

HOLOMOVEMENT METAPHYSICS AND THEOLOGY

by Kevin J. Sharpe

Abstract. The holomovement metaphysics of David Bohm emphasizes connections and continuous change. Two general movements through space-time extend Bohm's ideas. One is that the universe was nonlocal when it started but increases in locality. (With nonlocality, two simultaneous but distant events affect each other.) The other is the opposite movement or evolution toward increasingly complex systems exhibiting internal connections and a type of nonlocality. This metaphysics produces a theology when the holomovement is a model for God. Several topics follow, including global nonlocality, God as creator, God's transcendence and immanence, and God as personal. This theology shows promise but needs further development.

Keywords: David Bohm; entropy; holism; holomovement; nonlocality; systematic theology.

The physicist David Bohm has proposed and promoted controversial theories. These are not only in physics—hidden variables, quantum potential, holomovement, Aharonov-Bohm effect, and so on—but also in metaphysics. Many writers align him with New Age philosophy and some, with Thomism; there is no agreement.

In this work, I will briefly describe Bohm's holomovement metaphysics and develop it further. In particular, I will discuss what the theory could say about cosmic evolution and in doing so introduce a metaphysics rooted in science. I then look at its theological potential.

THE IMPLICATE AND EXPLICATE ORDERS

Since I have described Bohm's metaphysics in previous publications (Sharpe, in press), I will only touch on his more well known ideas.

Central to his metaphysics is the idea of the *holomovement*. It is

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basic to reality: “*What is is the holomovement*” (Bohm 1980, 178). It has two emphases, the first coming from the idea of movement. Bohm does not take something static and rigid as the basis for his new order but wants to build it on activity. The second emphasis is the idea of undivided or unbroken wholeness. The word *holomovement* uses the prefix *holo* from the Greek word meaning “whole” (Hiley 1980, 78, 94). Bohm suggests each region of space and time contains the total order of the universe, including the past, present, and future (Bohm 1980, 177).

The implicate order is for Bohm a more general term than *the holomovement*. The holomovement is an example of an implicate order and carries within it an implicate order. The word *implicate* comes from the verb *to implicate*, to fold inward. Reality as implicate means that any portion of it involves every other portion. Everything folds into everything, each part contains folded within it information on every other part. Each region contains the total structure of the universe, the whole (Bohm 1973, 146–47).

The holomovement is an unbroken and undivided whole. Thus, all forms of it merge. We cannot separate them. In the holomovement’s wholeness, nothing limits it. This means we cannot define or measure it because to describe or specify it is to divide it. In turn, this suggests that any theory can only concentrate on an aspect of the holomovement important in a limited context. Only through the holomovement’s particular appearances is it known, and then only glimpses of its shadow are possible (Bohm 1978a, 40).

That shadow is often the *explicate* order. The implicate order, the holomovement, unfolds. Certain aspects of the holomovement rise to our attention, come into relief, producing parts that appear independent. The explicate order is the reality made of these items—which may or may not interact with each other. They create the stable, independent, and lasting world of parts. They are the explicate order of our experience.

The content of the holomovement unfolds as the explicate world. In a particular context, what comes from the holomovement is something we perceive as, in Bohm’s terms, an *ensemble*. In it, each part relates to the whole (Bohm, Hiley, and Stuart 1970, 176). Holonomy (the law of the whole) will always limit the breaking of a situation into independent parts. They come from a more basic whole and in the end are not separate (Bohm 1978b, 93; Bohm and Hiley 1975, 99).¹

To describe something, you begin, according to Bohm, with the holomovement. Then you draw from the holomovement a situation that is broad enough to make the description adequate. So the context

itself plays an active role in unfolding the aspects of the holomovement important to it; certain aspects are crucial for a given context, while others are not.²

This is because in most contexts, the implicate order does not fully become an explicate order. Everything does not unfold at once. Within any given situation there may be several different explicate orders that cannot emerge together (Frescura and Hiley 1980, 11–12). This contrasts with the Cartesian view, where some all-including intelligence (God) can in principle embrace everything at any moment.

