

SCIENCE, MIND AND COGNITIVE LIMITATION

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The mysteries of consciousness, mind and self have gripped the human imagination for over 2,500 years. At the dawn of the new millennium tremendous advances in scientific exploration, particularly in the field of neuroscience — leading-edge work by outstanding researchers in the field — provide new alleged solutions to some of the deepest puzzles surrounding the nature, ontological status and function of human mind and self. There is a plethora of works and research papers appearing in top academic journals which bring together studies by philosophers, physicists and neuroscientists in an exploration of the self and its function. While in my view the fundamental problem of consciousness remains intractable, the wealth of discussions in the recent literature has produced important insights and taken the debate to a new, more interesting and deeper level. In this paper I will try to provide an overview of mainly neuroscientists' contribution to the topic and the structure of the dialectic that surrounds it and an open admission of mystery and nescience in many issues.

The philosophical question about the nature of consciousness has made a remarkable comeback of late and a

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spat of books is finally supposedly making genuine progress in exploring the nature of conscious experience. Chalmers, Clark, Dennett, Dretske, Flanagan, Hardcastle, Hardin, McGinn, Searle, Shoemaker and Kirk are some of contemporary writers who deal with the topic of consciousness and sensory experience. Consciousness, in my view, is a type of perception. But it is not perception of the external world, rather it is an individual's perception — awareness — of his own internal mental states and events. It is the foundation of all intentionality and all mentality. It is for each one of us a private universe of his own, where he is in control, where one can play all sorts of imaginative games and can produce at will an apparently endless variety of images, it is the origin and home of all experiences and feelings, it is the thing that somehow makes me *me*, essentially distinguished from all other things and beings, it is the proof that *I am* because I am aware, *i.e.* because I am conscious. To my consciousness I have complete and incorrigible access; but other people have access to it through what I choose to reveal by 'physical' means or express verbally. Herein lies the essential privacy of consciousness. 'I am not feeling well' is a statement that cannot legitimately be challenged. We can test for a variety of possible causes of not feeling well, and we look for symptoms of having unwell, but it is impossible to see how a *feeling* could be confirmed or denied. Many of the most significant 'things' of our world would not exist if there were no such reality as consciousness. 'Red', for example, has no meaning outside of conscious mind. It is often caused by light of a certain wavelength, but red itself — the qualia of sensing a red patch — is not a wavelength. There is no way of measuring the sensation of redness, or even of knowing whether what I see as red is the same what another person sees. The example of colour is of course just one thing of the many things that depend on the activity of the experiencing mind. The same is true of the whole range of what are called emotions or feelings; of love and hate; of pain and pleasure; of envy and compassion. These are the essential ingredients of our lives; they are the realities about which we care the most; they are the attributes, occurrence or properties of conscious mind.

The above paragraph very briefly but succinctly epitomizes the Cartesian dualistic position on the mind-body issue. Like many another era, the last century has witnessed substantial conflict among rival philosophical schools and movements. Nicholas Rescher, Executive Editor of *American Philosophical Quarterly* (Volume 36, No. 2, April 1999) opines that big battles between the rival movements and schools of philosophy often focus on issues not so much of doctrine as of values. The bone of contention is a matter not of doctrinal adherence and advocacy as one of evaluative allegiance in terms of what is deemed important, significant, and interesting. To be sure the issues are interrelated and, in my view, the philosophical conflict and debate that has figured on the last century's philosophical agenda has been on both fronts, *i.e.* doctrinal and substantive advocacy of either Cartesian dualism or various variants of physicalism, logical behaviourism and epiphenomenalism on the one hand and the matters of value and larger considerations of life and morality on the other. In his interesting editorial note captioned "Who has won the big battles of twentieth century philosophy" Rescher, with the help of a tabulation indicating the total number of columns for the listing under various headlined topics — has pronounced a verdict of draw between Science and Religion: religion being a natural ally of soul-body dualism. This battle, quite rightly, is part of the heritage of the 19th century, a vestige of the assault on religion from the scientific perspective encouraged by positivism, scientific socialism, and evolutionism. The figures on both sides suggest that the growing prominence of science has certainly not annihilated concern with and interest in religion and theism. Another battle out of a total of seven is of central concern to the topic of this paper, the conflict of Scientism vs. Metaphysics. Scientism sees no place for metaphysics. Its adherents take the line that if it is worth saying then science will say it. Quite surprisingly, the statistics of Science versus Metaphysics indicate that the adherents of scientism have lost the battle for the allegiance of the philosophical community. Rescher pronounces the verdict: metaphysics has not only survived the onslaught of scientism but is actually thriving.

