EMERGENCE AND TRANSCENDENCE IN PHILIP CLAYTON

His moderate ideas place him in an ideal position for dialogue

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In his book *Mind & Emergence,* Philip Clayton explores the relationship between the emergentist vision of the human mind and the question of transcendence. The ongoing explosion of scientific knowledge in the 21st century will tempt many to conclude that no knowledge can exist beyond the boundaries of natural science, only opinion and sentiment. The debate *presented* by Clayton regarding emergence aims to offer one (although not the only) way of demonstrating that the equation between knowledge and natural science is far from exact. Our perception of there being any true knowledge when the issues at hand go beyond that which can be empirically proven by science may be tenuous. There are certain areas of knowledge, over and above the strict dividing line established by physics and biology, which remain open and which influence life.

The debate on 'key' issues is now more urgent than ever as the human mind continues, in the era of science, to expand not only the limits of its knowledge, but also its knowledge of those limits themselves, refusing to be dominated by tradition, force or absolute authority. This domination may stem from philosophy, theology or religious traditions, or alternatively from the imposition of 'political correctness in science', all of which limit the critical freedom of individuals' use of reason. Philip Clayton (Philip Clayton, *Mind & Emergence*, from quantum to consciousness. Oxford University Press, 2004) aims to develop a Christian theology in constructive dialogue with metaphysics, modern philosophy and science. This task has prompted Clayton to write about the theory of knowledge, the history of philosophy and theology, the philosophy of science, physics, evolutionary biology and neuroscience, comparative theology and constructive metaphysics. As a theologian, Clayton embraces panentheism and has his own dialogue-based and pluralist view of process theology.

He rejects Dawkins' scientism, without falling into the trap of fundamentalism. Clayton's moderate stance opens up a series of complex and interesting questions within the field of science and religion, and steers clear of the full-on fight between warring factions. Philip Clayton is Ingraham Professor of Theology at Claremont School of Theology and Professor of Religion and Philosophy at Claremont University.

In the first part of his book, *Mind & Emergence*, Philip Clayton defends *strong emergence* as the most appropriate description of what occurs in the evolutionary process of the universe.

> Supporters of *strong emergence* maintain that evolution has gradually produced new and different ontological levels in the cosmos, and that each of these new levels is characterised by its own laws, regularities and causal forces.
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> Those who defend weak emergence, on the other hand, insist that when new evolutionary levels appear, the causal processes of the first evolutionary level of physics remain in play. Although new emergent categories, such as, for example, protein synthesis, hunger or the desire to be accepted, may overcome the behaviour of other structures from lower levels, they are not, in themselves, considered new types of causes.
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> (Philip Clayton cites, among others, Samuel Alexander as a staunch defender of weak emergence and C. D. Broad as a supporter of strong emergence).

In his book, *Mind and Emergence*, Clayton defends strong emergence against the inadequacy of both *physicalism* and *dualism*. For Clayton, both physicalism and dualism overlook a crucial part of reality.

The inadequacy of physicalism and dualism

The aspirations of microphysical reductionism have failed. Indeed, in complete opposition to this approach, our world now has increasing numbers of different organisational levels, with each level being characterised by its own irreducible type of causal explanation. The conclusion is not that scientific study is futile or wrong, but rather that science reveals an ever larger world with more complex interactions between the diverse levels of organisation.

For its part, physics fails to consider the experience that humans have of themselves as conscious agents. Human beings not only experience the fact that they think, want and decide, they also experience the fact that their thoughts and desires are effective, that they do things and act effectively on the world around them. Clayton says he experiences himself as an effective conscious agent, who, for example, decides to change things when, after careful reflection, he decides to modify the last sentence he has just written, thus consciously sparking off a series of causes which prompt him to reread the last paragraph of his text, ask himself whether or not he is satisfied with it and think about whether or not it is true.

Dualism also fails to explain the increasing number of correlations which neuroscience has found between the states of the central nervous system and the states of consciousness. It is true that these neural correlates do not apodictically prove that dualism is false, in much the same way that neither do they prove that one day, we will be able to completely reduce consciousness to physiology; however, the findings of neuroscience suggest that consciousness is derived (partially at least) from a biological system which interacts with a series of physical, historical and (possibly) linguistic and cultural factors.

The emergentist alternative

Clayton's emergence is plural in nature. Consciousness is not the only emerging level. Indeed, to a certain extent, it is simply one of a long series of steps which characterise the evolutionary process. The human mind and consciousness represent a particularly interesting and complex evolutionary level, which encompasses humanity's whole intellectual, cultural, artistic and religious existence. However, consciousness does not represent any one single, absolutely new manifestation in the history of evolution; indeed, conscious phenomena share important similarities with other emerging realities that appeared in much earlier stages of said history.

The thesis of Mind & Emergence is that the days of forced dilemma between physicalism and dualism are over

A fairly common but nevertheless false point of view, in Clayton's opinion, is that there are only two basic ways of interpreting the world: the physicalist world-picture, and the dualist one. This erroneous belief is rooted in the confrontation between Newtonian physics and the metaphysical systems comprising Greek, Christian and medieval elements, which still remained dominant in the 17th century.

