

PROCESS THEOLOGY AND THE BIBLE HOW SCIENCE HAS CHANGED OUR VIEW OF GOD

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I

Christian theology is necessarily rooted in the Bible. Nevertheless, the role the Bible plays in theology varies greatly among theologies. At one extreme are theologies that regard their task as systematizing the teaching of the Bible. At the other extreme are theologies that take the best of contemporary thought as normative and then explain what sense can be made of basic biblical ideas in this context. In other instances, the tradition through the centuries plays the primary role. Here it is assumed that the church's teaching is the responsible development of biblical teaching, but the task is not so much to check this assumption as to build on the tradition.

Most theologies are not pure examples of any of these types. Those that systematize biblical teaching are usually influenced both by the ways this has been done in the tradition and by what seems credible today. Furthermore, Christians can hardly treat the Bible in a completely unhistorical way. Their treatment of the Jewish scriptures is influenced by the way these are dealt with in the New Testament, especially by Paul. Very few Christians believe that all the laws in the Pentateuch apply today. Only a few look to the Bible for understanding of the natural sciences.

Theologians who take contemporary thought as normative are selective within that thought. They must be, since contemporary thought is very diverse. They select aspects of contemporary thought that are promising for connecting to the Bible. Often they hold that these aspects of contemporary thought have indeed been derived from the Bible even if today this connection is often ignored. Further, most of those theologians who emphasize contemporary thought bring it into a dialectical relationship with the Bible.

Similarly, those who build on traditions typically do so by adjusting traditional teachings to new findings in history and the sciences. They understand tradition as an ongoing process rather than a completed body of teaching. Further, part of the new knowledge that is important to them comes from biblical studies. As we understand the Bible better, the tradition needs to be adjusted so as to reflect that understanding.

Process philosophy can play a role in any of these forms of theology. It can inform biblical theologians in helping them to overcome the weight of traditional categories of thought, derived from the Greeks, in the traditional interpretation of the Bible. It can suggest new ways of understanding the relationship between the Jewish scriptures and the New Testament. However, process thought is in tension with the idea that one consistent theology can emerge from the study of the Bible as a whole. It is also in tension with making a very sharp distinction between what has been canonized by the church and other writings by faithful Jews and Christians.

Process thought is congenial to working within and from the tradition as long as that includes an emphasis on the dynamic character of tradition. Contemporary teaching should grow out of the tradition and be continuous with it, but it should not repeat what has been said in the past. God calls us to respond to the present situation, and that differs from all past situations. We appreciate our heritage and learn from it, but we are not bound by it. It empowers but does not limit. The best in our heritage points us toward the future rather than urging us to repeat the past.

Process theology is most often associated with the other form of theology I identified above. It takes one type of contemporary thought as normative, that is, a particular stream of philosophy -- process philosophy. Sometimes process theology is misidentified with what process philosophers have written about God and related topics. Since process theologians are heavily indebted to these writings, the confusion is understandable, all the more so, because the philosophers in question do not hide the influence of Christian thought on their work. Nevertheless, the writings of philosophers on religious topics are better described as philosophy of religion.

I understand theology, in distinction from philosophy of religion, to be intentionally Christian reflection about matters of importance. These matters include God, Jesus, the church, creation, salvation, and so forth, but they also include questions about how these beliefs are related to the human and natural sciences.

Process philosophers may recognize the influence of Christian faith on their thought, but they do not try to think about all matters from a Christian perspective. The role of the Bible in their thought is incidental. For one who thinks intentionally from a Christian perspective, faithfulness to the whole heritage, and especially to the Bible, is crucial. Process thought is employed in the service of theology out of the conviction that it illumines and facilitates the theological task. The choice of the process approach is itself a Christian decision.

The avowal of a Christian approach need not mean that the Christian theologian is less committed to truth and objectivity than anyone else. There are, of course, Christians who appeal to the Bible or Christian tradition as if the presence of an idea there guaranteed its truth. From my point of view, this appeal to authority is a travesty of Christian faith. As a Christian I am committed to seeking truth, wherever that quest will lead me, because God is Truth. Faith in God frees me from bondage to any human teaching, including that of the Christian tradition.