The overall conclusion has to be that traditional philosophical theories and topics have proved remarkably tenacious. Upon the whole, thematic traditionalism has prevailed and in this respect, philosophy as a whole stubbornly refuses to abandon any of its traditional terrain. In this perspective let us briefly look and explore the central ideas of Materialist theories of consciousness, which have captured the flag of the scientifically inclined philosophical establishment.

Materialist theories of consciousness can be classified in a number of ways, but perhaps the principal division is between theories that identify conscious experience with a type of physical state or property and theories that identify conscious experience with some relational feature that can be realized by a wide variety of physical states. The first sort of theory is the Identity Theory (IT), and the best-known example of the second sort of theory is Functionalism. According to IT conscious experiences are straightforwardly identical to brain states, and their properties are neurophysiological properties. According to Functionalism, conscious experiences are functional states, constituted by their causal relations to inputs, outputs, and other mental states. For example, my visual experience of the red diskette case would be identified with being a state that was typically caused by visual exposure to red objects, caused various judgments concerning the distal stimulus, would cause various judgments of relative similarity or dissimilarity if conjoined with certain other visual states, and also, in conjunction with a host of other mental states, would cause certain typical behaviour.

Most Materialists today endorse some version of Functionalism, or at least hold a relational theory that shares with Functionalism its independence from appeal to any particular form of physical constitution. The principal reason is that IT seems to suffer from what N. Block¹ calls "chauvinism". If

¹Block, N. (1980), "Troubles with Functionalism" in N. Block, ed. *Readings in Philosophy of Psychology*, Volume 1, 268-305. Cambridge: Harvard University Press.

conscious experiences are neurophysiological states, then creatures with differently constituted brains — whether Martians or robots — will surely be devoid of consciousness.

Functionalism, of course, is designed to avoid chauvinism. But it suffers from the opposite defect, what Block calls “liberalism”. Since the formal specifications of a functional state are independent of the physical mechanisms that realize them, it seems in principle possible for there to be truly bizarre realizations that intuitively are hard to count as conscious. Such cases are called “absent qualia” cases, or sometimes “zombies”, because the creatures involved would behave as we do, sharing our functional states, but there would be nothing it is like to be them.

Searle² has identified seven propositions that compose the ‘foundations of modern materialism’ and laboriously undertakes to show that each of the seven is ‘at best false’. Here they are:

- (1) Where the scientific study of the mind is concerned, consciousness and its special features are of rather minor importance ...
- (2) Science is objective ...
- (3) Because reality is objective, the best method in the study of the mind is to adopt the objective or third-person point of view ...
- (4) From the third-person, objective point of view, the only answer to the epistemological question ‘How would we know about the mental phenomena of another system?’ is: We know by observing its *behaviour* ...
- (5) Intelligent behaviour and causal relations to intelligent behaviour are in some way the essence of the mental ...
- (6) Every fact in the universe is in principle knowable and understandable by human investigators ...

²Searle, John (1992), *The Rediscovery of Mind*. MIT Press, 277 pp.

- (7) The only things that exist are ultimately physical, *as the physical is traditionally conceived*, that is, as opposed to the mental.

