The Evolution of a Christian Botanist

Carl S. Keener

In the Apocryphal book 1 Esdras the writer recounts a charming story of a debate involving three bodyguards in the court of King Darius. One night while King Darius was sleeping, the three young men began a debate over what each thought was the strongest item or event in their world. In arguing for truth, Zerubbabel said that "truth abides and remains strong forever .... There is no favoritism with her, no partiality .... Hers are strength and royalty, the authority and majesty of all ages. Praise be to the God of truth!" (1 Esdras 4:38-40). Eventually truth was declared the winner, and the people shouted "Great is truth: truth is strongest!"

Whether fanciful or not, the outcome was that Zerubbabel, the winner of the debate, was able to convince King Darius to allow the Jews to return to their homeland and rebuild the temple and their homes. Yet truth remains, now, as then, as elusive as ever. In my professional life as a teacher and a systematic botanist, I have had to confront the theory of evolution, not only as a central premise of biology but also as a philosophical view of the way the world works. In this essay, I do not intend to settle the issue of truth, except to state that whenever worldviews clash, as they inevitably will, truth, however understood, is an overriding issue. And thus begins a story of the evolution of a botanist who is now retired, yet remains a dedicated Christian and a Mennonite.

Early influences and a cognitive shift

As a junior at Eastern Mennonite University in the mid-fifties, I bought a slim book of 135 pages titled *New Concepts in Flowering-Plant Taxonomy*.[1] Full of new words, this book opened windows to a world I never knew existed. Until then I was a special creationist who believed that all species were created fresh from the hand of God roughly 6000 years ago. This was the view I was

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taught, and I had no first-hand experience in natural history to counter it. But as I read *New Concepts*, the belief that all species were created 6000 years ago just was not tenable. Among other matters, *New Concepts* described polyploidy in plants, a genetic means whereby a hybrid offspring inherits the full chromosome complement of its parents, themselves two different species. I've left out a lot of technical details, but my point should be clear: Polyploidy means that new species can evolve now, in our time. Special creationists simply had no answer to this clear evidence that not all species were created during a week of intense creative activity by God.

Prior to reading *New Concepts*, I believed that all species were created in some unspecified manner by God and remained basically unchanged since their initial creation. This idea was reinforced by two books I had read in my youth: Chester K. Lehman's *The Inadequacy of Evolution As a World View*, and *Doctrines of the Bible* edited by Daniel Kauffman.[2] Both books claimed that God created *de novo* all species of living things, and that evolution itself was both unscriptural and unscientific. In particular, Lehman argued that the alleged evidence simply did not support evolution.

When I read *New Concepts*, I knew at once that not all species were created 6000 years ago, that new species can evolve now, and that evolution, at least with respect to plant species, continues unabated into our time. Nevertheless, these new ideas clashed with my previous beliefs about creation. When humans encounter new ideas differing from their present beliefs, conflicts inevitably arise. Moreover, these conflicts require some sort of decision whereby one attempts to reduce what Leon Festinger has called "cognitive dissonance."[3] Specifically, one just could not with any intellectual integrity hold to the view of a recently completed creation and at the same time accept the view that species are a result of evolutionary changes within populations. Despite the invigorating new ideas encountered in *New Concepts*, I had not yet come to terms with Darwin.

Several years later, in January 1959, the Mennonite Graduate Fellowship (MGF – a group of young Mennonites who were then in graduate school) met at Ohio State University to discuss a wide range of topics, including a paper by Stanwyn Shetler dealing with evolution to which I added some remarks out of my experience as a graduate student. At a subsequent meeting (December 1959), the MGF met in Chicago to discuss the impact of the theory of evolution

on Christian thought, and represented, so far as I know, the first general treatment of evolution within Mennonite circles.

In re-reading those papers forty years later I am struck by the evident earnestness in aiming to follow the empirical evidence where it leads, but all the authors drew back from developing a thoroughly evolutionary view of life. God still worked in the gaps of our ignorance, despite accepted natural mechanisms for speciation. And clearly all presenters were quite assured of the power of God to create in any manner God intended to utilize. For most of us, an overarching synthesis of philosophy, anthropology, sociology, biology, and theology still lay in the future. Nevertheless, evolution, as a theory accounting for the origin of species, made an entrance into Mennonite thought, and in my opinion this was, at the time, a significant breakthrough.

Some basic questions

In any overview of the relationship of God, nature, and the human species, certain questions keep intruding. Although I cannot discuss them in detail, they have formed the basis of my ongoing inquiry over the years.