Obviously that does not mean that I reject all human teachings! A Christian tradition replete with teachings has nurtured and informed me and is the source of my commitment to truth as well as providing the perspective from which I seek truth. But that is a very different matter from the idolatrous absolutization of the Bible or the church. By giving the impression of closing themselves to reason and experience, Christians have too often excluded themselves from the public discussion of what is true.

Perhaps as a Christian I am more vividly aware of human finitude and the limitations of all human thought than are some others. The self-consciously Christian approach certainly emphasizes the importance of perspective. I try to be as aware as possible of the fact that my thought is perspectival, but I insist that the same is true for those who do not emphasize this fact and sometimes seem to claim that they transcend such limitations. Human thought is always from a particular point of view. To be clear about this and about the particular point of view from which one thinks, can move one toward objectivity, while never achieving it.

The representative of the process tradition who is most helpful to me as a Christian theologian is Alfred North Whitehead. I follow Whitehead for several reasons. First, I find his thought more congenial to, and supportive of, the biblical vision than that of any other twentieth-century philosopher. Second, I believe that he offers the most comprehensive vision of any such philosopher, and that this move to comprehensiveness is highly desirable from a Christian point of view. Third, I find his analysis of the way reality is, the most penetrating and satisfying one available. I believe my choice of Whitehead is a Christian choice.

Other Christians choose their allies in the contemporary scene on quite different grounds. Some believe that we should ally ourselves with whatever contemporary thinking is most widely accepted by thoughtful people. Some believe that because "reason" has so often turned into an enemy of faith, we should ally ourselves with those movements that critique the claims of reason. Today, these two types of judgment tend to support and reinforce each other, since the intellectual community is engaged in deconstructing the "reason" so highly touted in the Enlightenment. Far more leading theologians have allied themselves with analytic, postliberal, and deconstructive movements in contemporary thought than with process philosophy.

I will forbear to evaluate and discuss this choice and its consequences from my perspective. I will comment only that there are overlapping elements. The critique of the Enlightenment is shared by process thought and the now dominant intellectual tradition. Perhaps the major difference is that, whereas the dominant traditions see this critique as freeing theology to function as an independent discipline with little attention to the sciences, the process tradition sees this as an opportunity to reconstruct both theology and the sciences so as to bring them into a new synthesis.

Of course, choosing the process tradition has extensive effects on my reading of the Bible and tradition and my understanding of their authority. I have suggested that above in an abstract way. I will now offer one central example.

II

The Christian tradition from the second century has attributed to God almightiness or omnipotence. By this it has meant, usually, that God in fact controls everything that happens. The alternative reading is that God can control everything that happens but chooses not to do so.

Whitehead has a very different view of power. For him, the most significant form of power is not control but influence. He emphasizes persuasion over against coercion. This is the kind of power that parents and teachers want to exercise in relation to youth. The resort to coercion reflects the failure of persuasion. Persuasion or influence empowers the one who is affected. Coercion disempowers.

With this understanding of power, the attribution to God of coercive power seems to be a mistake. Coercive power can kill and destroy, but it cannot bring life and wisdom and love into being. It is an inferior form of power. When we treat it as divine, we encourage the quest for controlling power by believers. Much harm has been done in human history by this traditional Christian doctrine. Parents seek to control their children. Men seek to control women. Rulers seek to control their subjects.

Furthermore, when we attribute to God a monopoly of controlling power, we must suppose that what happens in the world is what God wants to happen. This leads many people, appalled by what happens in history, to become atheists. Others continue to believe that there is divine control, but feel anger against God. It is very difficult to believe that God is love. The traditional problem of theodicy is simply insoluble.

Given this perspective, a process theologian looks again at scripture. Does scripture teach divine omnipotence of the type that has dominated the tradition? At first blush the reader of the English translation will come to assume that it does. Over and over again in the very first books of the Bible, one finds reference to "the Almighty" and to "God Almighty". It takes a little research to find that this is a quite arbitrary substitution for the proper name "Shaddai" or "El Shaddai". The substitution reflects the fact that the Septuagint translators of the Bible did not like to use a proper name for God and assumed already the belief that God is almighty. It tells us nothing about the beliefs of the original authors. That "Shaddai" was originally thought to be omnipotent is extremely improbable.

