

Evolution and Atoms

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It is argued that the modern evolutionary conception of nature forces us to conclude that even simple atoms and molecules are psychophysical systems. It is suggested that modern physics has already, tacitly, begun to describe the psychic aspect of microphysical objects. Quantum nonlocality is interpreted as a form of acausal perception and seen as the foundation of both the paranormal and the more complex overlying phenomena of everyday psychology.

We know ourselves both as centres of subjective experience and as objective bodies. Not only are we made of flesh and blood but also of sensations, thoughts and feelings. If we accept the modern theory of evolution, this fact — the co-existence of these two complementary aspects of a human being — has important implications for our conception of the simplest material objects, i.e. atoms and their constituents.

Human beings have evolved from the higher mammals. These also experience sensations and feelings. We know this from the fact that their sense organs strongly resemble our own, and that they exhibit the gestures and reactions which characteristically accompany our own various emotions. Who, in the presence of a shrieking, injured animal, or seeing an animal cower away from him, can seriously doubt that it is experiencing feelings of pain or fear similar to our own? The more developed higher mammals, such as apes or dolphins, also exhibit some degree of reflective intelligence.

The further back down the evolutionary tree we go, the harder it becomes to imagine the kind of subjective experience the creatures possess. Their sensory apparatus and forms of behaviour are quite unlike ours. Indeed, at a low level, such as that of the insects, for example, we may be inclined to believe that they have no inward experience at all, but are mere mechanical automata. In that case, where should we draw the line? Which were the first organisms to emerge capable not only of acting and reacting but also of experiencing the world around them?

This question assumes that it is possible for a transition from inert material objects to living centres of experience to have occurred in the process of evolution.

However, it is conceivable that organisms capable of sensation, thought and feeling could have evolved from ancestors completely devoid of any form of subjective experience?

Evolution is conceived as an essentially continuous process, in the sense that no essential transformations occur during it. Indeed, it was precisely in opposition to a theory of essential transformations, i.e. the theory of spontaneous generation, that the theory of evolution was proposed. It was at one time widely believed that living organisms could be generated spontaneously from non-living matter, for example, that maggots could be generated spontaneously from rotting meat or mice from sacks of grain. According to this theory, the emergence of life involved an essential transformation whereby matter, in itself inert and insensitive, suddenly acquired the properties of activeness and sensitivity characteristic of life.

By contrast, the modern theory of evolution asserts that nothing can emerge that was not, in some manner and degree, already present in pre-existing forms. Each new form to emerge is no more than a novel organisation, involving novel arrangement and emphasis, of properties already present in previous forms. Evolution means 'unfolding'; nothing is added to the evolving organisms from outside; no essentially new characteristics can emerge.

Sensations and feelings are essentially subjective phenomena. It is inconceivable that they could have originated as a structure of exclusively objective properties. A feeling is something felt by a subject, and cannot be interpreted as a form of external relationship between objects. Hence, if the simplest living organisms were mere mechanical automata devoid of all subjectivity, the complex forms of subjective experience of the higher mammals could never have evolved. No essential transformations can occur in the process of evolution, objectivity cannot be transformed into subjectivity. Thus, if we accept the theory of evolution, even the most primitive living organisms, such as viruses and bacteria, must be supposed to possess a rudimentary form of subjective experience from which, ultimately, that of the higher organisms has evolved.

But what of these primitive organisms themselves, how did *they* originate? According to our modern understanding, they are the product of a long period of chemical evolution, in which they were gradually built up by processes of polymerisation and condensation from simpler organic substances ultimately having their origin in simple molecules and atoms. This chemical evolution is again a continuous process, in that each new form to emerge is no more than a novel organisation of pre-existing forms, and consequently, again precludes any essential transformations. Our conclusion must be that even the rudimentary subjectivity of the most primitive living organisms must have its origin in some still more rudimentary form of subjective experience in the simple molecules and atoms from which they have evolved. Even simple molecules and atoms must be psychophysical systems, living centres of experience, more like the monads

described by Leibniz (1714) than the tiny solid spheres in terms of which they are traditionally pictured.

It is possible that the subjective aspect of atoms is so attenuated and rudimentary as to have no significant effect on their objective behaviour. In that case, notwithstanding our argument that they must, in fact, possess some kind of inward experience, physics would still be able to treat them successfully as purely material objects. However, there are indications that modern physics has already begun to describe features of the inward aspect of atoms and their constituents.

Firstly, as is well known, modern physics has been unable to provide a unitary conception of microphysical objects in terms of classical physical concepts. This has led to the adoption of makeshift concepts such as the Wave-Particle Duality and Complementarity. This failure may be due to the fact that microphysical objects share more of the characteristics of psychophysical systems than of the inert material objects with which physics has traditionally been concerned. Perhaps we may eventually obtain a unitary conception of microphysical objects if we try to picture them as very rudimentary centres of experience, instead of as some kind of material object.

Secondly, though it is well known that modern quantum physics incorporates an element of indeterminacy quite foreign to classical physics, another feature, which has only recently become widely recognised by physicists, may eventually prove more revolutionary to our view of the physical world than indeterminacy has been. This feature is nonlocality. Whereas a classical particle is completely contained in a particular region of space, instantaneously isolated from all other particles spatially separated from it, modern microphysical objects, such as atoms and their constituents, may be in immediate contact with one another even though widely separated in space at the time. Thus, an atom, centred in a particular small region of space, may be instantaneously affected by events in distant regions. (Good, detailed accounts of nonlocality are given in D. Bohm and B. Hiley (1975), B. d'Espagnat (1979) and B. Hiley (1980).)

Nonlocality can be interpreted as a kind of perception. A microphysical object, centred in a particular region, can be thought of as having an immediate, acausal perception of distant events. These perceptions influence its behaviour, as is shown, for example, by the well-known experiments with correlated photons (S.J. Freedman and J.F. Clauser (1972)) or kaons (R. Lestienne (1973)). Nonlocality is paradoxical from the point of view of classical physics, but can be understood if microphysical objects are conceived as rudimentary centres of perception. Thus, it seems that, with the recognition of the property of nonlocality, modern physics has tacitly begun to describe the inward aspect of atoms and their constituents.

The argument outlined above leads us to conceive microphysical objects as rudimentary psychophysical systems. All the phenomena of our complex human

psychology must have their possibility grounded in the rudimentary psychic aspect of microphysical objects. This applies both to the phenomena of mainstream psychology and to the paranormal. The fact that the perceptions of microphysical objects have the character of immediate contact seems to support the view that the paranormal capabilities of the mind are remnants of a more primitive state, now almost completely overlaid by more complex, causal and reflective processes. Certainly, in its most primitive form, i.e. in simple molecules and atoms, acausal perception seems to have been the *normal* form of perception.

References

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