Searle seems to take a quasi-Cartesian position when he says that since mental phenomena are essentially connected with consciousness, and because consciousness is essentially subjective, it follows that the ontology of the mental is essentially a first-person ontology. It is surprising that after admitting this he goes on to assert that the subjectivist ontology of the mental seems intolerable. It seems intolerable metaphysically that there should be irreducibly 'private' entities in the world, and intolerable epistemologically that there should be an asymmetry between the way that each person knows of his or her inner mental phenomena and the way that others from outside know of them. It is still more surprising that, despite these views, he sees himself as an iconoclast waging lonely battle against functionalistic materialism. Consciousness, in Searle's view, is more special than a functional state and hence cannot be just one more bit of objective ontology, the objective phenomenon of subjectivity-loci scattered about in the world. That is why the so-called subjectivity of a robot, which has a limited and potentially mistaken fund of information about its environment, could not be *real* subjectivity since this is an objective phenomenon, readily and exhaustively investigatable from the objective point of view. His very fanciful (but ingenious!) thought experiments of implantation of the silicon chips into the brain with three possible variations yield prospects which are, in his own words, "empirically absurd" and only a logical possibility. With reference to the second case he writes:

"... we imagined that the mediating relationship between the mind and the behaviour patterns was broken. In this case, *the silicon chips did not duplicate the causal powers of the brain to produce conscious mental states* (my emphasis), they only duplicated certain input-output functions of the brain. The underlying conscious mental life was left out."

He further explains it thus:

“Ask yourself ‘what would it be like for me?’ and you will see that it is perfectly conceivable for you to imagine that your external behaviour remains the same, but your internal conscious thought processes gradually shrink to zero. From the outside, it seems to observers that you are doing just fine, but from inside you are gradually dying.”³

I, for one, see this ‘siliconology’ extremely far-fetched and chimerical. Professor Daniel Dennett in his review⁴ of Searle’s book *The Discovery of the Mind*, however, expresses his dissatisfaction with his position and wants to further extend his attempt to ‘naturalize’ subjective ontology. One idea of his, among others, is particularly noteworthy: “a silicon consciousness is possible — in this case it just isn’t you.” It just is neither you nor any other subject of consciousness. I fail to understand how a subjectless mental state (of consciousness) is at all possible and what it would be like? I am baffled.

In the last decade of twentieth century quite a few academic publications have appeared whose even titles are quite provoking and tendentious. For example, Godfrey Vesey’s book entitled *Inner and Outer — Essays on a Philosophical Myth*⁵ and Euan Squires’ book *Conscious Mind in the Physical World*.⁶ Vasey’s book particularly falls in the genre in which Gilbert Ryle’s *The Concept of Mind* was written. It is characteristic of this type of philosophers that they come to think they can dismiss, analyse away or dissolve a complex and profound metaphysical question

³*Op. cit.*, p. 68.

⁴Dennett, Daniel C. (1993), Review of Searle’s *The Rediscovery of the Mind*. *Journal of Philosophy*, Volume 60 (4), 193-205.

⁵Vesey, Gofrey (1991), *Inner and Outer — Essays in Philosophical Myth*. MacMillon, London.

⁶Squires, Euan (1990), *Conscious Mind in the Physical World*. Adam Hilger, Bristol and New York.

in a few deft “moves” or with a few clever points and to distrust whatever is not put in the professional patois of “claims”, unpacking, entailment and which does not have the sleek professionalism and glibness that now passes for rigour and brilliance. By declaring a deeply significant question a muddle, they easily try to get away with it. This unincisive and cavalier attitude has been particularly exhibited in the case of the nature of mind by the best known English speaking philosophers right from Gilbert Ryle down to Richard Taylor, D. M. Armstrong and K. V. Wilkes. The last mentioned philosopher, for example, writes in her book entitled *Physicalism*:⁷

“The physicalist we have described has no longer to content with the ‘mind-body’ problem. The problem, though, is dissolved rather than solved. Psycho-physiological functionalism prevents it from arising, stops the question even being posed. The reason, very simply, is that it allows for no class of mental events, states or processes that can be set in an interestingly problematic relation to a class of physical events, states, and processes.”

The same cavalier attitude comes out unmistakably when we read the following lines by Richard Taylor in his book *Metaphysics*:⁸

“If a philosopher reasons that a body cannot think, and thereby affirms that, since a person thinks, a person is a soul or spirit or mind rather than a body, we are entitled to ask how a spirit can think. For surely if a mind or soul can think, we can affirm that a body can do so; and if we are asked how a body can think, our reply can be that it thinks in precisely the manner in which the dualist supposes a mind or soul thinks.”