There is, of course, no question but that many biblical authors were impressed by the great power of God to control what happens. They tell stories that depict God in coercive roles. But as we move through the scriptures and analyze the accounts of how God deals with human beings, coercion is rare. The far more common account is of God's call and human response. This response frequently involves resistance. God's call is often persistent, and sometimes overcomes the resistance, but it does not compel. When we ask what kind of power is revealed in Jesus, coercion does not come to mind. When Jesus addresses God as "Abba", the connotation is not the "Father Almighty" of the Apostles Creed. Basically the power with which the gospels confront us is the power of love. Paul sees God's power revealed in what the world considers weakness.

When one reads the tradition with this sensitivity, one also finds that many theologians have emphasized persuasion and the human responsibility persuasion calls into being, far more than coercion. I am a Methodist, and I rejoice at the overwhelming primacy of persuasion in Wesley's understanding of God's dealing with the world.

Nevertheless, controlling power has dominated the imagination of the church despite its peripheral role in the Bible. In our liturgies, we repeatedly address "Almighty God". When we substitute another word for "God", it is most commonly "the Almighty."

To reject this image of God is a radical theological act. Nevertheless, process theologians do so. When we do so, we do not believe that we are imposing modern philosophy on the Bible. We believe that we are releasing the Bible from bondage to alien ideas. We do not believe that we are rejecting our historical heritage. We believe that we are purifying it from a fundamentally unchristian concept, that is, one that conflicts with what is revealed about God in Jesus Christ and in the Pauline interpretation of the meaning of the Christ event.

III

I have been asked to speak on the role of science in changing the way we think of God. That makes sense to me. Before the rise of modern science there were quasi-scientific worldviews that deeply affected the way people thought of God. Many ancient peoples associated the sky with heaven and the heavenly bodies with deities. Our language still reflects this notion when we use "heavens" to refer both to the sky and to the divine realm. The resistance to Galileo was in part that his theories showed that the heavenly bodies had the same imperfect character as earthly ones. Once the new astronomy was established, it became impossible to locate God "above" in any literal sense, although here, too, the rhetoric lingers.

As science destroyed the "heavens" as the locus of deity, it created a vision of a unified material cosmos including, equally, the heavens and the earth. This whole cosmos was understood to obey mechanical laws. The model that informed much of early modern science, and is still influential today, was the medieval clock, complete with moving figures. This was probably the most complex machine of the time, operating by physical laws, but fulfilling a purpose. Obviously the purpose came from outside the clock, and its construction required a high degree of intelligence. Similarly, in the early modern period, most people, including most scientists, saw the cosmos as a very complex machine that was obviously made by a powerful mind of enormous intelligence. God was to the cosmos, as the clock-maker was to the clock.

There were, of course, some who denied the need to posit a maker for the universe, or who declared that such a maker would require a maker, *ad infinitum*. Nevertheless, well into the twentieth century, the scientific worldview seemed to most people in the English-speaking world to support belief in this kind of God. As long as it was assumed that the world that originally came into being was much like our present world, with human beings coming into existence abruptly in their present form, it was hard to think of origins in terms of chance and necessity. Cosmic purpose was required.

In this context, evolutionary thought was of critical importance. Evolutionary ideas had been around in a general way for a long time, going back to the Greeks. But evolution as a great explanatory principle grasped the imagination of the culture only

through the work of Charles Darwin. Darwin's theories showed that complex forms of life, including the human, had come into existence by a gradual process over very long periods of time. What was originally created was something much, much simpler. Although Darwin himself seems to have retained a role for God in the origination of this simpler world, the need for God as Creator was now far less compelling. Also, in the standard formulation, chance and necessity were presented as adequate to explain the evolutionary process. For many people, including most scientists, this theory did away with the need of God as an explanatory hypothesis. Atheism or agnosticism replaced theism or deism as the dominant religion of the cultured. This remains the case to this day. God has virtually disappeared from the modern university.

