

1. Neuroscience and Consciousness

Swami Ramatirtha, a celebrated Indian saint, philosopher and mathematician of the 19th century, once said that the first science to which man turned was astronomy and the last would be psychology. He expected psychology to be the science of the spirit or the self. Ironically, however, when psychology assumed the status of an independent science in the 19th century, it distanced itself from philosophy. Allying itself with physiology, biology, biophysics and biochemistry, psychology adopted an empiricist and even positivist philosophy. Behaviourists from Watson to Skinner questioned the very reality of anything like mind or consciousness. In the positivist vogue even some philosophers (Gilbert Ryle) have declared the mind to be a 'ghost in the machine.'

In this background, it is a matter of considerable philosophical interest that contemporary brain-research has again made the age-old question of the nature of consciousness and its relationship to the brain a burning topic of discussion. The question, however, is—how can Consciousness be investigated by empirical methods when it is not empirically observable? What neuroscience does in practice is to experimentally observe the structure and functioning of the brain. It has developed amazing methods of doing so and has discovered many correlations between the observable activity of the neurons and some states of the mind, especially the disordered states of the mind. In such correlations, consciousness is represented either by an observable modality of behaviour or as what is reported by a subject. It is hard to say that the observation of conscious behaviour or the reporting of states of consciousness which are reportable reveal the nature of consciousness taken by itself more clearly than is a matter of common experience and knowledge. Nor does the indirect knowledge of the fact that certain bodily states are correlated with certain mental states carry us any nearer to the solution of the philosophical debate between physical determinism and occasionalism. Nor can such correlations eliminate the causal role of consciousness itself—a matter of common experience and belief on which the whole notion of social, legal and moral responsibility rests. Subtle researches about the brain as such remain researches about the brain as a physical organ; they do not *ipsosfacto* become researches about the mind or consciousness, unless one starts by some kind of reductionism, physicalism, or epiphenomenalism. Thus the computational model in cognitive psychology is basically physicalist. Against it one may recall that it has been argued (Penrose in his *Shadows of The Mind*) that at least some parts of cognitive consciousness are non-computable. Besides, conscious-

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ness is not simply computation but also understanding feeling and will, and they have their own distinctive, imponderable but undeniable reason. Neurophysiology, physiological psychology and psychiatry treat consciousness by and large as an emergent property dependent on neural structures and activity, and some thinkers have even sought to propose the concept of the Neuronal Man. Can this indirect construct, however, convincingly replace the manifest self-revelation of consciousness? The major exception to such trends is represented by the thinking of some quantum physicists who postulate mentality or consciousness as an irreducible property at the quantum level (and propose an understanding of consciousness at the level of brain functioning through the concept of the collapse of the quantum wave function). This reminds one of the *Samkhya* theory which regards *saliva* or mentality as one of the three inseparable energies at the pre-atomic level and of the notion of *guna-parimana* energy transformation. It is not clear, however, how a physical description can be given of experiential *qualia* without the presence of an experiencing subject which *Samkhya* posits as lying outside the process of Nature (B.N. Seal, *Positive Science of the Ancient Hindus*). On the other hand, Indian philosophers like Aurobindo, Ramana Maharishi and Radhakrishnan have argued that the nature of consciousness as the fundamental reality of the universe can be realized only through *yoga* and that such realization constitutes the evolutionary goal of nature and man. Consciousness is in itself timeless absolute but in time it freely involves itself in matter and then evolves through life and mind to the supramental Overmind and Supermind.

Despite the diverse lines of neuroscience research impinging on the problem of the nature of consciousness, it is necessary to reflect critically on the methodology which would be appropriate for (a science) of consciousness keeping in view its characteristics such as experiential *qualia*, apperceptive unity, self-consciousness, sense of volitional freedom, moral reason, apprehension and seeking of imponderable and infinite values, creation of symbolic forms and the seeking for transcendence. Despite the castigation of the arm-chair methods of the philosophers by some psychologists, it may be pardonably argued that the nature of

consciousness can be properly explored only in and through consciousness. This may be ridiculed as unlikely to lead to any real advance of knowledge but we need to ask—can consciousness be the object of neutral, positive knowledge? Will not such a study of consciousness necessarily exclude the study of social and cultural, moral and religious consciousness and be confined merely to those states of consciousness which are either prefigured in animals or imitated by computing machines? What distinguishes man from machines is consciousness and self-consciousness and what distinguishes him from animals is moral reason. There is a need, therefore, for a critique of positivistic methodology if a true science of consciousness is to develop.

