

How Philosophy And Science Yield To The Knowledge Of God (Theology) And The Case Of Quantum Mechanics

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Abstract

This paper is an attempt to highlight the gains of a positive service and interchange between philosophy, science and theology. The work singles out two major scientific theories— quantum mechanics and evolution—in its effort to show how philosophy and science can assist theology in its task. The paper therefore maintains that the openness of theology to scientific and philosophical discoveries will help the former speak of God in a language understandable to modern human beings. The work adopts the method of critical analysis and evaluation in its argument and presentation.

Key Words: Philosophy, Science; Theology; Quantum Mechanics; Evolution

1. Introduction

Science is a dynamic discipline whose growth is a function of incessant discoveries that shed more light on already existing knowledge. Scientific discoveries facilitate growth not only in science itself but in other aspects of human knowledge, theology inclusive. Indeed nearly every monumental scientific discovery has implications for theology; hence theology is challenged to expand its horizons in order to accommodate the stupendous advances of science. It is therefore expedient, at this point, that to understand the concepts—theology and science.

Theology is understood as the effort of faith to achieve *understanding*; hence “fides quarens intellectum.” This delineation of theology highlights its searching role in the human enterprise of trying to understand humanity’s experience of the world. God is said to have revealed himself in his works (CC236), and humanity is working back from experience to the God of experience, for as Edward Schillebeeckx (1996) says, “the world of human experience is the only access to the saving reality of revelation and faith.”

With regard to science, on the other hand, philosophers of science generally understand science to be an intellectual enterprise aimed at *understanding* the world through empirical means (Rom Harre, 1985:23-24). For Albert Einstein, quoted in Paul

Fink (1965:139), “science is the endeavor to *bring together* by means of a systematic *though* the perceptible phenomena of this world into as thorough-going an association as possible.”

With this explication and understanding of theology and science, the road is free for one to venture into finding possible common grounds for science and theology.

2. Common Grounds for Philosophy, Science and Theology

In all the definitions itemized above, one discerns the ‘effort to understand’ as a common rallying point for both science and theology. In some senses too, human experience, whether as empirical (concrete) or psychological, constitutes a common point of departure for both philosophy, science and theology.

In his 1987 Address to the Vatican Observatory, Pope John Paul II (1987:4) reasons that the relationship between theology and science has begun to improve. Both should “begin to search together for a more thorough understanding of one another’s discipline...especially for areas of common ground. The Pontiff recommends that this common search based on critical openness and interchange should grow and deepen in its quality and scope. He strongly hopes that “as dialogue and common searching continue, there will be growth towards mutual understanding and a gradual uncovering of common concerns which will provide the basis for further relationship and discussion” (1987:7).

Rather than go their different ways, the Pontiff further recommends that “each discipline should continue to enrich and nourish and challenge the other to be more fully what it can be and to contribute to our vision of who we are who we are becoming” (1987:7).

3. Not to Amalgamate but to Grow Together

There has not been any claim, though in recent time, that Theology and Science are to be called into an amalgamation of any sort. Instead, while the campaign for dialogue and mutual support gathers momentum, each of the disciplines is advised to participate in this dialogue while retaining its identity. John Paul II who expounded this in Address has this to say:

The Church does not propose that science become religion or religion science. On the contrary, unity always presupposes the diversity and the integrity of its elements. Each of these members should become not less itself but more itself in a dynamic interchange...We are asked to become one. We are not asked to become each other (1987: 11).

The emphasis on dialogue does not relegate the need for both science and theology to preserve their autonomy and distinctiveness. Indeed, it is from the wealth of their distinctiveness that they can truly contribute to the much needed dialogue.

4. Science For Effective Theologizing

In past centuries, and to an extent in our time, some mystery-conscious adherents of Christianity have regarded science with a lot of reservation. For them, science is a dreaded scourge that tends to demystify and invalidate the contents of faith.

Simply put, science was thought to be antithetical to theology. The Bishops of Padua not only persecuted Galileo Galilei, but also forbade their faithful from looking through his telescope.

Contemporary theologians have exhibited a lot of openness on the issue. One of such is John Shea (1978:24) who reasons that scientific advance is, in fact, no threat to God's manifestation in the world. He believes that scientific advance even increases the sacramentality of the world. He writes:

The discoveries of science do not encroach on the dimension of mystery. The exploration of space may have demolished the mythological home of God but we are not left with an impoverished universe but with a more wondrous one...Science does not threaten to exhaust transcendence but reaffirms it in every advance.

The testimonies of eminent scientists corroborate the view that science opens up to a theological horizon. Olaf Pederson (2000) articulates the views of some scientists on the nature of fundamental scientific experience. According to him, this experience is not caused by novelty as such but rather by something which takes place at a deeper level of the mind every time a new insight enters it. Pederson samples the view of Werner Heisenberg on the feeling of scientists upon a discovery. He writes:

One is almost scared by the simplicity and harmony of these connections which nature suddenly spreads out in front of you and for which you were not really prepared...However, when one stumbles upon these very simple, great connections which are finally fixed into axiomatic system, the whole thing appears in a different light. Then our inner eye is suddenly opened to a connection which has always been there—also without us—and which is quite obviously not created by man.