1. Can an evolving universe reveal purpose and design, or is the present universe a result of random but interacting events? To what extent can the universe be said to be planned, if evolution is true? Are the laws of nature externally imposed, or are there immanent resident forces guiding basic changes within the present universe? Can design and chance be united in some philosophically coherent manner?

2. Can the structures of the present universe reveal any aspect of the nature of God? How do we understand the meaning of "God acts"? Is God likewise subject to metaphysical principles, or has God in some manner imposed the basic structures of reality in this particular cosmic epoch? Can we ascribe the cruelties observed in nature to God's creative designs? How do we reconcile human freedoms with God's omnipotent power?

3. How can sentient forms (minds) evolve from seemingly lifeless, inert matter? Is Darwinian evolution the best current model available explaining

"descent with modification"? How do we best understand the history of the universe, including the history of life on earth?

4. Can a faith based on revelation be correlated with science based on reason and factual observation of how the world works? In a world of science, how does one correlate Christian views of providence, miracles, original sin, Jesus, and eschatology with an evolutionary explanation of human origins?

5. Does evolution imply atheism, or can a Darwinian also be a Christian?

Evolution as a biological theory

During my studies in graduate school I read the major works by twentieth-century empirical evolutionists, and these helped me understand the fundamental neo-Darwinian synthesis involving genetics and Darwin's views of natural history.[4] To be sure, in his seminal book, *On the Origin of Species* (hereafter, *Origin*), Darwin regarded evolution as "descent with modification"[5] by means of the "accumulation of successive slight favorable variations."[6] Although Darwin lacked any knowledge of modern genetics, we can now view organic evolution as a process involving genetic continuity coupled with changes among organisms within local populations over time. Thus evolution has two components: transformation (i.e., changes as seen in the fossil record) and diversification (i.e., multiplication of species).[7]

The idea of natural selection (NS), particularly, has been often widely misunderstood. To Darwin, NS is the "preservation of favorable variations and the rejection of injurious variations."[8] Basically, NS is the preservation of slight but useful variations which favor those individuals in the "struggle for existence" (a metaphor meaning "dependence of one being on another" and "success in leaving progeny").[9] Ernst Mayr has suggested that NS can be understood as a "differential reproduction of individuals that differ uniquely in their adaptive superiority."[10] That is, if there is variation, if the variations are inherited, if the variant individuals differ in reproductive success, there will be evolutionary changes within populations. Consequently, NS is a two-step process involving 1) production of genetic variability, and 2) selection which "orders" that variability, and is therefore reproduction and differential survival. Darwin's approach was thoroughly empirical and thus was open to crucial tests. Still, as

Mayr noted, there were a number of reasons why scientists did not initially accept Darwinian evolution – no proof, a threat to views that nature was planned by God, NS could eliminate but not create, too much chance (the law of "higgledy-piggledy"), empirical evidence too scanty, etc.[11]

Despite numerous criticisms, the Darwinian revolution had an enormous impact in how people viewed themselves within an ever-changing cosmos.[12] In brief, a Darwinian view of life resulted in replacing a world of fixed types (or species) by an evolving one, and thus replaced essentialism by population thinking. Essentialism implied a descent with perpetuation of the type of the species, but an evolutionary view implied that the basic properties of a species themselves can undergo significant changes.

The last point, particularly, has important ramifications not only for viewing natural history but in contemplating certain basic aspects of the universe. As Mayr indicated, the shift from essentialism (typological thinking) to population thinking had immense consequences both in biology and philosophy.[13] For more than 2000 years Western thought had been geared to essentialism, the idea that even variable objects of appearance owe their existence to an invariant type or class.[14] As William Whewell stated, "Species have a real existence in nature, and a transition from one to another does not exist."[15]

In the post-Darwinian controversies roughly spanning the years 1860-1920, three broad types of Christians responded to Darwin.[16] As James Moore has asked, why did some Christians "become Darwinians and others Darwinists? Why was it that a few remained loyal to Darwin, despite the travails of his theory, while the many, aping and abetting the critics of natural selection, took up other versions of evolution?"[17] Still, why did others refuse to accept any theory of evolution?

Can a Christian be a Darwinian?