For Clayton, the current philosophical view of the world has three roots. The first is the revolution provoked in metaphysics by Kant, and sustained by German idealism and process philosophy. The second is the revolution provoked in the theory of knowledge by non-objectivist epistemologies, the contextual philosophies of science and the limits inherent to knowledge which were discovered within the different branches of science itself. And finally, the third root is the current debate on the dualism-physicalism dichotomy. In his book, Clayton focuses on this third root of philosophical debate, which is the consequence of the revolution provoked by evolutionary science.

Some of the theses of Clayton's emergentist vision are:

(1) Ontological monism: at the end of the day, reality is made up of a single basic type of matter. However, for Clayton, ontological monism does not mean that the entities postulated by physics represent the entire inventory of everything which exists. Therefore, for Clayton, emergentism is monist, but not physicist.

(2) The irreducibility of emergence: emergent properties cannot be reduced to phenomena which occur at a lower level. An important question for the theory of emergence is that of

when we can say that a new level emerges. Traditionally, 'life' and 'mind' have been taken as genuine levels of emergence. But emergence cannot be reduced to these two indisputable levels, since there may also be a considerable number of other emergence levels. In a recent book, the Yale biophysicist Harol Morowitz identified no less than 28 different levels of emergence from the big bang to the present day.

(3) Downward causality: the downward causality of an emergent structure onto its constituting parts diverges from the standard philosophical treatment of causality in modern science. This concept of downward causality is a key point of Clayton's discussion of strong emergence.

The theory of emergence is not just disguised dualism; rather, it requires certain modifications to both theism and traditional theologies

The theory of emergence is not just disguised dualism, since it recognises that consciousness is, to a certain extent, nothing more than 'another level of emergence'. The theory of emergence has its own logic, and requires certain modifications to traditional theism and traditional theologies.

Clayton identifies eight characteristics of emergence:

(1) Monism: there is a single primordial reality from which all other realities have evolved.
(2) Hierarchical complexity: the world is hierarchically structured.
(3) Emergentist monism: more complex units appear, formed on the basis of other, more simple ones.
(4) Non-uniform emergence: diverse levels of emergence can be identified which are drastically different from each other.
(5) Cross-cutting emergence patterns: the majority of emergence leaps share some similar characteristics.
(6) Downward causality: new emergent objects appear as new causes which act on objects at a lower level.
(7) Emergent pluralism: downward causality does not imply dualism, but rather pluralism (Clayton cites Morowitz, who proposes at least 28 levels of emergence).
(8) The 'mind' as an emergent element: Clayton's proposal is that there is a two-way interaction between mind and matter, i.e. from mind to matter and from matter to mind.

Some levels of reality are susceptible to a determinist mathematical explanation (microphysics), others to explanations that are mathematical but not determinist (quantum physics), and yet others to explanations centred around the function and development of life structures (all branches of biology, from genetics to neurophysiology). However, at other levels of social and cultural science, laws play a less important role, with more idiosyncratic factors taking centre stage. As a result, in these levels, narrative tends to replace empirical measurement and prediction becomes more difficult. It seems that a large part of human beings' inner life, social interactions and creative expressions are based on this inner world. It is true that the different branches of social science may share their knowledge of social and cultural phenomena and thus increase their knowledge over time, and it is also true that natural science contributes to developing social science, but it does not do so as a mere extension of itself.

The scale of levels of complexity does not end here. People often wonder about the sense and meaning of their natural and social world. Here again, one level of explanations becomes part of a much broader whole. And again, thinkers are invited to join in the search for knowledge at a higher level. Is our ability to find answers enough to respond to all our questions? Cosmology itself asks questions it seems that physical science will never be able to answer completely: what is the origin of the big bang? Do multiverses exist? Why are there laws that are valid at all times and in all parts of the universe? In other words, when do we cross the line that separates the emergent mind from the transcendent mind? And when we do cross this line, have we reached questions that surpass all the answers we could possibly debate?

Emergence and transcendence

What are the links between metaphysics and mind? Clayton offers four different metaphysical approaches from which to tackle the problem of the emergence of the mind.

1. Physicalist approach: the mind appeared from matter. According to the physicalist hypothesis, the appearance of the mind was a happy coincidence. We do not hold beliefs about freedom, values, rationality and conscious choices because there are (physicalist) reasons for doing so, but rather because holding them helps us in some aspects of our personal or social life.

2. Contingent emergence: according to this approach, mental causation exists in nature and physicalism is false. There are different emergent levels in the evolutionary process, but emergence is a product of evolution that has no metaphysical consequences. According to this approach, the evolutionary process involves no conscious design or choice.

3. Necessary emergence: emergence is a necessary consequence, but its inevitability can be explained in a naturalist manner. Scientific reasons exist which delimit the possible results of evolution. However, these factors do not necessarily prove the existence of an intelligent designer. Scientists who believe in the necessary delimitation of the evolutionary process, within certain parameters, comprise theists, atheists and agnostics. This distinguishes them from those who defend the concept of an intelligent design, who use the scientific data of evolutionary process delimitation to prove the existence of God. For Clayton, the degree of contingency involved in the evolutionary process does not prove the existence of God. Thus, one may, for scientific reasons, believe that evolution is severely delimited from a scientific point of view, and yet remain agnostic.