Having unfolded from the implicate order, the explicate order unfolds or folds back into it. This movement is as primary to the holomovement as is wholeness.

NONLOCALITY AND THE HOLOMOVEMENT

Another pair of ideas, in addition to the explicate/implicate orders, develops this metaphysics further. These ideas are locality and its opposite, nonlocality. A nonlocal effect happens when an event affects a simultaneous event far from it. Nonlocality is the opposite of the commonsense “principle of local causes,” or the idea of locality. According to this principle, what happens in one place has nothing to do with what happens at the same moment at a distant place (Stapp 1977, 314). The connection or influence between two correlated events that are nonlocal has no normal explanation; there are no physical forces acting between the events. A normal connection between them cannot travel faster than the speed of light, so it takes time to travel and cannot be instantaneous.

The idea of nonlocality has received considerable attention recently. In the early 1980s, Alain Aspect carried out a version of an experiment proposed by Einstein, Podolsky, and Rosen in a 1935 publication (Aspect, Grangier, and Roger 1982; Einstein, Podolsky, and Rosen 1935). Several others, including Bohm, helped refine the theoretical and practical sides of the experiment so that it could become a reality (Bohm 1951). The results show that nonlocality exists at the quantum level (Sharpe, in press).

There are close connections between the two pairs of terms, locality/nonlocality and explicate/implicate (or holomovement). Locality is a restriction, a special or limiting case of nonlocality. Nonlocality, for instance, does not rule out local influences, but universal locality rules out nonlocal ones. Similarly, the explicate order emerges from the implicate, yet is also within the implicate. This is because the implicate order allows for separation of events

while they relate within a larger system. The idea of the explicate, on the other hand, says that everything does not relate to everything else.

Nonlocality, which allows for instantaneous connections, is similar to an implicate order. It suggests one way for relating everything in an implicate order. It is not surprising that nonlocality and the implicate order or holomovement have this in common, since Bohm uses the implicate order idea to explain nonlocality.

Thus, there are close connections between the ideas of implicate/explicate and nonlocality/locality. These are the basic ideas for the holomovement metaphysics, and this is as far as most descriptions of it go. There is more.

MOVEMENT IN THE UNIVERSE: FROM NONLOCALITY TO LOCALITY

There are several movements through time in Bohm's universe that help develop the holomovement metaphysics further. Bohm and his colleague Basil Hiley hide a key tucked away in their reflections on their metaphysics and physics. Nonlocality came first in the evolution of the universe described by quantum mechanics, Hiley writes (Hiley 1989, 189). Just after the Big Bang, nonlocality locked together all the particles in the universe. When the universe began to expand, he continues, the particles collided and caused locality. Locality and separation go hand in hand.

In the explicate universe, there is a movement over time. It goes from nonlocality to locality, associated with the expansion of the universe. Although related, this movement is different from the continual folding and unfolding of the explicate order in to and out from the implicate. The move from nonlocality to locality has now gone so far that in the macroworld there is little nonlocality. Almost everything relates in a local or classical manner, the exceptions being at the quantum level (Hiley 1989, 188).

Why should nonlocality produce locality? Hiley shows how it results from collisions between particles. Thus, it comes about from the laws of physics applied to an expanding Big Bang universe. Another requirement is irreversibility: The universe is moving in one direction and cannot retreat to where it was earlier (Hiley 1989, 188-90).

The rise of locality, therefore, does not need a mystical or philosophical explanation. It is unnecessary, for instance, to invoke Bohm's idea of fragmentation as the source of locality (Sharpe, in press). He sees fragmentation embedded in the implicate order and

unfolding into the explicate. When it unfolds, it causes the evils of this world, including the destructive conflicts between people, and natural evils. All result, he thinks, from fragmentation and would not exist if each thing, including each human, connected fully with everything else. One could extend this idea and use fragmentation to explain the physical separation and locality apparent at the quantum level. Hiley's work shows that this is not necessary.

There are two other movements in the universe besides that from nonlocality to locality: increasing entropy and increasing complexity.