Of course, the reasons for believing in God had never been limited to the theoretical need of a creator. Long before the rise of modern science, other lines of thought had developed. These included metaphysical analyses. Anselm created the ontological argument, which was modified and reaffirmed by Rene Descartes. Thomas Aquinas reflected about Being Itself and identified this with God. Mystical experience opened other channels for thought of God.

When the argument from creation to Creator had begun to lose convincing power, even before the rise of modern evolutionary thinking, Immanuel Kant proposed that we think of God in relation to our ethical experience rather than cosmology. German idealists located God in the transcendental ground of human experience. Kierkegaard had argued for a leap of faith that did not need rational warrant in any ordinary sense. Some have argued that belief in God is a supernatural gift of God not depending on any achievement of human reason.

The modern shift of the discussion of God from cosmology to metaphysics, mystical experience, morality, and supra-rational grounds itself reflects developments in scientific cosmology. These discussions do not depend directly, in other words, on particular developments in science, but they would not have flourished, or had such difficulty in gaining acceptance, if the scientific worldview had not seemed to exclude God. In this indirect way, that worldview continues to play a fundamental role in the discussion of God.

III

Process theologians belong to a tradition of thought that contests the view that the best interpretation of the scientific data excludes any causal role for God. One finds the antecedents of this tradition in early stages of discussion of Darwinian evolution. Instead of affirming the idea of evolution as supporting atheism or rejecting it because it did so, some Christians took the position that its acceptance changes the way we understand God's work in the world. Instead of viewing creation as a one-time act in the beginning, one could focus on the ongoing creative work of God. One could see continuity between the way God worked in gradually bringing life into being in all its complex forms, including the human, and God's continuing work in human history and in our lives at present. One could argue that this had religious advantages from a Christian point of

view, since it emphasized what God is doing here and now in and with us rather than locating God's action in the distant past.

This way of thinking helped many to reconcile science and religion, at least superficially. The problem is that, for intellectual rigor, this tradition requires a critique of the dominant formulation of evolutionary theory. According to the dominant formulation, purpose is wholly excluded. Everything happens by chance and necessity. No place is left for God.

Some theists have accepted this challenge, arguing that it is the mechanistic assumptions of modern science rather than any empirical data that lead to this conclusion. This is the position of process theologians. We believe that all living things have purposes, largely unconscious, but still influential. Living things are not to be conceived as complex machines. Few people really believe that they themselves are complex machines with no purposes. But if human beings are a product of the evolutionary process, why do we suppose that the earlier participants in this process were wholly unlike us? That seems contrary to the whole implication of evolution. Instead of understanding evolution entirely in terms of our notions of the actions of material atoms, we should understand it also in terms of the character of what it has produced in us.

We believe that the actual data support the view that the creatures that evolved had many of the characteristics we find within ourselves. We believe that without their efforts to survive and adjust and make use of their environment to these ends, no evolution would have occurred. We believe that animals employed intelligence in these efforts. We believe that we can find the emergence of cultural elements in some animal species, and that these cultural elements affect their evolution. Animals other than humans learn from experience and intentionally imitate successful behavior. Ignoring all this, and treating all animals other than ourselves as purposeless, does not conform to common sense or to the evidence. Scientists need a better model than the clock, and we believe that they can find this in the organism.

You may ask what this has to do with God. If evolutionary biologists had not been so committed to excluding God from the evolutionary process, they might not so adamantly have denied the role of animal purpose in that process. If they could be sure that allowing a role for animal purpose would not open the door to theism, many might be willing to do so. But process theologians cannot offer them that assurance.

We believe that human purpose is possible only because of God. Real purpose aims at that which now is not. It cannot be explained in mechanistic or more broadly deterministic terms as the outcome of the causality of the past. Of course, it must be closely related to that past, but it transcends that causality. It occurs only because unrealized possibility is also felt in concrete experience. That in turn is possible because of God. In our language, God is continuously luring or calling us to be something more than we have been.

Most of what God is doing in our experience, just like most of the causal efficacy of the brain, is quite unconscious. We can examine the results of both in conscious experience. But the theory that the condition of the brain affects our experience is developed through experiments and not through direct inspection of experience. This is true even of the causal efficacy of bodily events in general upon us. The objects of vision and hearing dominate our conscious experience, and these are not found within the body. Yet immediate conscious experience does testify, albeit vaguely, to its bodily origins.