II Philosophy as the Phenomenology of Consciousness

It is a common place that scientific methodology is based on empirical observation, hypothetico-deductive reasoning and experimental testing. It is thus *ab initio* limited to empirical reality. Now some reality is undoubtedly empirical and it may be studied by empirical science. That all reality is not empirical is conclusively shown by the example of consciousness itself which is never perceived but known in all acts of knowing. It is real indubitably and undeniably since doubt and illusion both presuppose consciousness. Such a science of consciousness was called the science of the self or mind—*adhyatmavidya*—in India. One part of it examined the nature, sources and criteria of knowledge. The other seeks to understand the essence of experiential phenomena, their unity and the highest good of man. [Since as a rational and self-conscious being, man expresses himself in cultural creativity, the understanding of the good is not merely the understanding of the good as a bare idea or form but also of its concrete realization.] As logic or *anviksiki* deals with pure concepts, or essences (*tattvas* or *padarthas*) and as the phenomenology of the spirit (*adhyatmavidya*) it deals with the moral, religious and cultural phenomena which may be described as Man writ large. With its reflective and critical approach (*vimarsa* and *pramana-pariksa*), this science seeks to reach the vision of the spirit in its plenitude, i.e., *atmadarsana*.

It follows that while philosophy may examine the presuppositions of physical science as well as of cognitive neuroscience, the empirical proposi-

tions of the sciences would not affect philosophy, unless they are combined with philosophical assertions, i.e., assertions of a logical, axiological, metaphysical or spiritual character. It also follows that the naturalistic and reductionist anthropologies which formulate the notion of the neuronal man need to be examined philosophically since they assume a necessary connection between physical and mental states. They appear to confuse the vehicle with the passenger—to use a famous Vedic metaphor which describes the body as the chariot, the sensory and motor faculties as the horses, the sensorium (*manas*) as the reins, reason as the charioteer and consciousness as the passenger. This metaphor distinguishes the transcendental consciousness from the mental states associated with physical states.

Philosophical reflection on self-consciousness moves in two directions. In one direction it moves away from the objective content of self-consciousness to the intuition of the self as pure subject or transcendental consciousness. In the other direction, it uncovers in self-consciousness the basic form of objectivity or possible being which have been called ideas, essences or pure concepts. The philosophical exploration of consciousness is thus both transcendental and synthetic as illustrated in *Samkhya*, Vedanta, Buddhism or *Tantra*.

III Yoga as the science of consciousness

Yoga is the practical aspect of the science of consciousness. It aims at the direct intuitive knowledge of consciousness in itself and also presents the phenomenology of consciousness in action. The principal means of *yoga* is the cultivation of a cognitive state of the mind called *samadhi* or putting together, concentration or integration. It is different from the states of sleep and dreaming because it is a state of high alertness and lucidity. It is also different from the waking state because it is free from the distraction of speech and thoughts, sensations and images, feelings and desires. It is a lucid and tranquil flow of the mind in which the ripples of objectivity and mediated subjectivity subside. The non-selfhood of the momentary mental states is easily understood and along with it is glimpsed the timeless and noumenal transcendental nature of consciousness. But *yoga* is a long process of withdrawal and ascent to ever higher levels of consciousness which is in reality the infinite matrix of all possible universes as also the hidden *telos* of Evolution or the very process of Time. Since the detached and objective exploration of one's own consciousness requires that one should not be ruffled by physical and social distractions and since *yoga* is a long-time search like emptying the ocean

with a blade of grass, it requires a long ascetic training. *Yoga* is a science but it is not amoral or value-free. Knowing the true self requires a firm detachment from one's habitual lower self.