MOVEMENT IN THE UNIVERSE: INCREASING ENTROPY

The universe uses energy right from the initial moment of the Big Bang. In the language of the second law of thermodynamics, entropy always increases. For instance, the appearance of locality from nonlocality produces entropy. Locality is at a lower energy level, in general, than is nonlocality, because it is less organized—to start with, it does not have nonlocality.

Increasing entropy is the second movement of the universe through time. The universe is winding down and scattering its energy; its history is irreversible.

MOVEMENT IN THE UNIVERSE: INCREASING COMPLEXITY/NONLOCALITY

I have introduced the terms *locality*, *nonlocality*, *implicate* (*holomovement*), *explicate*, and *entropy*. They relate in various ways, some of which I have discussed above. There are other terms yet to introduce, and further relations between them to examine. A picture is beginning to emerge of a pair of ideas: locality, separation, and entropy are on one side, and nonlocality on the other.

The other terms I have yet to introduce are on the nonlocality side. One of the arrows through time already introduced is increasing entropy. Opposing it is increasing complexity, the increase in complexity-consciousness described by the term *evolution*. According to this term, some parts of the world are building up rather than running down.

The work of Ilya Prigogine and Manfred Eigen is important in describing this evolutionary movement (Prigogine 1980; see also Bohm 1987). The universe started with extremely high energy that it dissipates. It was simple, although it produced more complex objects such as suns and planets that store and spend energy. These objects run down. On the other hand, we see around us biological, social, even chemical and physical systems that increase in energy.

Prigogine shows that these systems are inevitable, given physical laws. A system that uses energy, that is unstable, and that changes chaotically can settle at a stable point with a higher energy level. A system, that is, can become more complex.

The increase in complexity of a system is at the expense of its environment; the environment takes on more entropy to make up for the system's energy growth and stability. So the net entropy of the system plus its environment increases, satisfying the second law of thermodynamics.

The evolution of complex systems such as Prigogine describes assumes the irreversibility in the second law of thermodynamics. In this it is like the requirements Hiley lists for the development of locality from nonlocality.

The key characteristic of evolution, of the increase in complexity of a system, is the presence of internal connections. That the universe is becoming more complex means that some of its parts are connecting more and more with each other. Different elements come together to form wholes or systems, and then systems come together to form supersystems. The parts of a system, however, connect more within the system than when separate. Furthermore, this connectedness is like the implicate order. Complex systems involve their parts not only in connections and movement (constant change), as in the holomovement. They also more subtly reflect these qualities in their self-regulation, life, self-maintenance, defense, and so on. Thus, the implicate holomovement makes its appearance in the explicate order.

A system is also more nonlocal than its parts. This is because the whole causes the elements to behave in clusters, all together, or individually, in ways different from the ways they would behave by themselves. This causation is not a series of local interactions causing an apparent nonlocality. If this were the case, the actions of the parts would explain the holistic activities, and the whole would not be greater than the sum of its parts. One could say that the relating of separated elements for which there is no immediate physical contact is a form of nonlocality. Whether it is instantaneous and of the quantum type is a matter to explore. Thus, nonlocality reemerges at the macrolevel, having seen the rise of locality near the beginning of the universe and its later domination.

There has been a development over the life of the universe in two directions. One is the increase in entropy and locality, reflecting the increase of separation between objects and the winding down of the universe. The other is evolution leading to increasing complexity and the gradual increase of internal connections. This reflects the advent

and development of life and complex systems.

Several qualifications are necessary. First, evolution, or growing complexity, is similar to but different from increasing nonlocality. To see this requires thinking further about the movement toward increasing complexity. This movement continually occurs (and so is similar to entropy) and is of at least two types. An example of the first is when the universe moves from initial unity and simplicity to more forms of matter. The second comes from Prigogine-type processes where the universe houses systems and organisms that become more complex over time. The increase in complexity not paralleling the increase in nonlocality may show, for example, in the first phases of the universe Hiley describes, when locality first appears with separation and increasing complexity. Similarly, increasing locality associated with increasing separation does not start right at the beginning of the Big Bang. This differs from entropy. There are two opposite and related movements in the universe. One is evolutionary, toward complexity and increased connectedness (nonlocality), and the other toward locality and increased entropy.

