

Religion in an Age of Science

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Part 3: Philosophical and Theological Reflections

Chapter 8: Process Thought

We have traced successive levels of reality in subatomic particles, atoms, molecules, lower forms of life, animals, and human beings. We have asked how these levels were related to each other historically and how they are related to each other in organisms today. At each stage the philosophical and theological implications were explored. At this point our conclusions can be summarized by indicating some general characteristics of nature, which are evident in all its forms. We then consider the distinctive metaphysical categories that process philosophy proposes for the coherent interpretation of these varied phenomena. Finally, process theology is analyzed, preparing the way for the broader theological discussion in the concluding chapter. Process thought provides a systematic framework for bringing together these scientific, philosophical, and theological ideas.

I. Summary: A Multileveled Cosmos

The individual sciences encountered in previous chapters are diverse in the domains that they study and in the concepts and theories that they employ. Nevertheless, there has arisen a common evolutionary and ecological view that cuts across disciplinary lines. The change is so far reaching that it can be considered a paradigm shift. The older paradigm is still prevalent; we are in a period of competing paradigms (in Kuhn's terms) or programs (in Lakatos's). The new outlook stands out more clearly if it is compared with dominant Western assumptions in previous periods. I have elsewhere presented the medieval and Newtonian views of nature in their historical contexts.¹ At the risk of oversimplification, I summarize them here in order to highlight the new features of contemporary thought.

1. Medieval and Newtonian Views

The medieval view of nature combined Greek and biblical ideas, reflecting the continuing influence of Plato and Aristotle as well as scripture (see fig. 4).

1. Nature was seen as a fixed order; there was change within it, and there was directionality in human history, but the basic forms were thought to be immutable.
2. It was teleological (purposeful) in that every creature expressed both the divine purposes and its own built-in goals. Phenomena were explained in terms of purposes.

3. It was substantive; the components were separate mental and material substances. A substance was taken to be independent and externally related, requiring nothing but itself (and God) in order to be.

4. The cosmos was hierarchical, with each lower form serving the higher (God/man/woman/animal/plant). Nature was a single coherent whole, a graded but unified order, with all parts working together for God's purposes according to the divine plan. The institutions of church and society were also held to be fixed and hierarchical, integrated into the total cosmic order. The scheme was anthropocentric in holding that all creatures on earth were created for the benefit of humanity; an absolute distinction was assumed between humanity and other creatures. The earth was the center of the cosmos, surrounded by the celestial spheres and the eternal heavens.

5. The interpretive categories were dualistic, with fundamental contrasts between soul and body, between immaterial spirit and transitory matter, and between the perfect eternal forms and their imperfect embodiment in the material world. The purpose of the material was to serve the spiritual, and the goal of this life was to prepare for the next.

6. To summarize the medieval view, we might think of nature as a Kingdom, an ordered society with a sovereign Lord.

MEDIEVAL NEWTONIAN TWENTIETH-CENTURY

1. Fixed order Change as rearrangement Evolutionary, historical, emergent

2. Teleological Deterministic Law and chance, structure and openness

3. Substantive Atomistic Relational, ecological, interdependent

4. Hierarchical, anthropocentric Reductionistic Systems and wholes, organismic

5. Dualistic (spirit/matter) Dualistic (mind/body) Multi-leveled

6. Kingdom Machine Community

Fig. 4. Changing Views of Nature

The Newtonian view differed at each of these points.

1. It gave greater scope to change, but only to change as rearrangement of the unchanging components, the fundamental particles of nature. The basic forms were still thought to be fixed, with no genuine novelty or historical development in nature.

2. Nature was deterministic rather than teleological. Mechanical causes, not purposes, determined all natural events. Explanation consisted in the specification of such

causes. It was asserted that the future could be predicted if we had complete knowledge of the past.

3. It was atomistic in taking separate particles rather than substances to be the basic reality of nature. The theory of knowledge (epistemology) was that of classical realism: the object can be known as it is in itself apart from the observer. The atomistic outlook was paralleled by an individualistic view of society (seen, for example, in ideas of economic competition and social contract theories of government).

4. The approach to nature was reductionistic and mechanistic rather than hierarchical, since the physical mechanisms and laws at the lowest levels were thought to determine all events (except those in the human mind).

5. It was dualistic, though the division differed from that of the Middle Ages. Newton accepted the Cartesian dualism of mind and body; God and human minds were the great exceptions in a mechanistic world. Human rationality was seen as the mark of our uniqueness, even if the earth was no longer at the center of the cosmic system. But the leaders of the eighteenth-century Enlightenment believed that humanity was also a part of the all-encompassing world machine, whose operation could be explained without reference to God. Such a materialistic world held no place for consciousness or inwardness except as subjective illusions. Moreover, if nature is a machine, it is an object that can appropriately be exploited for human uses.

6. The Newtonian view can be summarized in the image of nature as a machine.

2. The New View of Nature

Twentieth-century science, we have seen, departs significantly from the Newtonian conception of nature (see fig. 4, right column).