As to the phenomenology of consciousness in action, several models have been presented in yogic systems. The Vedic model arranges consciousness in various hierarchical grades—pure transcendent consciousness, universal reason, individual and subjective mental states, sensory perception, and the sensitiveness of the body and its parts down to the minutest constituents. These hierarchical planes of bodily or cellular vital, mental, rational and spiritual being are so many sheaths from within which consciousness is manifested. In functioning through these sheaths or accidents it acquires a distinctive modality at each level. The distinction between what is accidental and what is essential to consciousness is shown by the distinction between the transient and the non-transient. The method of reaching pure consciousness on this model is described as that of understanding the accidental character of consciousness functioning in each plane and then negating it as extrinsic to its true nature. The early Buddhists likened the human body-mind complex to a mere assemblage of momentary parts without any permanent substance or soul. Later Buddhists evoke the metaphor of the sea and its waves for the deeper and overt functional levels of the mind. The *samkhya* compared the mind to a mirror which images objects as well as the light of pure consciousness, so that the two come into relationship. In all these metaphors of the psychological self one thing is common. The real self of man is consciousness which is neither the body nor the mental states. The mind uses the body to function but is distinct from it. Similarly the self is distinct from the mind, though under the condition of empirical existence the self is identified with mental states in the same manner in which the mental states are tied with physical states. Even though functionally tied together, the body, mind and the self or pure consciousness are distinct in essence and existence. The body is purely objective, mental states are subjective-objective, and pure consciousness is the transcendental subject. The source of the delusive identification of body, mind and self is the beginningless, non-discrimination of the self, and the non-self including the mind. From birth, self-consciousness grows through the mediation of the mind which is associated with bodily sensations and images. By nature man turns to the outside world for experience and action. *Yoga* is the reversal of this process of extroversion.

Consciousness intimate the self as immanent in the changing states of the

mind. Reflection over the radical difference between subjectivity and objectivity shows that the momentary experiences or their content or the objects to which it refers, cannot be the self, which must be an identical subject without objective determinations. The self is a timeless and transcendent principle which gives unity to experience as its deepest presupposition. Not only is it the subject of cognitive experience but is also the subject of free value-seeking and creativity. This seeking also presupposes a real or permanent self distinct from ephemeral modes and states of consciousness mediated by psychophysical states and their context. Just as a musical instrument cannot be imagined as music, the psychophysical complex cannot be imagined as consciousness which is at once Emptiness and Plenum. In itself devoid of all forms and content, consciousness is the matrix of all forms.

One may say that consciousness has no definable nature of its own but is the infinite ground and unity of all natures. That is why it has been described as the Mother of the Universe.

The question may be raised—if transcendental consciousness is the real self of man, how is an empirical, embodied person to realise it and what consequences would such realisation have on his body and mind. *Yoga* seeks to show the way to the unification of the finite empirical self with the infinite transcendental consciousness. To understand this we may analyse the process of empirical or mental consciousness. The mind is like a two-faced mirror which reflects the external world as images and forms, and also reflects the pure consciousness which appears as the immanent subject in the mental states. The reflected consciousness or immanent subject appropriates a *persona* constituted out of archetypal images in the unconscious mind through an act of transcendental ignorance and is caught in the vortex of seeking the experiences of objects imaging its own desires. This is the genesis of the empirical self immanent in mental states.

The most significant fact about empirical consciousness is that it is a flow of momentary states, unconscious as well as conscious. The unconscious flow of the mind is the repository of dispositions, implicit memories, and self identifications with bodily sensations as well as archetypal images. In the state of sleep, it is this conscious flow that continues; consciousness appears to subside in it and reemerges through some external or internal stimulus. Unlike the unconscious flow in which the sense of time and order are not accessible, the conscious mind follows a definite duration and pattern of succession. The stimulus, external or internal, produces a sensory reflex or image. This is uninterpreted and

isolated for a moment but is immediately and unnoticeably succeeded by an image which includes the synthesis of several moments and is then joined to words and memories and in this process it is classified, recognised and determined as an object in a possible practical context. In other words, the impact of the stimulus leads to a series of activities of the mind which involve remembrance, logical and linguistic construction and purposive determination. The determination may be followed by appropriate connative and emotive responses. From stimulation and indeterminate apprehension to full recognition, judgement and consequent volition runs the process of thought which may occur at various levels of empirical cognition or yogic contemplation. The yogic states are marked by a longer duration of active consciousness. The series of momentary states is linked causally but the causes are a manifold which include not merely external stimulation, the antecedent moment and past memories but the character and disposition of the mind and the cumulative biopsychic force of its past actions. The most important causes governing the flow of empirical consciousness are constituted by egoistic delusion, desire and aversion which cumulatively may be compared with Schopenhauerian Will or Bergsonian *elan vitale*. It is the unconscious force of egoistic delusion and craving which makes the mind the prime architect of illusions. By an innate logico-linguistic structuring it replaces the empty momentariness of reality by images and concepts, substances and relations, the whole world of categorizable and apparently enduring subjects and objects. *Yoga* points the way to transcend this illusion.

