartes, since his vivid dreams were indistinguishable from waking experience, it was possible that everything he "saw" to be part of the external (physical) world outside him was, in fact, nothing more than a fabrication of his own imagination. It was then possible to doubt that any physical thing really existed or whether there was an external world at all. Descartes' final step was to introduce the "demon" hypothesis: the possibility that there is "a malignant demon who is at once exceedingly potent and deceitful" (1998: 12) that not even these items of knowledge can survive.

These three grounds of doubt share the same structure: the senses may or may not deceive you, you may or may not be dreaming, and there may or

may not be a demon around trying to deceive you at all times. The underlying idea is that we think we are in the *good* circumstance where our experiences are veridical and accurate, or where we are not dreaming and an external world exists, or where there is no deceitful demon. However, we might be in the *bad* circumstance where the opposite is true and where an evil demon is deceiving us. Our evidence would be just the same in the bad circumstance as in the good circumstance. Therefore we cannot know that we are in the good circumstance rather than in the bad: since our evidence in the good circumstance is the same as in the bad circumstance (there are no distinguishing marks between them) then even if we are in the good circumstance, we do not know that we are.

Descartes eventually lands on a bedrock certainty capable of withstanding even his worries about a deceptive demon: "But I have convinced myself that there is absolutely nothing in the world, no sky, no earth, no minds, no bodies. Does it follow from that I too do not exist? No: if I convinced myself of something then I certainly existed" (1996: 16–17). If I can be deceived, then I must exist. *Cogito ergo sum*. From establishing *that I am*, Descartes wants to know *what I am*. Following his general line of argument, it seems that one cannot say more than "I am a thing that thinks", *res cogitans*. Thinking that one has a body, or big arms, or that, say, he was born in Greece, are all immediately vulnerable to doubt. All that Descartes seems to know as to his nature is that he is a thinking thing, not that, say, he has a body. He can doubt that he has a body, but he cannot doubt that he has a mind.[1]

This can be summarized in what some philosophers call the *Cartesian epistemological argument* for the idea that minds and bodies are distinct, as follows:

P1. I cannot doubt that my mind exists.
P2. I can doubt that my body exists.
Conclusion. My mind is not identical with my body.

How good is this argument? Arguments are generally tested for validity and soundness. An argument is *valid* if it is impossible for its premises to be true and its conclusion false. Here is an example:

P1. Andrea Bocelli is an opera singer.
P2. All opera singers are musicians.
Conclusion. Andrea Bocelli is a musician.

When we ask whether an argument is valid or invalid we look at the argument as a whole to see whether its premises are related in this particular way: it would be impossible for the premises to be true but the conclusion false.

If an argument is invalid then even if the premises were true, it would still be possible for the conclusion to be false. In other words, if the argument is invalid then the conclusion does not follow from the premises. An argument is *sound* if and only if it is valid and all its premises are (actually) true. So if the argument is valid, this means that *if* the premises are true then the conclusion cannot be false. Hence, if the argument is valid, it is worthwhile examining whether the premises are in fact true. Since a sound argument is a valid argument with true premises, it follows that there cannot be a sound argument with a false conclusion. There are, then, two steps in assessing an argument (in that order): test the argument for validity and test the argument for soundness.

So, is the above stated argument valid? This argument has the following structure:

P1. I cannot doubt that a is F.
P2. I can doubt that b is F
Conclusion. $a \neq b$

If we can find an argument with this form, then, that has true premises and a false conclusion, we will know that this argument is not valid.

P1. I cannot doubt that Spiderman is Spiderman.
P2. I can doubt that Peter Parker is Spiderman.
Conclusion. Spiderman ≠ Peter Parker.

You can imagine a situation where both P1 and P2 are true (e.g. Gwen Stacy, Peter's first girlfriend, was in this situation) but obviously the conclusion is false. So even if both premises of the epistemological argument were true, that would not be sufficient for establishing the truth of the conclusion. Here is another example where both premises are true but the conclusion is false:

P1. I cannot doubt that 12 is 12.
P2. I can doubt that $\sqrt[3]{1728}$ is 12.
Conclusion. $12 \neq \sqrt[3]{1728}$.

