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In a heady cocktail of philosophical, psychological, and neurophysiological ingredients, Solms offers psychoanalysis a purported life-giving potion he claims will liberate it from subservience to reductionist neuroscientists like Crick and naturalist/realist philosophers like Searle. Psychoanalysis need only reclaim its classical Freudian heritage, based philosophically on Kant, to escape these latter-day enchantments. Unfortunately, Solms's recipe is made up more of assertion than explication, leaving us woefully in the dark on how all this can be accomplished.

Let us start with several of his numerous assertions and then see how they bear on each other and where they lead us. Let us also not be misled by the source of some of these assertions, often Freud, because it is what Solms does with these assertions that will concern us, and not with what Freud actually did with them or might have done. There are three such assertions that merit closer scrutiny: (1) All mental processes are unconscious; (2) consciousness is a "sense organ" for "perceiving" these mental processes; (3) as any sense organ, consciousness selects and distorts, making us aware only of what it can, by reason of its own limited or unique capacities.

Although the sense organ analogy can be useful, Solms's version encounters serious problems because it is so vital for him to assert that consciousness as a sense organ rides above and, most important to his argument, is totally *independent* of both external and internal reality, both the realm of objects and events outside us and the presumed psychic realm inside us. Consciousness emerges as a *deus in machina*, an entity made of stuff different from the mental and the physical. It is in fact remarkably similar to Bishop Berkeley's God, who guarantees that our world of appearances is sustained in the absence of any truly knowable, independent reality. Although Solms starts with Kantian transcendentalism, he slides into Berkeleyan idealism because by implication his assertions do not accord his sense organ view of consciousness any ontological status as part of reality.

Solms's misreading of Freudian texts is further supported by the vagueness of his discussion of the sense organ analogy itself. Nowhere does he undertake to describe (or for that matter suggest or indicate) how consciousness as a sense organ might work. He simply asserts that consciousness makes us uniquely aware of affect along the dimension of pleasant-unpleasant, of external perceptions, and of the memory of past perceptions. But does it not also make us aware of our thoughts and judgments, to name two mental events that do not appear to be simply memories of past perceptions but involve performing the various operations on memories and perceptions that we mean by reasoning? Freud was aware of this problem and attempted to solve it by hypothesizing that thoughts can become conscious only by activating verbal traces possessing an auditory sensory quality that presumably can be "perceived" by consciousness. This explanation falls short because these activated verbal traces function not simply as perceptions or memories, but as counters in reasoning that may themselves be conscious.

Once we begin to introduce into the discussion of consciousness the awareness and operation of such mental events as thought, judgment, and reasoning, we are already pushing the limits of the sense organ analogy. Vision does not provide us with thoughts about what we see, or judgments; nor does it perform reasoning on visual sensations. And once we arrive at this point, the sense organ analogy loses its totalistic explanatory power.

But how might we avoid the dualistic pitfall that Solms has apparently fallen into without knowing it? Before we attempt an answer, a brief review of how Freud treated consciousness at different stages of his thinking will prove instructive. Freud, we will see, was the kind of intuitive theoretician whose successive theories did not necessarily supersede one another; rather, as he solved one problem others solved earlier at times reemerged. An example pertinent to our inquiry is the relationship of the early topographic theory to the later structural theory.

Freud's thinking about consciousness went through at least three main stages: (1) consciousness as a quality of mental events, (2) consciousness as a mental system, and (3) consciousness as an ego function linked closely to perception, a conception that includes the notion of consciousness as a sense organ.