Recently, two books have attempted to answer the question of whether there can be a common ground between God and evolution. In *Can a Darwinian Be a Christian?*, philosopher Michael Ruse states that evolution "is a fact and . . . Darwinism rules triumphant. Natural selection is not simply an important mechanism. It is the only significant cause of permanent organic change."[18] Ruse cannot understand why people cannot be both Christians and Darwinians, and he remarks that Saint Augustine and Saint Thomas Aquinas would have

been "appalled at such a presumption." Consequently he has written a broad-ranging account of how evolution and orthodox Christianity are compatible.

Ruse correctly points out that when discussing evolution, one must note the "*fact* of evolution, the *path* (or *paths*) of evolution, and the *mechanism* or *cause* (*mechanisms* or *causes*) of evolution."[19] That there is descent with modification, that there are phylogenies (branching trees) indicating organic relationships, and that natural selection and adaptations are powerful forces involved in these changes, are views accepted by virtually all biologists dealing with natural history. Such biologists are indeed Darwinians, who as "[w]orking evolutionists, looking at real organisms, stay within the Darwinian fold: natural origins, a branching tree, selection and adaptation."[20]

Ruse then contrasts a Darwinian view of life with fairly traditional views of Christianity stemming from Augustine (Catholic and mainstream Protestant). Ruse parses out Fundamentalism and shows that basing one's science on a literal reading of the Bible helps neither the science nor the Bible. The view that Noah's flood (which has been the basis of flood geology theories) can explain geological phenomena, including fossils, simply leads to an unacceptable science.[21] However, in Ruse's view, the Augustinian option regards evolution as God's work, and contends that God is "actively involved in seeing that things occur as they should, [that] the laws, random or not, are His laws and events, and he foresaw and intended the end result."[22] Nonetheless, Ruse notes that there are costs to this solution: the question of human freedom looms large, as does the problem of evil and pain. However, he supports Augustine's thinking about predestination, and argues that Augustine "would expect an all-knowing Being to know what is going to happen to us: how we will choose, and what the consequences will be."[23] Still, God "is not interfering in our choices. We are free." As I understand Ruse, classical theism is thus perfectly compatible with Darwinism. Finally, he sees "remarkable parallels between the Darwinian human and the Christian human. On both accounts there is an internal battle. Human beings are selfish individuals . . . [yet] we do have real moral feelings for others," although we may not necessarily act on these feelings.[24]

In the second book, *Finding Darwin's God*, cell biologist Kenneth Miller covers much of the same terrain as Ruse except that Miller deals more with various modern anti-Darwinians such as Michael Behe, Duane Gish,

Henry Morris, and Phillip Johnson.[25] Miller shows that scientific creationists tend to reduce God to the status of a charlatan (fossils were placed in the rocks by God and, despite appearing old, the universe and the earth are actually quite young), or a magician (God periodically created *de novo* complicated structures as well as the major forms of life), or a mechanic (God created irreducibly complex structures such as the cell, thus a modern version of the old design arguments). To Miller, God is none of these (charlatan, magician, mechanic), but as architect, God in subtle ways influences what goes on within nature. As Miller puts it, God is "one whose genius fashioned a fruitful world in which the process of continuing creation is woven into the fabric of matter itself."[26]

Hence, the key question for Miller is whether "what science tells us of the physical world, including evolution, [is] compatible with what we *think* we know about God."[27] Moreover, "the God of the Bible, even the God of Genesis, is a Deity fully consistent with what we know of the scientific reality of the modern world."[28] Throughout his book, Miller claims that "[t]rue knowledge comes only from a combination of faith and reason."[29] The structures of reality as seen in physics and chemistry which run our lives have also produced those lives as well.

Both Ruse and Miller believe that the universe is very old, and that matter as we know it arose from the stuff of stars which eventually became the basis of life. The history of life is marked by evolution and natural selection, human freedom, and quantum indeterminancy. Ruse and Miller disavow biblical literalism concerning Genesis, but they allow for the possibility of miracles and accept some form of classical theism in establishing their arguments. They have written persuasive books showing that science is not necessarily antithetical to religious belief, and that, properly conceived, God can be worshiped as the Creator and Sustainer of the universe.

A process view of life

Can a Christian also be a Darwinian? Both Ruse and Miller say yes, and I concur. Still, the problem remains how one might integrate two seemingly disparate streams: Darwinian natural history and Christian faith. Several possible integrative approaches include 1) interpreting Christianity (and religion generally) strictly within the context of natural history,[30] 2) interpreting natural history

largely within the context of revelation and Christianity,[31] or 3) synthesizing Christian faith and natural history.[32] Each of us in our own way must work at resolving complex and knotty issues concerning God, human freedom, and the overall history of the cosmos. However, once I accepted an evolutionary view of life, eventually I was faced with the problem of God's power and goodness as witnessed in creation with its inexplicable evils. But first, a little background concerning a second major cognitive shift.