I have outlined an evolutionary metaphysics and its underlying ideas of nonlocality and the holomovement. I believe it shows promise as a basis for an approach to the universe, life, and consciousness. In doing so, it speaks from and to the modern scientifically based world. It also may speak from and to the world of traditional religions. To move in this direction merits further exploration; in particular, it has theological potential. In the next sections I will focus on the relation of God to the holomovement.

GOD IN A HOLOMOVEMENT METAPHYSICS

An extensive comparison of Bohm's ideas to Christian theology comes from Robert John Russell (Russell 1985). He notes an interesting bridge between Bohm's ideas and theology; namely, that for Bohm God is the holomovement. This God, Russell says, need not be personal. On the other hand, this approach need not lead to pantheism—the belief that everything is divine. Russell thinks Bohm's ideas only highlight transcendent features in nature that “could correspond to divine presence.” On balance, Russell concludes, Bohm's image of God is probably closest to being panentheist, in which God contains the universe (Russell 1985, 153; Bohm 1985a, 124; and Bohm and Weber 1983, 43–44).

Russell has an incorrect understanding of the divine in Bohm's metaphysics. Bohm does not believe God is the holomovement or that God contains the holomovement. For Bohm, the divine is

beyond the holomovement, beyond all implicate orders, in ways that defy our ideas. In Bohm's scheme, the holomovement is part of the created order (Bohm 1985b, 219-20).

Regardless of Bohm's intention, I prefer to explore Russell's interpretation for reasons I have explained elsewhere (Sharpe, in press). I wish to develop the holomovement as an image of God.

Other religious thinkers have also equated the holomovement with God. David Trickett, for example, thinks Bohm sees an individual human as a sort of image of the implicate order. Then he asks whether God is a projection of this image of the implicate order: "If so, just what is the nature of this God?" He also wants to understand the relations between God and such aspects of the implicate order as human beings and nonhuman nature (Trickett 1982, 53-54).³ There is much appeal to the image of God as the holomovement.⁴

In the rest of this essay I will explore several results of using the holomovement as a model for God.

ELEMENTS FOR A HOLOMOVEMENT THEOLOGY: GLOBAL NONLOCALITY

Nonlocality is an important part of Bohm's metaphysics for theology. Its theological users lean toward a global nonlocality: Everything instantaneously connects with everything else in ways that defy normal explanations. Nonlocality feels like the all-embracing being of God who is omniscient and omnipotent, not restricted by space and time.

Many topics in theology could use the nonlocality idea. For example, Russell suggests nonlocality as a model for the church, or that nonlocality might be a "withinness" and equated with the Spirit of God. When associated with the holomovement, nonlocality injects a creativity into the idea of God's Spirit.⁵ *And the Trees Clap Their Hands* is Virginia Stem Owens's mystical meditation on the physics of Bohm and others. For her, energy, the spirit, the implicate order, is "by far the largest 'part' . . . of matter. . . . It is God's life that flows through the arteries of the world, that seeps in the capillaries enclosing each quark, that sustains being at every moment." Further, "It is God who thinks the whole, rounded thought of the universe. And as one thought, its nature, its total order, is indeed implicit" (Owens 1983, 59, 130-31).

Global nonlocality is also a way of talking about ecological togetherness. We are all in this together. If any part suffers, we all do; each of us connects with everything else (Birch and Cobb 1981).

David Peat's book *Synchronicity* explores global nonlocality in a

Jungian way (Peat 1987). Connections can be at the subconscious level; sometimes they become conscious and we feel a foreboding or something similar. Theology might pursue Peat's path.⁶

The above are examples of how theology might use global nonlocality. One must be wary, however. Global nonlocality extends the nonlocality idea of current quantum physics because the latter may only apply to the quantum world and its objects. Nonlocality *may* be more global, but at present its global use is a metaphysical idea that does not have physics' experimental support.

This section has discussed the theological usefulness of nonlocality rather than of the holomovement specifically. Bohm uses the holomovement to explain nonlocality, be it at the quantum level or the global level. Theology could find both ideas useful.