4. Emergence open to the existence of an intelligent and transcendent being: i.e. the belief that the universe was created by an intelligent being who wanted the universe to be just as it is. Clayton calls this way of seeing things theism, and calls the being in which all theists believe 'God'. The novelty here is that until recently, theists believed that God must have predetermined the result of the world process, similarly to Laplace's demon. Laplace, with his Newtonian vision, believed that a demon could know the precise location and momentum of every atom in the universe at any moment. According to his theory, the demon would therefore be capable of predicting the state of things in the future, by creating the right particles in the right place at the right time, since both past and future were predetermined. Given the limitations of the current scientific way of understanding emergence, we do not know *how much* control the theist God has over emergence. Perhaps the divine agent established the physical conditions at the beginning of evolution, so as to ensure that life developed first, followed by conscious life as the result of a physical necessity. Or alternatively, perhaps God simply provided an ongoing creative impulse towards conscious life, without determining which type of life would appear. Arthur Peacocke has provocatively written that God is a composer who writes the general outline of the piece, but then leaves the musicians to finish developing it. The theologist Philip Hefner has introduced the idea that human beings are 'created co-creators' who collaborate with God in his creative work. Alfred North Whitehead defends a correlational model between man and God, which includes the idea of a 'divine lure' that coincides with the idea of emergence.

Divine action

For Clayton, it is impossible to defend miracles in such a way so as not to contradict physics; however, there is a way of viewing the causal action of God that avoids said conflict: God acts at a quantum level (assuming that quantum events are ontologically indeterminate), causing the wave function to collapse in one direction or another, while still maintaining the total distribution of probability. In this case, no laws are broken. The problem is that we do not, and indeed cannot, know what actions are taken by God at this level. The physical approach also poses another problem: if the mental level is anomalous, in the sense that it is not governed by physical laws, then God has no way of influencing it, although he could make one thought more probable than another.

Miracles may be possible through a suppression of natural laws by God. However, this statement is not a solution to the problem of divine action. One may believe this at a specific subjective level, but one would still have to deny the objective level of physical laws.

The problem changes when dealing with human action. In the case of human thought and its resulting actions, there are no laws which completely determine the decision-making process. Needless to say, given the structure of the brain, an individual's life history and his or her environment, some responses are bound to be much more likely than others. But to what extent is divine action

similar to mental causes, assuming these are understood as emergent elements? Given that human actions are by nature unpredictable, there are no determining conditions that are broken when divine force acts upon them.

Here, emergentists encounter a dilemma: emergentist theory may help defend the concept of divine action, but only if the divine is constructed as a new emergent level in the evolutionary process. Samuel Alexander defends this point of view. For Alexander, God is not a pre-existent being, but rather a new type of property, 'the deity', which appears after a certain degree of complexification.

Looking back over history and seeing how God acts in human minds, two basic strategies can be identified. Each seeks to find a way to interrelate (among others) three levels of causality: physical causes, mental causes and divine causes. The first strategy constructs human beings in accordance with the model of the divine person (or persons); i.e. the biblical model of the creation of man in God's image. In this case, the interaction between man and God is not problematic at all, because both share the same nature. However, this interaction has its price: it states that the human spirit is different in nature from the physical world, which renders the mind-body interaction impossible. This solution is known as anthropology of the supernatural soul.

The second approach can be described as the naturalist vision of the human person, and sees the human person as a phenomenon that occurs naturally in the world. Here, both dualism and its associated epistemic and ontological problems appear in the relationship between human and divine causality.

Physics is where we most clearly observe behaviour governed by laws, and there, nothing leads us to believe that said laws are prompted by intention. Of course, the fact that a downward divine action is physically undetectable, does not make it impossible. Human actions, on the other hand, are prompted by intention and are justified by reasoning. While human science does not demand the presence of a transcendent agent, it does, however, leave room for one. Furthermore, the reference to a transcendent agent is natural when human beings start wondering about ultimate causes.

Conclusion: a new anthropology and a new theology

In the study presented in this book, Clayton espouses a school of thought (as an example, see Clayton's work with Paul Davis) that is fairly widespread today in modern science: moving beyond physicalism (the 'reductionist' science) and dualism (the traditional anthropology in many religious and theological cosmovisions), emergentism is seen as the best constructed and most easily acceptable supposition. However, in order to make any headway with this supposition, both reductionist and religious traditions need to adopt new stances: reductionism needs to move away from its mechanicist-determinist narrowness and theologies need to reformulate themselves on the basis of ontological monism. What theologies respond to these new needs for congruence with modern science? Clayton, as mentioned earlier, defends process philosophy-theology, but does not seem to be at all radical in his way of understanding those areas in which this theology has most trouble reconciling itself with the traditional orthodox doctrine of the Christian Churches (i.e. the idea of God the creator or the way in which we understand divine omnipotence and omniscience).

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