In 1972 I was visiting a Provident Book Store in Scottdale, Pennsylvania, when I chanced upon a book of essays edited by Ewert Cousins.[33] Here was an untapped mine of rich intellectual ore, so I bought the book. Later that same year, I also bought a book of essays by Delwin Brown et al.[34] and discovered that one of the writers, Lewis Ford, was then teaching philosophy at Penn State. I quickly made my acquaintance with Lewis, sat in on a number of his classes, and learned the idiom of process thought first-hand. As the outstanding contemporary Whiteheadian scholar, Lewis helped me understand something of Whitehead's dense prose, and showed me that process thought was an invigorating and enlightening means to "see" the world and my Christian faith differently and more coherently.

The important ideas of process thought deal with the generic traits of existence, including the primacy of events over substance, mind, person, matter.[35] Consequently, a metaphysics of process appeals to me because science and history are important, and in particular, evolution is given its proper due. Processes are more important than static substances; thus "process" is the reality. Furthermore, process philosophers emphasize experiencing and relating selves (events) rather than a mere sense perception of objects: i.e., there is feeling of feelings, even for God. Moreover, process thought seeks logical clarity and coherence, and insofar as possible, aims for an adequate and applicable interpretation of all data of experience, touchstones for any broad-based metaphysics.

The historical roots of process theologies are deep and include various streams of Greek, Indian, Chinese, and Hebrew thought.[36] In the United States, Whitehead and the Chicago school of Wieman, Hartshorne, Meland, Loomer and others have been influential in portraying a process view of life.[37] Process philosophy has also influenced a number of contemporary secular writers.[38]

Whitehead once summed up the complete problem of metaphysics in terms of the familiar evening hymn: "Abide with me, fast falls the eventide."[39] How can there be permanence amidst the flux of changing events? Moreover, whatever our vision of God, is God an exception to metaphysical principles governing this cosmic epoch, or is God their chief exemplification? How might we best envision God and God's activity within the cosmos? Whatever our vision and, despite living in the "face of mystery," to use Gordon Kaufman's felicitous phrase, this vision must, I think, address three basic problems:

1. The question of design (Darwin's problem): Is this the best of all possible worlds? What about animal cruelty, an aspect of the living world Darwin could not square with a belief in a good but all-powerful God?[40]

2. The question of evil (Ivan Karamazov's problem): If God is totally sovereign, yet truly good, why are there evils such as wanton human cruelty against children and against innocent animals, and terrible genocides ancient and modern? If God is truly good why didn't God prevent these terrible evils? Does one not then accuse God of criminal neglect, the same as we would a human who merely watched one's child suffer and die?[41]

3. The question of human freedom (the existentialist's problem): Do we really have freedom of choice if God actually knows, in advance of our acts, what we will do? Is classical theism with its view of God's impassivity, power, foreknowledge, and simplicity coherent, if human freedom is real in some basic sense?[42] Or are our so-called freedoms illusory?[43]

In brief, any modern vision of God must deal with evolution (a series of experiments without clearly defined deterministic goals), and the problem of evils within our world. That God influences the creative activities within the world is part of the process theological vision.[44] But God's power is the power of persuasion, of lure, of providing initial aims to all creatures everywhere, and thus, as Lewis Ford claims, God is to be envisioned as the power of the future.[45] All this requires a reconception of God's power as traditionally understood, but it also underscores the reality of God's love and the intended maximization of our love and creative interaction with other creatures.[46] Thus,

in such a reconception we also enrich God's experiences of God's creatures. And in that respect God is everlastingly different because of our lives and our creative endeavors to make the world a little bit better than it was when we began our own creative advance.

Concluding thoughts

In working out a synthesis of one's Christian faith and evolution, as I see it, there are at least three possible outcomes. One can accept an incoherent theology with no questions asked, and simply do business as usual, i.e., accept the paradoxes! Or one can drift toward a coherent Calvinism and fatalism, a view underscoring God's supernatural transcendence and perfection including God's omnipotence and omniscience. God will thus always be in complete control of all events, including holocausts. Or one can work out a reconceived theism which deals with an evolutionary view of life, human freedom, and a vision of God best seen through the life and work of Christ. God's goodness is thus preserved, but the orthodox view of God's coercive power is fundamentally transformed. As this essay has tried to show, that is my view.