Similarly, the primal purposiveness that pervades experience is rarely objectified or reflected upon within the experience. Any awareness of its source or origin is vague indeed. Nevertheless, we can, through analysis, recognize that without the pervasive presence of purposiveness, experience would be very different indeed, and we can see that this purposiveness does not arise in the same way as the data of vision and hearing.

I have offered one example of how process theology radically revises traditional theology and one example of how it radically revises contemporary science. With these revisions, theology and science can be brought together. Contemporary science provides a picture of the world that is hard indeed to reconcile with an omnipotent God who controls, or could control, all that happens. What it has actually shown, on the other hand, is fully compatible with the effectiveness of a divine spirit that works in and through all things, bringing into being novel forms and new types of action. The Bible can be read as coming to its climax in an understanding of a God whose work in the world is always an expression of love rather than of force.

Let me make clear that I am not saying that if biologists acknowledged the role of animal purposes in evolution, they would be compelled to reintroduce God's activity as an explanatory element in biology. They would not. There would be no difficulty in stopping with the fact and reality of animal purpose and its role in evolution. The metaphysical source of that purposiveness will not affect the scientific theory.

However, the theoretical formulation of evolutionary theory would no longer systematically exclude a theological explanation. From my perspective as a process theologian, the theistic account is fuller and more fundamental, but it is not necessary to the advance of scientific research. All that I claim is that a view of God that is coherent with both science and the Bible could be affirmed. I believe this would be a significant gain.

IV

Many theologies have undertaken to revise traditional Christian teachings. In this respect process theology is part of a much larger theological community. But most of its associates in this respect have felt that they must leave the scientists alone to formulate the conclusions and implications of their disciplines. A few feminists have challenged the way scientists do this. Process theology supports them, but probably goes farther than any other theological school in this challenge.

The relation to science of process theology, including its doctrine of God, is two-sided. First, process theology intends to be completely open to what the sciences can teach us about the world. Second, it is critical of the worldview that developed with modern science and which is still extensively influential in the actual work of most scientists. This second point means that openness to what sciences can teach us does not lead to acceptance of the way most scientists present their findings. The distinction between findings and formulations is not always easy to make, but for process theology it is very important. I hope that my example of evolutionary theory helps to clarify this distinction and to show its importance.

In this concluding section, I want to illustrate again the two aspects of the relationship to science. First, I would like to illustrate from recent times the effect of new scientific developments on the understanding of God in process theology. Second, I want to illustrate how process thought can continue to contribute to reformulations of scientific theory.

Alfred North Whitehead, on whose thought we draw so extensively, developed his ideas when scientists thought of the universe as rather stable. He proposed, nevertheless, that it was gradually changing, that our "cosmic epoch", dominated by electromagnetic phenomena, would eventually give way to some other form of order.

In the second half of the twentieth century, a different picture has emerged. In this picture, what Whitehead called our "cosmic epoch" came to be abruptly out of nothing or virtually nothing. Whitehead's understanding of God posited that both God and the world are everlasting. The new cosmology suggests a more radical beginning than he envisioned. It gives some support to those who posit a *creatio ex nihilo* of the world.

There is no doubt that this requires rethinking of the relation of God and the world. Thus far, it seems that the changes required of the process doctrine of God, while significant, are fairly minor. We have emphasized the activity of God in each occasion as it arises and have de-emphasized any originating activity at the beginning of this cosmic epoch. Nevertheless, we have attributed to God the grounding of all order.

For process theology it is important to show that the "nothing" out of which the Big Bang occurred was not simply nothing. Many physicists grant this possibility, and some even seem to assume it. The "nothing" can be understood as what Whitehead calls "empty space", that is a field of events in which there are no enduring objects, nothing that can be measured or experienced through the senses. But physicists know that even in empty space there is energy, and for Whitehead, that means occasions of experience. It is out of this empty space that our cosmic epoch rather abruptly arose.

We now need to place more emphasis than before on God's establishment of the grounds of order. Physicists marvel that the physical constants are so finely tuned to the requirements of life. There is more reason now than when Whitehead wrote to understand the establishment of these constants as a divine act. The idea of one cosmic

epoch evolving into another must give way to more dramatic ideas of beginnings and endings. This is a significant change in our thinking about God.