So the epistemological argument is not valid and we should not believe that the mind is not the body because of it.[2]

Descartes however, observes a number of differences between minds and bodies. According to him, there are certain attributes that can be ascribed to minds only and not to bodies, and vice versa. If that is right, then it does make sense to say that the mind is not the same thing as the body. This is because of Leibniz's *law of the indiscernibility of identicals*, crudely put as

follows: *X* is the same thing as *Y* if and only if (iff) whatever is true of *X* is also true of *Y* or, in other words, iff whatever holds for *X* holds also for *Y*.[3]

Recall the Spiderman example. Although it does not make much sense to ask if Peter Parker is Peter Parker (or if Spiderman is Spiderman, for that matter), it makes perfect sense to ask if Peter Parker is the same person as Spiderman. Are they the same person? If they are, then it must be the case that whatever is true of Peter Parker it is also true of Spiderman. It cannot be for instance, that Peter Parker occupies a certain location in space at a certain time and Spiderman is not there, or that Spiderman is to the left or to the right of Peter Parker (as it happens with things that are qualitatively, but not numerically identical, such as identical twins or MP3 players).

The apparent differences between minds and the bodies – that certain things are true of only the former and certain other things are true of only the latter – led Descartes to the conclusion that minds and bodies are, in fact, distinct. But he did not stop there. Descartes observed that the differences between minds and bodies were so eminent and of such a fundamental nature that he exclaimed that minds and bodies are not only distinct or different things, but that they are different *kinds* of things; they are different *substances*, made of *fundamentally* different *stuff*, mental and material (or physical) stuff, respectively. In his view, a human person is a composite entity consisting of a mind and a body, each of which is an entity in its own right.

According to Descartes, then, in a position invariably called *substance dualism*, there are two sorts of substance: mental and material (or physical). These are substances of two fundamentally and irreducibly distinct kinds in this world; namely, minds and bodies. A "substance", according to Descartes, is a thing that exists in such a way as to stand in need of nothing beyond itself in order to exist. The main characteristic of a substance is the capacity for independent existence. So if you think that minds and bodies are different substances then they need nothing beyond themselves in order to exist, that is, they do not depend on each other in order to exist: the mind can exist without the body existing and vice versa.[4]

A helpful way to imagine a "substance" is to think of it as some sort of an object that persists through time. Objects (or things) are subjects of predication, that is, we normally attribute predicates or properties to them, such as "green", "tall", "low-fat", "fast" or "to the left of". Objects do not have to be concrete; we attribute properties to human and non-human primates and to chairs and tables but we also attribute properties to things such as clouds, flames and the sea. But we cannot attribute them, both concrete and non-concrete objects, to anything else. Further, the properties attributed to those objects cannot exist without these objects existing: "redness" cannot exist without the rose existing and "small" and "cuteness" cannot exist without the piggybank existing. A substance, then, can be thought of as an object that

persists through time and changes, and has properties the existence of which requires the existence of the object.[5]

In what respects, then, do minds and bodies differ according to Descartes? As I said in the Introduction, it seems plausible to say that bodies can be accessed by means of the five senses and our knowledge of them involves precisely the exercise of our five modalities (and, possibly, proprioception). Contrariwise, knowledge of minds seems to necessarily involve the exercise of introspection, that is, the capacity to reflect on our mental lives, not perception. Thus, no matter how accurate your brain scanning is, no matter whether you are using positron emission tomography (PET) or functional magnetic resonance imaging (fMRI) scanning, or even if you use a very advanced technique and painlessly cut someone's brain open, you will not be able to spot any of their perceptual experiences, beliefs or desires. Further, it seems that bodies, and material objects in general, have a location in space as well as properties, such as shape, size, weight and spatial orientation, whereas minds do not; you do not find yourself saying things such as "there's a mind over there", or "my beliefs are behind or to the left of this chair", or "my memories of 2009 are 9 feet long and weight 14 stones". Mental states just do not seem to be the sorts of things that are here or there or anywhere in the relevant sense and do not have any of the above characteristics that we normally attribute to material objects, or so it seems. Finally, it seems that minds can think and understand and imagine whereas bodies do not: intuitively, you do not believe that your body or your brain cells can, strictly speaking, understand, nor do you think that when John Lennon asks you to "imagine all the people living life in peace" he invites your left arm or medial temporal lobe of your brain to do this (Table 1.1).

There are other variants of substance dualism, apart from Descartes', such as Leibniz's parallelism, Malebranche's occasionalism and Huxley's epiphenomenalism. The main difference between these views and Cartesian dualism is that Descartes held that the mind and the body could causally interact: *minds and bodies causally influence each other; some mental phenomena are*

Table 1.1 Summary of the differences between mental and material substance according to Descartes.

Physical substance: *res extensa*	Mental substance: *res cogitans*
Extended in space	Not extended in space
Has a spatial location	Has no spatial location
Not a thinking thing	Of essence a thinking thing
Known by perception	Known by introspection