thought of the mind. In fact, the central processor is the observer of the mind. It is not affected by thought, emotion, pleasure or pain because it is part of its nature to be able to testify all these changes in mind's activity without changing or losing its capacity to observe them.

When a human being identifies himself with the Self, he transcends every and all relative and temporal changes in mind activity and becomes part of a kind of unchangeable silence from whence experiences appear and are seen as miraculous happenings standing out from a ground of empty fullness, and at the same time forming part of an immense and all-encompassing pattern of relationships. To the question about the individual or collective nature of the central processor, nobody can give a final answer, but intuition feels that the observer in each one of us is the One Observer, the self in each one of us the One Self and the central processor in each one of us the One Central Processor.

To conclude, it is possible to postulate that the central processor does not abide in any space, is atemporal and belongs to a non physical reality and has no shape or form.

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Research notes and comments

Scientific explanation of wave vector collapse

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In his reply (Villars, 1983) to my research note (Lawden, 1983) on the role of observing instruments in quantum theory, Villars does little more than argue that his approach to the problem of wave vector collapse is logically consistent. He fails to meet my criticism that he has no scientific explanation for the phenomenon.

Thus, to meet my charge that he fails to provide a principle by which an observing instrument can be distinguished from all other physical systems, he states that such an instrument is recognizable by the circumstance that it functions as required of such an instrument by the axioms of quantum theory. According to his interpretation of the theory, then, there are two classes of physical system, (i) a larger class comprising the generality of physical systems to which the Schrödinger evolution law applies, and (ii) a much smaller class of observing instruments whose behaviour is governed by other laws. He admits that he is unable to separate these classes by appeal to any physical criterion and falls back on the definition that an observing instrument is a physical system which behaves as an observing instrument. However, such an instrument only behaves in this manner in very special circumstances, viz. when it interacts with the specific type of class-(i) system it is designed to measure — in all other circumstances, it behaves like an orthodox class-(i) system. Thus, a polarizer is a class-(ii) system when it interacts with photons belonging to a properly positioned incident beam, but its behaviour in all other circumstances (e.g. when it is heated) is that of a class-(ii) system. Very mysterious!

Even though Villars may be able to establish that this interpretation is logically unassailable, this is not the only requirement of a scientific theory. If such a theory is to provide an acceptable explanation of the world, it must eschew occult elements as far as possible. Thus, if it were established that all babies born on [illegible] year were more likely to become actors than

were babies born on other days, a theory which simply accepted this fact as an axiom would not be acceptable as an explanation of this phenomenon and science could not permit the matter to rest there. The unique behaviour of an observing instrument when placed in a specific environment is completely unexplained on Villars' interpretation of quantum theory and constitutes a wholly mysterious or occult element. It cries out for explanation, but its author declines to respond. Instead, he states his opinion that it is "quite possible that an extended physical theory capable of explaining these events will never be devised".

This is the nub of the controversy between us — can an explanation be devised for the apparent differing behaviour patterns of an observing instrument when it is in the process of measuring and those of the same instrument in other circumstances or of all other physical systems? Walker and I are attempting to devise such an explanation. We, also, separate physical systems into two classes, (a) the generality of systems, including observing instruments, to which the Schrödinger evolution law applies and (b) systems generating a psychic field to which new laws (yet to be fully formulated!) are applicable. A type-(b) system is easily distinguishable by virtue of its possessing characteristics which are thoroughly familiar. If a theory of this type were to be successful, it would clearly provide a truly scientific explanation of the reduction of the wave vector effect by placing it in the context of a wider variety of phenomena. It would not be a mere systematization of the facts, as Villars' approach essentially is, but would point beyond the phenomenon to relationships with apparently unconnected phenomena in other areas of science — this is a feature which must be possessed by any theory aspiring to the status of a scientific explanation. Thus, Kepler noted that the planets moved in elliptical orbits and his three laws can be accepted as axioms for a theory embracing all planetary systems. But how much superior is Newton's theory of gravitation which provides a truly scientific explanation for the facts established by Kepler. Villars would freeze us in the Kepler phase of the phenomenon under discussion. Essentially, he is failing to discriminate between a description of an effect and a scientific explanation of the effect.

Villars asserts that his view does not claim unique powers for observing instruments. Nonetheless, it does require that there exist a unique relationship between a given instrument and all the systems it can observe; it is only a question of semantics whether we describe this as: "the instrument has unique powers", or 'the instrument-system interaction is unique", or "the systems respond to the instrument in a unique way", etc., etc. The fact is that the behaviour of the instrument-plus-measured-system combination is of a special type not governed by the Schrödinger equation and that this unique type of interaction arises spontaneously, in an occult manner, at some point in the assembly of the instrument in the presence of an observable system and

this cannot be accounted for by the switching on of any known physical field (all of which are known to obey the evolution law). This, of course, is just one of the consequences of the failure of the theory as a scientific explanation of the phenomenon.

The suggestion that interference by a psychic field (already demanded on other grounds — see Lawden, 1981) may account for the phenomenon of the collapse of the wave vector can be criticised on the basis that it has not been fully elaborated and it may even have to be extensively modified or even abandoned in the light of experiment, but it is a serious attempt at an explanation of the effect. The alternative road taken by Villars is the easy one of the proliferation of hypotheses. Hiding behind an axiomatic facade, Villars offers no explanation, opines that one will never be forthcoming and seems to be criticising Walker and myself for even trying. The issue is still open and we shall see!

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