On this backdrop, Edwin Hubble who formulated one of the most important primary relations of modern cosmology has this to say:

Sometimes, through a strong, compelling experience of mystical insight, a man knows beyond the shadows of doubt that he has been in touch with a reality that lies behind mere phenomena. He himself is completely convinced, but he cannot communicate the certainty. It is a private revelation (1954: 57).

Reflecting on the relationship between science and the mysterious and transcendental, Albert Einstein wrote:

The most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science...I am satisfied with the mystery of the eternity of life and with the awareness and a glimpse of the marvelous structure of the existing world, together with the devoted striving to comprehend a portion, be it ever so tiny of the Reason that manifest itself in nature (1965: 139).

Pope John Paul also cited concrete instances where physical science (with its old name of natural philosophy), and even contemporary science have aided the clarification of concepts and issues in theology. He mentions how the hylomorphism of Aristotelian natural philosophy was adopted by mediaeval theologians in their bid to explain the nature of the sacraments and the hypostatic union. The Pontiff also touches on how the cosmologies of the Ancient Near East was purified and assimilated into the first chapters of Genesis. He then challenged contemporary theologians to see how contemporary cosmology, particularly the theory of evolution, can help illumine theological reflections on creation. He went as far as highlighting the need for exploring the eschatological implications of contemporary cosmology, especially in the light of the vast future of our universe.

5. Theology Espousing Science

Science has not only come to stay, it is fast shaping the world-views of contemporary human beings. Christians are not left out in this as they too “will inevitably assimilate the prevailing ideas about the world, and these are deeply shaped by science” (John Paul II, 1987:13). Mindful of this fact, the Pope further reasons that as scientific findings “become part of the intellectual culture of the time...Theologians must understand them and test their value in bringing out from Christian belief some of the possibilities which have not yet been realized.”

Being abreast with scientific findings is no mean feat, thus it is also important that theologians become people of science. This will not only aid their understanding of sciences and its findings but will also spare them the tendency to make uncritical and often wrong judgement in science-related theological issues, for instance, creation.

Science also stands to benefit from this envisaged cooperation between herself and theology. “Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each of them can draw the other into a wider world; a world in which both can flourish” (John Paul II, 1987:13).

At this point, this paper will now proceed to discussing the two major areas in science which are already shedding light, and which portend to shed more light on the theological enterprise. The two areas in question are quantum mechanics and evolution.

6. Quantum Mechanics and Theology

Quantum mechanics was formulated in the 1920s to solve the difficulties encountered by attempts to understand atomic structure and the nature of light (Peter E. Hodgson. 2002:64). The development of quantum mechanics saw the contributions of several brilliant scientists such as Max Planck, Albert Einstein, and perhaps more importantly Werner Heisenberg and Neil Bohr. There are two major interpretations of quantum mechanics, namely the Copenhagen interpretation and Albert Einstein’s interpretation.

The Copenhagen interpretation of quantum mechanics was fully developed and spearheaded at the University of Copenhagen by the duo of Werner Heisenberg and Neils Bohr. Their interpretations of quantum mechanics encapsulate the *Uncertainty* and *Complementarity* Principles of Heisenberg and Bohr respectively. By means of a thought experiment, Heisenberg discovered that the more exactly the position of a

micro-particle is determined, the more inexactly the momentum is known and vice versa (David Cassidy, 1992:240). This is the crux of this uncertainty principle.

It is important to note that Bohr's principle of complementarity derives from his thesis that the apparent contradiction between the wave and particle symbols is unnecessary. For Bohr "wave physics and particle physics were not as hitherto supposed and debated, antithetical...they were complementary...mutually exclusive yet essential" (David Cassidy, 1992:243).

On the other hand, Albert Einstein's interpretation of quantum mechanics took a dim view of the theory. In a thought experiment he developed with Boris Podolsky, and Nathan Rosen, he showed that quantum mechanics was an incomplete theory. For Einstein, the uncertainty and faithfulness ascribed to quantum mechanics by the Copenhagen school were exaggerated.

It is to be noted that the indeterminacy of quantum mechanics finds much resonance in theology. Robert Russell (2000) anticipates several areas of theology in which quantum chance has a bearing. One of such areas is the doctrine of creation.

Quantum mechanics is relevant to both *creation ex nihilo* and *creation continua*. Russell further reasons that we may view God as creating *ex nihilo* through both law and chance. The reason being that God who is transcendent is the author of the laws of nature, including those quantum physics, as well as the statistical processes which they describe (Russell, 2000:362). With regard to *creation continua*, God, by virtue of his transcendence is present to all of creation as the power of immanent redemptive love.

Robert Russell insists that the irreducible roles of chance and law in nature, as delineated by quantum mechanics augment the meaning and subtlety of creation theology (Robert Russell, 2002: 362). By this, he throws his weight behind Arthur Peacocke who asserts in Robert Russell (2002:363) that 'God is involved with the evolution of the universe, creating new and emergent levels of organization through the open, statistical processes of this world, including quantum indeterminacy. For Peacocke, chance in nature is neither antithetical to divine purpose nor a reason for denying divine existence; rather both chance and law are instruments of God's creative will.