⁷Wilkes, K. V., *Physicalism*, p. 114.

⁸Taylor, R., *Metaphysics*, p. 30.

These lines, I am sure, give a big jolt to all its readers and are likely to produce very poor view of the role and utility of philosophical arguments. Despite the works of the numerous philosophers writing in this vein, the question of the nature of mind has survived to this day and remains a source of acute perplexity to serious thinkers.

Let us now briefly look at the neuroscientists' contribution to the problem of self, consciousness and mind. Physical mechanism of the brain of course plays an important role in our mental life and we have recently come to know the awesome complexity of all brains. My summary statement of the very complex and intricate neurophysiological mechanism involved in brain stimulation is based on John Eccles⁹ and Euan Squires'¹⁰ excellent works. Here it is:

The basic cells of the brain and of the central nervous system are of a special type called *neurons*, and there are around 10^{11} neurons in the human brain. These neurons are varied in form, but typically consist of a central *soma* attached to a long fibre called an *axon* and to several different fibres called *dendrites*. The fibres are connected to other neurons by tiny junctions called *synapses*. There are of the order of 10^{14} such synapses in the human brain, with as many as 10^5 being on a single neuron.

The neurons respond to and transmit electric impulses, the latter process being referred to as "firing". At some of the synapses the effect of an electric impulse is to release a fluid, which then alters the rate of firing of subsequent neurons. Information storage and processing in the brain seems to be concerned with the rate of firing and with change in this rate. (This is unlike

⁹Eccles, John C. (1989), *Evolution of the Brain: Creating the Self*. Routledge, London and New York.

¹⁰*Op. cit.*

the binary, off-on, situation in a computer.) All the sensory information the brain receives, and all its thinking processes, are related to variable rates of firing of neurons. We have little idea of how all this happens, but it is known that particular regions of the brain are associated with particular things. For example, we know the regions that are relevant to visual and auditory sensations. Similarly, it is possible to associate “prickly” and “burning” pains with different parts of the brain.

There are reasons to believe that conscious sensation is a result of things happening within the brain, and is not directly linked with the external cause. For example, we are conscious of our finger being pricked only because certain signals are transmitted from the finger to the brain; the finger itself does not communicate directly with consciousness. The evidence for this comes from so-called “phantom limb pains”, where it is possible to feel pains in limbs that have been removed by amputation. Actually such results only show that the brain is capable of having the experience without the limb. The fact that the pain can be felt when the appropriate region of the brain is artificially stimulated also supports the idea that the source of the sensation lies in the brain.

So far so good. But a central issue here is whether the world of physics (quantum physics included) is causally closed or whether there are non-physical, mental events, which can alter it. In particular we want to know whether such mental events can affect the physical state of the brain. The sensation of prickly and burning pains no doubt are caused by a complex neuro-physiological change starting from external stimuli. But how about prick of conscience which a person with sufficient moral sensibilities feels? It is definitely explainable in terms of some non-local influences of the neural events associated with the mental process, and this can be easily done on the Cartesian dualistic position: the conscious mind is totally independent of

the physical brain. It is only and only in this perspective that a number of sayings of sages and religious seers become meaningful and of extreme relevance for us. For example, here is a quote — extremely meaningful quote indeed — of a sage that only makes sense in a metaphysical perspective affirming self as a non-plural entity:

What would one, indeed, attain if one gains the whole world, but loses oneself. It would be just like multiplying infinity by zero.

Similarly only on the basis of an ontologically independent self and mind and their higher metaphysical faculties can we appreciate the poetry of Bedil, Ghalib and Iqbal. The IT, functionalistic and robotic physicalistic view of human consciousness is unable to explain the rich contribution of these poets and thinkers to human thought and civilization "*Aatey hein ghaib sey yeh mazmeen khayal mein*" (Ghalib) marks a major shift in the mind-brain relation and its attendant physiology. In his 1985 book *The Wonder of Being Human*, Eccles summed up his life work (and very long and arduous work indeed) as a neuroscientist by declaring that each of us has a "divinely created psyche" which must be considered central to all questions of immortality and self-identity. Remarking on the book, he said that he believes in both a material world and a mental-spiritual world.