Consciousness as a quality of mental events. In his earliest and simplest theory, which had the virtue of being conceptually close to the clinical phenomena, Freud theorized that an idea (a classical nineteenthcentury psychological concept) could exist in three states vis-à-vis consciousness: it could be conscious, preconscious (easily acquiring the quality of consciousness), or unconscious (acquiring the quality of consciousness only with difficulty). On this model one can say that the relationship of an idea to consciousness was operationally defined. The criteria for determining the status of an idea with respect to consciousness were clear: if you are aware of it, it is conscious; if you can voluntarily become aware of it, it is preconscious; if voluntary efforts at recall fail, it is unconscious. Moreover, this theory can accommodate the presence of consciousness in any psychological state. The quality of being conscious is present equally in normal waking consciousness, dream consciousness, fugue states, psychotic conditions, states of intoxication, dissociative states, etc. Consciousness is simply a condition of subjective awareness. Equivalently, in any of these states there are preconscious and unconscious ideas. There are dream elements we are immediately conscious of, others we readily become aware of (often as we report the dream), and still others we cannot summon to consciousness; these last remain unconscious, and constitute the latent dream.

Intrinsic to this model is the notion of threshold (or barrier, as Freud preferred to call it) and the allied notion of intensity along a variety of dimensions. The threshold for a preconscious idea to become conscious is low, and its becoming conscious is mainly a function of its intensity. Most everyday perceptions are of this nature—moving easily from an initial preconscious to a conscious condition. The threshold for an unconscious idea to become conscious is much higher and can counteract even the most intense idea, as in repression. This model remains enormously useful in accommodating the findings of subliminal perception, which the two other models (described below) have trouble with, a fact beautifully addressed by Fisher (1957). The model also remains clinically useful at an experience-near level: if a patient has difficulty—for example, in remembering important material from a recent session—we suspect repression.

In this model, consciousness is a property of mental processes emerging under certain conditions: thus, it is intrinsically mental and not a sense organ set over and above the mental, as in Solms's version of the sense organ analogy. How consciousness emerges as a property of a given idea, and what psychological and neurophysiological conditions need to be present for that to happen, become askable and researchable questions in both the consulting room and the laboratory, as we have begun to show in our research (Shevrin et al. 1996).

*Consciousness as a system.* In this model Freud abandoned consciousness with a small "c" for a systems view of consciousness with a big "C." In so doing he was attempting to forge a protostructural model according to which one psychological state—the normal waking state—was given primacy and only its consciousness with a small "c" was provided with certain specific functions allied closely to waking perception. Thus, in the main, reality testing based on the secondary process was ascribed to this particular psychological state and its associated subjective awareness (small "c" consciousness), as well as the capacity for self-reflection, or the awareness of being aware, for which there was no provision in the topographic model.

But something was also lost in this model, what we can call, along with Edelman (1989), primary consciousness—that is, immediate subjective awareness without any accompanying reflectiveness, the kind of consciousness that is present most of the time and is described by William James (1890), in his felicitous phrase, as the stream of consciousness that flows and only occasionally slows into an awareness of itself. Further, by Freud's closely allying this structural view of consciousness to perception so that the latter had always first to be conscious, any interaction between the external world and preconscious and unconscious processes became in theory impossible. This did not make clinical sense, nor could this view accommodate the increasing body of subliminal research, in which it was repeatedly demonstrated that external stimuli can be perceived subliminally and interact with unconscious processes to later surface in dreams, images, and associations without any waking- state awareness of their source.

As Freud does in this systems model, Solms conflates primary consciousness (small "c") occurring in one particular psychological state, the normal waking state, with certain functions of that state such as self-reflectiveness; as a result, consciousness emerges as a particular agency of that state rather than as simply a quality of subjective awareness that can accompany any state. I will return to this important distinction and its implications below.

It is also important to note that in this systems model Freud still conceives of consciousness, albeit with a big C, as an intrinsic part of

the mental apparatus, rather than as a sense organ apart from it, as implied by Solms's view.