Incidentally, reflection about the origins of our cosmos is far from settled. As this reflection changes, our thinking about God should also change. It may also be that from the process perspective we can make suggestions about the formulation of new theories. Indeed, I have described above a Whiteheadian account of empty space to supersede an idea of pure nothingness as preceding the Big Bang. But chiefly we are dependent on the development of further evidence.

The theological enterprise of criticizing scientific formulations would have little prospect for success if it were not that scientists themselves have come to recognize the limits of the concepts they have employed during the past three centuries. There is more interest among physicists in process philosophy now than ever in the past. To understand this, and its impact on the doctrine of God, I need to remind you briefly of twentieth century developments. Currently, physical theory is in flux, and the proposal of process categories to replace the mechanistic ones, is a reasonable contribution to the discussion. Since those process categories have been connected with ideas of God inspired by the Bible, process theologians believe there is a chance in the twenty-first century to bring the long separated parts of human understanding into a new, coherent relationship. We assume that in the course of this discussion, theology, including process theology and its understanding of God, will continue to be modified.

Although some developments in nineteenth-century physics were in tension with the mechanistic model employed in their interpretation, this was little noticed. There was, indeed, a sense that the natural sciences were completing their task of explaining everything in terms of their model. Some wondered whether what remained to be done would be sufficiently challenging to warrant the choice of science as a life work.

In the early twentieth century the situation changed dramatically. The study of subatomic entities could not be made to fit with the existing scientific worldview. Relativity theory showed that the established notions of time and space must be radically rethought.

The great majority of physicists have continued to employ, in these new areas of study, the categories they had used so successfully in the previous centuries. These categories are substantialist. They derive from objects of sight and touch understood to endure through time.

Since process thought is defined by its rejection of this metaphysics and development of an alternative one, I need to explain this somewhat more clearly. Illustration is probably the best form of explanation. Let us ask ourselves what are the kinds of things of whose existence we are most confident. Probably you will think of sticks and stones, chairs and tables, trees and human bodies. Most philosophers have done so, and this kind of thinking has dominated the West.

Science wants not only to observe and categorize these objects but also to analyze them into their parts. These parts are assumed to be of the same general character, only smaller. From the Greeks on it seemed that one could break up any of these objects into its parts, and these parts into their parts. Eventually, however, one would come to an object that was no longer divisible. For this reason, this object of speculative thought was called an "atom", meaning that which could not be divided. The atom was the substance, par excellence, into which all compound substances could be analyzed. Some of the Greeks speculated that the whole world is composed of such atoms, that they do not change in themselves, but that they are in motion relative to one another. It is the various ways these come together that make up the material bodies that we see and touch.

Many modern scientists adopted this world picture. They were convinced that all things are composed of matter in motion and that the laws of physics control this motion. They believed that they had discovered the indivisible entities posited by Greek theory, and accordingly named these entities "atoms". In principle, they thought, if one could know the location and motion of each atom at a particular point in time, one could predict all subsequent events.

This vision was disrupted to some extent by the discovery that what were called atoms were in fact divisible. Their division opened up for study a whole array of subatomic entities. In itself this would have had minor philosophical consequences if the subatomic entities could be understood as smaller exemplars of the sorts of entities that physicists had been studying. The expectation that this would be the case expressed itself, and still expresses itself, in the widespread use of the notion of "particle" to identify subatomic entities.

The real problem was that these "particles" did not behave as particles should. It turned out that much of their behavior could be better interpreted if one brought to bear another category developed in the substantialist context. That is the category of a "wave". This is derived from movements on the surface of water and turns out to be applicable in many other areas. But it was assumed that ultimately a wave could be analyzed, like anything else, in terms of the movement of atoms. Unfortunately for these assumptions, it seemed that the individual subatomic entities often behave like waves instead of in the way a particle should behave. These entities could not, then, be viewed as substantial atoms.