THE HOLOMOVEMENT GOD AS CREATOR

In particular, theology could use the holomovement idea as a model for God. Several matters follow directly from doing this.

There are, to start with, two ways to take it. The weaker is to make the relation between God and the world like that between the holomovement and the arena of human experience. The God-world relation is like the implicate-order-explicate-order relation. While many purposes only need this, others require something stronger; namely, that God is like the holomovement. Exploring the theology of the holomovement God often requires the latter.

Second, God contains the world as the implicate contains the explicate. The explicate comes from the implicate and folds back into it; the explicate is a particular part or restriction of the implicate. Further, as the explicate folds back into the implicate, what happens in the explicate order affects the implicate. Thus, the world and human beings can affect God.

God is the creator of the world, according to theology. In the new model, this is also the task of the holomovement, and so describing the activity of the holomovement is describing the activity of God.

Traditionally, there are two ways of talking about God as creator. The first is of God creating out of nothing at the beginning. The second is of God continually creating the world and all that is in it, moment by moment. Both forms of creative activity are present in the holomovement model of God.

Consider first the idea of God initially creating the universe. The point of the Christian doctrine is that the universe and everything in it depend for their existence on God. The parallel for this in a

holomovement theology is that the explicate order depends on the implicate for its being.

The other part of the doctrine of creation has to do with God's continuous creativity or creating. Tradition calls it God-the-sustainer. The holomovement language provides a means for talking of this creating in both the human and natural worlds. Bohm describes the holomovement as continually unfolding itself, creating the explicate order of our experience. The holomovement God is continually making each item, relation, feeling, and so on, in the world. God does it by unfolding moment by moment the potential in the implicate holomovement that itself is God.

Russell also points out this parallel. He says Bohm thinks of the universe "as an objective, self-contained, [connected] whole. . . . [It is] a unit of infinite complexity. Nothing can arise out of nothing." Everything in nature comes from something else, the product of strings of generations. This idea, Russell suggests, is similar to the belief that everything depends for its existence on God's sustaining power. Everything depends on the continual activity of God as creator (Russell 1985, 151-56).

God is not the only creator. When they take part in the activity of the holomovement, humans and other beings create the explicate order with God. One could say we participate in the divine creativity by reaching into the holomovement in our creative acts. Philip Hefner calls humans in this role created co-creators (Hefner 1989).

The God who is the holomovement is not only everything that is potential. Part of God is also the mechanism by which that potential becomes actual. The holomovement model says how this mechanism works and in so doing describes how God works. Scientific laws are descriptions of the way God works. The laws do not have any power themselves, and neither do they refer to Platonic-like powers that exist as part of or at another level from the world. They describe the action of God. Thus, a holomovement theology describes how God brings each moment into existence.

THE TRANSCENDENCE AND IMMANENCE OF THE HOLOMOVEMENT GOD

Discussion of the creator God leads to talk of mystery and transcendence. This leads to spirituality.

The world, according to Bohm, has an endless depth. In his words, there is a qualitative infinity to nature. That the implicate order unfolds into the explicate order of our experience means we can never know the world in full. The unfoldings can always be different; they

are only partial. Thus, despite the success of our knowledge, some of nature will always elude us and lie beyond our comprehension. All explanations are imperfect, even the holomovement model.

The qualitative infinity of nature means the holomovement metaphysics is not going to produce a mechanistic, antireligious explanation of everything. This was a fear in the days of a strongly positivist understanding of science. The holomovement metaphysics does produce or allow for mechanistic explanations but says that these are not full explanations. There is more to know (for instance, the holistic interaction of parts within a whole) than a mechanistic approach allows.

Mystery will always face us. Our sense of the wonder, and of the corrupt depths into which humans can fall, are correct. There is more to life and to all and everything than we can grasp.

The qualitative infinity of nature means the holomovement God will always transcend us and our explicate world. The holomovement eludes our knowledge, for all we can have are glimpses into the unknown that is both reality and the creator God. On the other hand, this transcendence is not absolute where we can know nothing of God. We just cannot know everything.