Consciousness as an ego function or sense organ. As is well known, Freud shifted to the structural model of id, ego, and superego in part because he realized that defenses, belonging to the system Cs, operated unconsciously, creating the paradox of an unconscious process belonging to a system controlled by consciousness. By establishing the ego as a superordinate agency, he could accommodate within this agency both conscious and certain unconscious processes such as defenses. Although the notion of consciousness as a particular ego function assuming the character of a sense organ had its precursors in Freud's thinking, it was in the structural model that the sense organ analogy made the most sense. There is a powerful appeal, which Solms attempts to exploit, to imagining an instrumentality, modeled on a sense organ like vision, that can "perceive" our mental life as our eyes perceive the external world. Ironically, Crick (one of Solms's targets for attack) and others have employed a related metaphor, likening consciousness to a searchlight illuminating otherwise "dark" regions of the world or our minds. But as I have tried to show, there is a danger lurking in this seductive metaphor unless one is careful-the danger of implicitly requiring a dualistic, idealistic solution to the problem of consciousness which essentially leaves us with an explanation by fiat, providing no clinical utility or any purchase for research. The sense organ or searchlight becomes essentially an homunculus.

*The Freud-Rapaport solution.* Elsewhere I have attempted to bring together a theory of consciousness based essentially on Rapaport's systematizing of Freud's "apparatus of consciousness" (Rapaport 1960). Rapaport stressed that to his knowledge no one since Freud had attempted to describe such an apparatus (Shevrin in press a).

According to Rapaport, the primary function of consciousness as an apparatus is to distribute attention cathexis to excitations emerging from external and internal sources—ultimately the sense organs for external excitations, and the instincts for internal sources. It is this distribution of attention cathexis that confers consciousness, but *if and only if* it is above a certain threshold (note the importance of the threshold concept, as in Freud's first theory of consciousness with a small "c," which lost its importance in the systems and structural theory). If this cathexis is not above the threshold for consciousness, the excitation nevertheless achieves mental representation, can leave a memory trace, but not

become conscious. By introducing a threshold concept, the Freud-Rapaport theory can incorporate the findings of subliminal research without difficulty. Moreover, this function of distributing attention cathexis, rendering an excitation conscious, can occur in any psychological state, thus accommodating the concept of primary consciousness by not tying consciousness to one particular state, as in the systems theory of consciousness with a capital C and the structural theory, thus confounding reflective and primary consciousness.

The distribution of attention cathexis is itself *nonmotivational*, meaning that attention cathexis will activate any mental content without bias unless other forces not intrinsic to its distributing function, such as the imminence of a psychic danger, intervenes. This unbiased, nonmotivational nature of attention cathexis is vital, because it alone makes possible the most important overall function of consciousness, which is the provision of indications of reality. It cannot itself be biased and perform that function.

I have proposed elsewhere and presented evidence in support of the hypothesis that consciousness in whatever psychological state serves to tag the particular conscious mental content in terms of the mental category to which it belongs (Shevrin 1992, in press b). Thus, in a dream state, the little "c" consciousness that is present tags the content as a dream so that it can be recalled as such. When consciousness is not present and a stimulus below threshold is cathected and forms a memory trace, as in a subliminal experiment, the mental content can return as part of a dream, image, or association, but it will not be identified as a perception because it has not been tagged as such consciously (for a different view of this function, see Brakel 1989). I have further proposed that repression undoes this tagging function of primary consciousness so that mental contents under repression no longer belong to a particular mental category; repressed contents are thereby rendered timeless in the sense that no category distinction obtains between memory and perception.

Let us now return to Solms with this brief review of some psychoanalytic theories of consciousness behind us. In none of these theories is there any adherence to a mind-brain dualism or outright philosophical idealism. To an important though still limited extent, the topographic model can quite comfortably be related to contemporary cognitive psychology and neuroscience. In terms of the topographic model, the preconscious has found a place in contemporary cognitive and neuroscience thinking; the unconscious still remains beyond the pale, though there is some new psychological and neurophysiological evidence on unconscious motivation that may in time overcome that exclusion.

In his attack on neuroscience, Solms appears to be take aim mainly at *reductionist* neurophysiological theories such as Crick's. But consciousness can be viewed as an *emergent* property of brain organization, a point argued by Sperry (1969) and Searle (1992).

Finally, there are theories extant, as I have tried to indicate, that provide a mechanism or apparatus of consciousness that not only explains more, but also does not encounter the difficulties that Solms meets in treating consciousness as a sense organ and implicit homunculus.

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