Notes

[1] J. Heslop-Harrison, *New Concepts in Flowering-Plant Taxonomy* (Cambridge, MA: Harvard University Press, 1956).

[2] Daniel Kauffman ed., *Doctrines of the Bible* (Scottdale, PA: Mennonite Publishing House, 1952 [reprint of the second edition of 1928]); Chester K. Lehman, *The Inadequacy of Evolution as a World View* (Scottdale, Pa.: Mennonite Publishing House, 1933). Kauffman wrote that "the theory of an evolution from one species to another is both unscriptural and unscientific" (41), and that evolution "is but a way-station on the road to atheism" (42).

[3] Leon Festinger, *A Theory of Cognitive Dissonance* (Stanford, CA: Stanford University Press, 1957); James R. Moore, *The Post-Darwinian Controversies* (London: Cambridge University Press, 1979), 112.

[4] See especially Theodosius Dobzhansky, *Genetics and the Origin of Species,* Third ed. (New York: Columbia University Press, 1951); Ernst Mayr, *Animal Species and Evolution* (Cambridge, MA: The Belknap Press of Harvard University Press, 1963); George Gaylord Simpson, *The Major Features of Evolution* (New York: Columbia University Press, 1953); G. Ledyard Stebbins, *Variation and Evolution in Plants* (New York: Columbia University Press, 1950).

[5] Charles Darwin, *On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life* (London: John Murray, 1859 [1964 facsimile ed.]),

459.

[6] Darwin, *Origin*, 480. Nonetheless, despite some overlap and confusion, even with Darwin himself, Ernst Mayr has noted that Darwin's paradigm consisted of at least five aspects: evolution as such (i.e., various organic changes), evolution by common descent by means of a process of branching, the gradualness of evolution implying more or less slow and orderly changes within living systems, populational speciation (i.e., the multiplication of species), and natural selection see Ernst Mayr, *The Growth of Biological Thought* (Cambridge, MA: Harvard University Press, 1982), 505ff.

[7] Mayr, *Growth*, 400.

[8] Darwin, *Origin*, 81.

[9] *Ibid.*, 62.

[10] Mayr, *Growth*, 57.

[11] *Ibid.*, 510ff.

[12] See Mayr, *Growth*, 510ff.

[13] Ernst Mayr, *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* (Cambridge, MA: Harvard University Press, 1991), 40ff.

[14] See Arthur O. Lovejoy, *The Great Chain of Being: A Study of the History of an Idea* (Cambridge, MA: Harvard University Press, 1936 [Reprint edition, Harper Torchbooks, 1960]) for an account of essentialism and its influence in Western thought.

[15] Quoted in Mayr, *One Long Argument*, 41.

[16] See Moore, *Post-Darwinian Controversies*, for a discussion of three broad patterns in response to Darwin: Christian anti-Darwinians (the *Origin* was insufficiently scientific – it had too many guesses), the Christian Darwinists (evolutionists, yes, but not Darwin's version of natural selection), and the Christian Darwinians (Darwin's views accepted as God's way of creating new species). Moore suggested that each group represented a pattern of "dissonance reduction" with significantly different outcomes.

[17] Moore, *Post-Darwinian Controversies*, 300.

[18] Michael Ruse, *Can a Darwinian Be a Christian? The Relationship Between Science and Religion* (Cambridge, UK: Cambridge University Press, 2001), ix.

[19] *Ibid.*, 12.

[20] *Ibid.*, 28.

[21] *Ibid.*, 218.

[22] *Ibid.*, 92.

[23] *Ibid.*, 216.

[24] *Ibid.*, 218.

[25] Kenneth R. Miller, *Finding Darwin's God: A Scientist's Search for Common Ground Between God and Evolution* (New York: Cliff Street Books/HarperCollins, 1999). For a discussion about various anti-evolutionists, see Robert T. Pennock, *Tower of Babel: The Evidence Against the New Creationism* (Cambridge, MA: MIT Press, 1999).

[26] Miller, *Finding Darwin's God*, 243.

[27] *Ibid.*, 249.

[28] *Ibid.*, 258.

[29] *Ibid.*, 267.

[30] For example, Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Alfred A. Knopf, 1998).

[31] For example, Carl F. H. Henry, *"Theology and Evolution."* In R. L. Mixter ed., *Evolution and Christian Thought Today* (Grand Rapids: Wm. B. Eerdmans, 1959),190-221; Bernard Ramm, *The Christian View of Science and Scripture* (Grand Rapids: Wm. B. Eerdmans, 1955).