The idea of God as creating through both chance and law gains massive support from the predominantly statistical character of nature revealed by quantum mechanics and the other sciences. Associating God's creative activity with quantum chance recovers and ennoble the hitherto pejorative idea of chaos. Traditionally, God is seen as working against chaos to produce order. But in this new light God is seen as working through the statistical character of chaos to produce order. According to Russell (2002:364), we can confidently claim, from a theological perspective that the order God is creating is in some sense the order of quantum chaos, since it is created from the latter, while from a quantum perspective, rather than saying that God creates order in place of in (i.e., out of) chaos, we could say that one way God creates order is through the properties of chaos.

Robert Russell also itemizes other theological areas where quantum physics can be of help. He cites examples of the didactic role of metaphors in theology. According to him, such metaphors such as "God is love", "the Lord is my shepherd," etc., fund theology; providing the language and images out of which theological concepts grow.

Furthermore, Russell cites Sallie Mcfague who suggests that when metaphors lose their meaning and fruitfulness, the theology built around them must be reconstructed (2002:355). Drawing upon new metaphors appropriate for new age, Russell thinks that physics and the other sciences which infuse our culture can be a source of religious metaphors. However, Russell sees a connection between the parable of the sower and the quantum chance, which according to him, suggests that “the structures of the kingdom are constructed out of the random flow of ordinary processes, and that a hidden pattern seems to correlate, if not direct, all that happens (Russell, 2002:355).

7. Theology and Science in Evolutionary Theory

According to Zachary Hayes (1980:31), “The principal task of theology in terms of the general theory of evolution is to establish that there is no conflict between the theological concept of ‘creation from nothing’ and the emergence of the concrete forms of created beings through some sort of evolutionary process.” This harmony between the two positions stems from the fact that creation is more fundamental and provides the springboard for evolution. He writes further:

(Creation) expresses the most basic condition for the possibility of evolution, while evolution itself describes the actual temporal-spatial effect of God’s creative action. In brief, God creates through evolution. (Zachary Hayes, 1980:54).

Hayes (1980:55), went on to explain how evolutionary theory finds support both in scholastic and contemporary theology. This congeniality has established the fact that the concept of evolution as such does not eliminate God since it does not pretend to speak of primary causality (the fundamental basis for the development of species) but only of secondary causality (a development from that which is already a given).

In his address to the Pontifical Academy of science (October 23, 1996), Pope John Paul II tersely asserts that “new knowledge has led to the recognition that evolution is more than a hypothesis.” The pontiff recognized both science and revelation as disciplines which contain teachings on the nature and origins of humans. He harps on the need to reconcile the apparent contradictions in both disciplines with regard to the theory of evolution, since truth cannot contradict truth. He however recognizes the existence of a multiplicity of theories of evolution with some having an unmitigated materialist and reductionistic tenor; this heightens the need for a well-informed theology.

Leaning on *Gaudium et Spes*, St. Thomas Aquinas, and Pope Pius XII the pontiff moved further to defend the superiority and inalienability of the human soul to material evolution. In *Gaudium et Spes* (no. 4), he insists that the human person is “the only creature on earth that God has wanted for its own sake.” Aquinas’s insight throws more light on this as he reasons that the likeness of human beings to God resides in their speculative intellect (a faculty of the soul). More importantly, humanity is called to enter into a relationship of knowledge and love with God, a relationship which finds fulfillment beyond time, in eternity. Pope John Paul II maintains that it is by virtue of the soul that the whole person possesses such a dignity. Thus in line with his predecessor (Pius XII, *Humani Generis*: 1950), he opines that “If the human body takes its origin from pre-existent living matter, the spiritual soul is immediately created by God.”

While stressing on the need to listen attentively to the evolutionists, the pontiff Pope John Paul II in that same address to the Pontifical academy of the Sciences concludes that

...theories of evolution which...consider the spirit as emerging from the forces of living matter or as a mere epiphenomenon of this matter, are incompatible with the truth about (the human being)...Nor are they able to ground the dignity of the person...The sciences of observation describe and measure the multiple manifestations of life with increasing precision and correlate them with the time line. The moment of transition to the spiritual cannot be the object of this kind of observation (1996:18).

8. Conclusion

Our age stands in need of sound theologians with sound theology and a considerable knowledge of philosophy and science. While theology is not to be viewed as something which philosophy and science have left behind, there are signs that much of contemporary theology is moving into a new period of challenge and growth. Against this backdrop, it is reasonable to acknowledge with Robert Russell (2002:368) that ‘the natural course for theology seems to be one of increasing interaction with the sciences and technologies that shape so much of contemporary culture.’ He further reasons that “a theology for our time will be increasingly articulated in the context of these philosophies and sciences, for they disclose many of the mysteries of the universe which have made us and are making us.” This can only be realized if theologians become women and men of critical thinking (philosophy) and science, not in the sense of abandoning their pristine role of galvanizing the human spirit, but in the sense of openness and sincere efforts at knowing science. Indeed, the knowledge of philosophy and science is the spices of contemporary theology.

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