In his later book already cited above he clearly states that two propositions are basic to any attempt at understanding ourselves and our relationship to the world including other selves. They may be classed as primal certainties. First, is the certainty that one exists as a unique self-conscious being. Second, is the certainty that the material world exists, including one's body and brain. He further goes on to state very categorically, "Since materialist solutions fail to account for our experienced uniqueness, I am constrained to attribute the uniqueness of the Self or Soul to a supernatural spiritual creation. To give the explanation in theological terms, each soul is a new Divine creation which is implanted into the growing foetus at

some time between conception and birth. It is the certainty of the inner core of unique individuality that necessitates the 'Divine creation'. I submit that no other explanation is tenable; neither the genetic uniqueness with its fantastically impossible lottery, nor the environment differentiation which do not determine one's uniqueness, but merely modify it. This conclusion is of inestimable theological significance. It strictly reinforces our belief in the human Soul and its miraculous origin in a Divine creation."¹¹

Canadian neurosurgeon Wilder Penfield, California Institute of Technology's Dr. Roger W. Sperry and neuroscientist Dr. Karl Pribram of Stanford University have also contributed to the ferment in mind-brain research. They have convincingly undermined the chemical-neurological model of mind which denies the reality of a non-material realm. The 'new' view of mind offers experimental evidence pointing to a metaphysical domain which interacts with the physical and works into brain processes, yet nevertheless retains its own character as psyche soul, mind. Indeed the materialistic view of man is mindless.

To search for consciousness and its essential nature is impersonal. It leaves us out of the picture. We are asking: What about us, this awareness of ourselves existing as conscious beings in the world, this "being aware" of our own existence as subjects of experience? What *is* that and what are *we*? It is one thing to wonder about a physical universe consisting of space, time, and matter. It is quite another to wonder about a physical universe somehow observed by someone within it — that asks: "Who — What — am I? How did the consciousness thinking these very thoughts, this awareness, come to be? Why do *I* exist? What is the ground of *my* being.

Last, but not the least. There is an element of mystery, awe and puzzlement in the issue of mind, self-consciousness and self.

¹¹Eccles, John C. (1989), *op. cit.*, p. 237.

Flanagan¹² uses the term “Mysterian” for the position that there is something fundamentally inexplicable about how physical processes result in conscious experience. According to his view, mysterianism in its strong sense means our inability to explain consciousness. And it reflects a built-in cognitive limitation. Weak mysterianism remains more agnostic. We cannot understand how consciousness would be physical, and, what is more, this is a fundamental sort of not understanding; not the sort that is alleviated by a little more research along the same lines we have explored already. Indeed many philosophers today openly express their epistemic puzzlement on the issues and plead to live with puzzlement. And, in my view, it corroborates and affirms the Qur’anic assertion:

O men, you have been granted very little of (real)
knowledge. (Bani Israel 17:85)

Man is endowed with as much knowledge only as he is capable of understanding and utilizing; and a knowledge of the nature of soul does not lie within his purview. Even the physical nature of life is not quite easy for modern science to explain, and this is admitted by the leading biologists themselves. And quite a few materialist philosophers have been led to confess: “The more we learn about nature, the more do we become aware of our own ignorance.” The sphere of the Unknown is infinite; the sphere of the Known may be expanding but is always finite.

There are, however, people who cannot swallow the notion of epistemic puzzlement or mystery. Perhaps it would be useful to draw their attention to this passage by Albert Einstein. “The fairest thing we can experience is the mysterious. It is the fundamental emotion which stands at the cradle of true science. He who knows it not and can no longer wonder, no longer feel amazement, is as good as dead.” Einstein’s view was shared by other great scientists — Niels Bohr, Max Planck and Werner

¹²Flanagan, D. (1992), *Consciousness Reconsidered*. Cambridge, MD, the MIT Press.

Heisenberg — who concluded (at the end of their life-long enquiries) that there is room in a rational universe for incomprehensible wonders. We must, therefore, realize that the biggest, most fascinating mysteries are to be savoured, not resolved.