[32] For example, Charles Birch, *A Purpose for Everything: Religion in a Postmodern Worldview* (Mystic, Conn.: Twenty-Third Publications, 1990); John B. Cobb, Jr., *God and the World* (Philadelphia: Westminster Press, 1969); Lewis Ford, *Transforming Process Theism* (Albany, N.Y.: State University of New York Press, 2000); David Ray Griffin, *Religion and Scientific Naturalism: Overcoming the Conflicts* (Albany, NY: SUNY Press, 2000); Charles Hartshorne, *Creative Synthesis and Philosophic Method* (La Salle, IL: Open Court Publishing Co., 1970); Bernard E. Meland, *Faith and Culture* (London: George Allen and Unwin Ltd., 1955); Daniel Day Williams, *The Spirit and Forms of Love* (New York: Harper & Row, 1968).

[33] Ewert H. Cousins, ed., *Process Theology: Basic Writings* (New York: Newman Press, 1971).

[34] Delwin Brown, Ralph E. James, and Gene Reeves, eds., *Process Philosophy and Christian Thought* (New York: Bobbs-Merrill, 1971).

[35] For example, see Ford, *Transforming Process Theism*; Charles Hartshorne, "Ideas and Theses of Process Philosophers" In Lewis Ford, ed., *Two Process Philosophers* (AAR Studies in Religion, No. 5, 1973), 100-103; C. Robert Mesle, *Process Theology: An Introduction* (St. Louis: Chalice Press, 1993); Andrew J. Reck, *"Process Philosophy, a Categorial Analysis." Tulane Studies in Philosophy* 24 (1975): 58-91; Nicholas Rescher, *Process Metaphysics: An Introduction to Process Philosophy* (Albany, NY: State University of New York Press, 1996).

[36] John B. Cobb, Jr., *Process Theology as Political Theology* (Philadelphia: Westminster Press, 1982); Charles Hartshorne, *"The Development of Process Philosophy"* In Ewert Cousins, ed., *Process Theology: Basic Writings* (Paramus, Toronto: Newman Press, New York,, 1971), 47-66.

[37] See Cobb, *Process Theology*, and Bernard E. Meland, *"Introduction: The Empirical Tradition in Theology at Chicago,"* In Bernard E. Meland (ed.), *The Future of Empirical Theology* (Chicago: University of Chicago Press, 1969), 1-62, for an extended account of these developments.

[38] See especially Birch, *A Purpose for Everything*; Freeman J. Dyson, *Infinite in All Directions* (New York: Harper & Row, 1998), 119, 295ff.; Anne Fausto-Sterling, *Sexing the Body: Gender Politics and the Construction of Sexuality* (New York: Basic Books, 2000), 268; Alister Hardy, *The Biology of God: A Scientist's Study of Man the Religious Animal* (New York: Taplinger Publishing Company, 1975); possibly Wilson, *Consilience*, 263.

[39] Alfred N. Whitehead, *Process and Reality: An Essay in Cosmology.* Corrected Edition, David Ray Griffin and Donald W. Sherburne, eds. (New York: The Free Press, 1929), 209.

[40] See Adrian Desmond and James R. Moore, *Darwin* (New York: Warner Books, Inc., 1991), 387, 479, and 622ff. for Darwin's views of God's goodness and power.

[41] See David R. Griffin, *God, Power and Evil: A Process Theodicy* (Philadelphia: Westminster Press, 1976), and David R. Griffin, *Evil Revisited: Responses and Reconsiderations* (Albany, NY: State University of New York Press, 1991), for a masterful discussion of this perplexing

problem..

[42] See Thomas J. Gornall, *A Philosophy of God: The Elements of Thomistic Natural Theology* (New York: Sheed and Ward, 1962) for a treatment of classical theism. For a different view of God, see Griffin, *God, Power and Evil* or Hartshorne, *Creative Synthesis*.

[43] See Whitehead, *Process and Reality*, 342, 343, for a brief discussion of four visions of God.

[44] See Mesle, *Process Theology;* Norman Pittenger, *The Lure of Divine Love: Human Experience and Christian Faith in a Process Perspective* (New York: Pilgrim Press, 1979); Williams, *The Spirit and Forms of Love.*

[45] See Ford, *Transforming Process Theism*, for a monumental study of the complexities of process theism, and how we might envision God's interactions with the cosmos.

[46] Williams, *The Spirit and Forms of Love.*