The hold of substantialist metaphysics was so strong that, when the substantialist concepts failed to describe the subatomic entities, most scientists inclined to the view that no conceptual grasp is possible. These entities must be treated for some purposes as particles and for other purposes as waves. We must learn to be satisfied without the kind of understanding that science had previously sought. Science redefined itself and its task in terms of successful prediction of outcomes rather than expanding human understanding of nature. Since employing alternately the mathematics associated with particles and that associated with waves has led to a vast expansion of information about the subatomic world, many scientists have come to regard this new approach as satisfactory and adequate. The change in the understanding of science has encouraged the larger intellectual

community to give up any effort at coherent, comprehensive understanding and to accept as ultimate the fragmentation of disciplines, and thus of knowledge.

From my point of view, however, it is fortunate that not all physicists are content to leave theory in this chaos. Some are open to rethinking the metaphysical assumptions that have led to these consequences. That is where process thought comes into the picture. Process thought proposes that events are more basic than are the kinds of things that have given rise to the notion of substance.

Since this is so central for process theology and for its relation to science, I will pause to emphasize and clarify this. Everyone knows that there are events. There are elections and conversations, football games and parties. No one would be inclined to think of these as substances. Instead of enduring unchanged through time, they happen and are over, succeeded by other events. But as long as one is committed to substantialist thinking, one assumes that in the ultimate analysis the event can be understood in terms of matter in motion – atoms moving around in the void.

It is this assumption that is challenged and reversed by process thought. We can analyze an election into many events that make it up, and these into the events that make them up. This analysis reaches its terminus in events that can no longer be analyzed into parts which are themselves events. We may call these "unitary events", or, to follow the Greeks, "atomic events". In the case of the conversation, the most important of these unitary events will turn out to be momentary human experiences.

Of course, many of these unitary events will be more purely physical. These will be events in human bodies but also in the inanimate world. The question is whether these should be analyzed in terms of matter in motion. The failure of this project at the subatomic level suggests that they should not. We should identify those entities at this level that cannot be further analyzed as unitary events.

This means that, instead of analyzing events into matter in motion, we analyze matter and motion in terms of the field of events. This is the metaphysical reversal that process thought proposes. It has not gained a wide following, but it offers many advantages. Partly because our language is so deeply rooted in substance thinking, the shift to event thinking is very difficult. I do not expect to convert you through these few comments, but I hope that I can suggest to you that this may be worth thinking about.

In the version of process thought to which most process theologians subscribe, that especially influenced by Alfred North Whitehead, the unitary (or "atomic") events are understood to be occasions of experience. Every occasion is something for itself as well as something for others. Each comes into existence out of a world of completed events and contributes itself to the world of future events. Human experience in a moment is an example of such occasions, and the most fundamental character of all occasions can be found in an analysis of human experience.

A moment of human experience is largely constituted by its inclusion of elements of previous experience, elements derived from the body, and elements derived from the larger world. These derivations are relationships that bring what is other into what is present. An occasion of experience is largely to be understood as an integration of its world. It thereby becomes an entity that is given for future integrations. Most of this is below the level of consciousness. In most occasions it is entirely nonconscious.

If we think of events of this sort as fundamental, then we can see that each such event is a kind of microcosm of the whole field. Some patterns emerging in a field of events have the characteristics that have been associated with particles. Other patterns emerging in the same field have the characteristics associated with waves. It may be possible, therefore, to understand the particle- and wave-like characteristics of the subatomic world without resorting to conceptual contradictions.

I do not mean to suggest that a conceptual shift of this kind quickly resolves all the perplexities and mysteries of quantum thought. The task of developing a new and different quantum theory is a daunting one. But successful work is taking place. Bohm and Hiley, for example, have successfully developed a theory based on events that accounts for all the known phenomena mathematically without the paradoxical character of standard quantum theory. It has not gained much attention because it does not make predictions that had not already been made by those following standard models. Given the restricted understanding of science introduced in the twentieth century, the importance of this new theory is more philosophical, or even theological, than scientific. But since most philosophers and theologians have cut themselves off from science, few outside the process group pay much attention. Nevertheless, the possibility of a coherent quantum theory based on process thought is, in principle, important for the project of recovering a comprehensive vision in which a biblical understanding of God finds an important role. That is a project to which process theologians continue to give sustained support.