The working of the mind is at various levels. It may be dull as in sleep or distracted as in a normal dream or anxiety or it may be attentive to some definite practical purpose as in the common waking state. *Yoga* aims to go beyond these three states to a fourth state where consciousness is still, lucid and objectless.

Yoga requires the practice of contemplative concentration by a habitually concentrated mind. This concentration begins with the withdrawal of the mind from external objects and the contemplation ultimately of the still subject who witnesses the flow of thoughts. This can take the form of contemplating the continuous flow of transient mental states. The self is then fully aware of its own mind and thoughts as detached, impersonal objects. It realizes the non-selfhood of the mind and through it of the body. This realization of the non-selfhood of the states of consciousness leads one simultaneously to realise one's identity with a totally non-objective and changeless subject as transcendental

consciousness. This is a condition of intuition or spiritual illumination which eliminates the deep-seated delusions of the unconscious mind.

The methodology of *yoga* is essentially introspective but its introspection is redeemed from the faults of subjectivity by inter-subjective verification. It is also practically tested by the acquisition of paranormal experiences and powers. The changes which come about in the moral character of the individual who is freed from all taint of selfishness and becomes a saint are also a kind of verification. It should also be remembered that delusions or errors come from the intervention of images and words as well as from wishful thinking and preconceptions. The whole process of *yoga* is that of eliminating such factors systematically and reaching a state of pure disinterested attentiveness to what is true by virtue of its irrepressibly self-illuminating character.

To sum up, consciousness is not a substance nor an illusory phenomenon or epiphenomenon. Nor can it be understood or controlled as a machine or an animal body. Consciousness is the deepest *telos* immanent in the evolutionary process of nature and society. To realize the full nature of consciousness would be to realize divinity on earth.

NOTES

1. Plato on dialectic - in *The Republic*, cf. A.E. Taylor, *Plato* (1960), pp. 291 ff.
2. Vide Nyayabhasyavartikam on anviksiki
3. E.g. Carakasamhita Nidanasthana, chap. 7 on the diagnosis of madness (unmadani-dana).
4. Charles F. Levinthal, *Physiological Psychology* (3rd ed.), p. 13.
5. *Ibid.* pp. 11-12.
6. E.g. J.P. Changeaux, *Neural Man* (Eng. tr. 1985) quoted by Guy Bugault, in *JICPR*, Vol. VIII, 1. p. 73.
7. Levinthal, op. cit. pp. 92-93, W. Penfield, *The Mystery of the Mind* (1975).
8. S. Kak, 'Devas', *Mind's Agents and Neuroscience* (under pub.).
9. The celebrated James-Lange theory was justly criticised by Cannon-Levinthal, op. cit., pp. 354 ff.
10. Cf. Ayer, *Foundations of Empirical Knowledge*.
11. Cf. P.P. Strawson, *Individuals*, p. 95.
12. Brahmasutrabhasya, upodghata.
13. Cf. Strawson, *I.c.*
14. Rosenbaum, *Shadow's of the Mind*.
15. Vide. e.g. Vasubandhu, *Vijnaptimatratavinsatika*.
16. Cf. Strawson, op. cit., pp. 102-03.
17. Cf. Bugault, *I.c.*
18. Cf. Pringle Pattison, *The Idea of God*.
19. Vide Patanjali, *Yogsutras* with Vyasa-bhasya. Cf. my Gopinatha Kaviraj, Chap. IV.
20. Cf. Foucault, *Madness*.
21. Aristotle, *Politics*. The Indian definition of dharma speak of *abhyudaya*, worldly happiness and *nihsreyasa*, ultimate good.
22. Kant, *Critique of Practical Reason* (tr. Beck), pp. 29, 188.

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