The holomovement God not only transcends our human world but is also immanent, because it continuously brings about each event of the world of our experience. Everything bears the mark of the holomovement. Everything is in God.

The immanence and transcendence of the holomovement God are the root of spirituality: We feel and sense something more within ourselves and our experience. We feel and sense an otherness that also connects closely with us. Holomovement theology expects a wealth of such spiritual experience. The difference from tradition is that this understanding of the spiritual is not of a wholly other. It is natural, but it does differ from us.

THE PERSONAL GOD

The holomovement God is personal. One personal attribute we give to the holomovement is agency. It acts; we say, for instance, that the holomovement creates the explicate order by its unfolding. This does not mean by itself that the holomovement God is personal, as we often talk of objects acting in a personal way (for example, the rock broke the window). There are many personal aspects of the holomovement God to which we can point. In fact, we can move quite beyond Russell's conclusion that the holomovement God need not

be personal. This is because our emotions, thoughts, feelings, hopes, fears, relationships, joys, and so on, are part of the explicate order we experience and which comes from the holomovement. The subjective as well as the objective unfold from the implicate order. The two classes of experience are not distinct but are partial views of reality—the holomovement God is the source of both.

It is also possible to think of God as transcending personal attributes. Many people think of personal qualities and experiences as the highest order possible for beings and organisms in the world. However, human beings are only parts of the whole that is the world, and the world is a system whose features are difficult to fathom. The whole, God, not only includes human attributes but, by being a whole, goes beyond them.

The holomovement God is the source of all our objective and subjective experiences. Thus, God could relate to us personally. It is for theology to ponder whether this happens and, if it does, what form the relation takes.

A related topic is consciousness. Suppose consciousness comes from the evolution of the human brain into an extremely complex system that intimately connects all its parts. Suppose it is not an entity but is a property of such an internally connected system. Since the holomovement is more complex and internally connected than the brain, one could think of it as having the highest form of consciousness. It might even be pure consciousness. Thus God's consciousness transcends ours.

This approach may help support and clarify Bohm's view of consciousness. He says that consciousness is of the material world, arising from the holomovement, and that each person's consciousness participates in the universal consciousness (of humanity) found within the holomovement (Bohm and Weber 1978). Whether human consciousness does have its origin in a universal consciousness is a matter to examine further.

CONCLUSION

I have outlined the basics of Bohm's holomovement metaphysics and showed how to extend it to include movements within the universe through time. Then, by thinking of the holomovement as God, I have suggested several ways for developing a holomovement theology. Although this theology has rich potential, much reflection is necessary in order to fulfill that potential. Morality is only one subject for further exploration. There are also veins not tapped in the above theological outline; for instance, there was no mention of the

movements in the universe. Filling out this theology is a task for future writings.

NOTES

1. Sal Restivo and Michael Zenzen use Bohm's concept of holonomy as the basis for a general metaphysics (Restivo and Zenzen 1981; see also Rosen 1982).
2. Bohm holds metaphysical beliefs that cause or inspire or come from his ideas. I have described them in previous publications (e.g., Sharpe, in press). These beliefs include the following: reality has an endless depth; the parts of reality relate to each other; the whole and all pieces of reality are constantly in process, in movement; the movement of reality is creative; and reality divides into levels. This is not all of Bohm's metaphysical base.
3. B. D. Josephson suggests equating God the orderer of nature, the intelligence behind the scenes, with the implicate order (Josephson 1983, 38-39). Patrick A. Heelan surveys the place of God in metaphysical schemes, including Bohm's, which derive from or relate to contemporary physics (Heelan 1983, 78-84). See also Ted Peters's thoughts on Bohm (Peters 1985).
4. This concept of God may not be all that different from the one Paul Davies proposes (Davies 1983). It does not mean, of course, that God is restricted to our concept of holomovement or whatever symbol we choose. God may well be more than our concepts of God.
5. This does not counter the distinction Peters makes that, for Bohm, the implicate order is matter and not spirit (Peters 1985, 209). This would mean posing a question using Bohm's categories without necessarily being honest to Bohm's own terminology.
6. In doing so it competes with transpersonal psychology and parapsychology.

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