1. In place of immutable order, or change as rearrangement, nature is now understood to be evolutionary, dynamic, and emergent. Its basic forms have changed radically and new types of phenomena have appeared at successive levels in matter, life, mind, and culture. Historicity is a basic characteristic of nature, and science itself is historically conditioned.

2. In place of determinism, there is a complex combination of law and chance, in fields as diverse as quantum physics, thermodynamics, cosmology, and biological evolution. Nature is characterized by both structure and openness. The future cannot be predicted in detail from the past, either in principle or in practice.

3. Nature is understood to be relational, ecological, and interdependent. Reality is constituted by events and relationships rather than by separate substances or separate particles. In epistemology, classical realism now appears untenable; some interpreters advocate instrumentalism, but I have defended critical realism.

4. Reduction continues to be fruitful in the analysis of the separate components of systems, but attention is also given to systems and wholes themselves. Distinctive

holistic concepts are used to explain the higher-level activities of systems, from organisms to ecosystems.

5. There is a hierarchy of levels within every organism (but not an extreme hierarchy of value among beings, as in the medieval view, which could be used to justify the exploitation of one group of beings by another). Mind/body dualism finds little support in science today. The contemporary scientific outlook is less anthropocentric; human beings have capacities not found elsewhere in nature, but they are products of evolution and parts of an interdependent natural order. Other creatures are valuable in themselves. Humanity is an integral part of nature. The human being is a psychosomatic unity -- a biological organism but also a responsible self.

6. Here we might propose as a summary the image of nature as a community -- a historical community of interdependent beings. I will suggest that process thought is particularly compatible with this view of nature.

II. Process Philosophy

Process philosophy has developed a systematic metaphysics that is consistent with the evolutionary, many-leveled view of nature presented in previous chapters and summarized above. We look first at Whitehead's basic metaphysical categories. The ways in which he applies these categories to diverse entities in the world, from particles to persons, are then examined. Finally, we will try to evaluate the adequacy of process philosophy from the viewpoint of science, postponing the theological issues until the subsequent section.

1. An Ecological Metaphysics

Metaphysics is reflection on the most general characteristics of reality. Whitehead tried to formulate an inclusive conceptual scheme that would be sufficiently general to be applicable to all entities in the world. His goal was a coherent set of concepts in terms of which every element of experience could be systematically interpreted and organized. He wanted to construct a system of ideas which bring aesthetic, moral and religious interests into relation with those concepts of the world which have their origin in natural science."² The formulation of his basic categories was an imaginative generalization from human experience, but it was also indebted to twentieth-century science.³

1. The Primacy of Time. The starting point of process philosophy is becoming rather than being. To Whitehead, transition and activity are more fundamental than permanence and substance. He pictures the basic components of reality as interrelated dynamic events. He rejects the atomist's view of reality as unchanging particles that are merely externally rearranged. Whitehead was familiar with the new role of time in science, especially the replacement of material particles by vibratory patterns in quantum physics, and the unpredictable and historical character of evolution. The future is to some extent open and indeterminate; reality exhibits chance, creativity, and emergence. Genuine alternative possibilities exist, that is, potentialities that may or may not be actualized.

2. *The Interconnection of Events.* The world is a network of interactions. Events are interdependent; every event has an essential reference to other times and places. Every entity is initially constituted by its relationships. Nothing exists except by participation. Each occurrence in turn exerts an influence, which enters into the becoming of other occurrences. Whitehead points again to the new physics. Formerly we imagined independent, localized, self-contained particles bumping into each other externally and passively without themselves undergoing alteration. Today we talk about interpenetrating fields that extend throughout space and change continually. The biological world is a web of mutual dependencies. Whitehead extends these ideas into what may be called "an ecological view of reality."⁴

3. *Reality As Organic Process.* The word *process* implies temporal change and interconnected activity. Whitehead also calls his metaphysics "the philosophy of organism." The basic analogy for interpreting the world is not a machine but an organism, which is a highly integrated and dynamic pattern of interdependent events. The parts contribute to and are also modified by the unified activity of the whole. Each level of organization -- atom, molecule, cell, organ, organism, community -- receives from and in turn influences the patterns of activity at other levels. Every event occurs in a context, which affects it. This may also be called a "social view of reality," for in a society there is unity and interaction without loss of the individuality of the members. The world is a community of events.

4. *The Self-Creation of Every Entity.* Although Whitehead emphasizes the interdependence of events, he does not end with a monism in which the parts are swallowed up in the whole. An event is not just the intersection of lines of interaction; it is an entity in its own right with its own individuality. He maintains a genuine pluralism in which every entity is a unique synthesis of the influences upon it, a new unity formed from an initial diversity. Every entity takes account of other events and reacts and responds to them. During the moment when it is on its own, it is free to appropriate and integrate its relationships in its own way. Each entity is a center of spontaneity and self-creation, contributing distinctively to the world. Whitehead wants us to look at the world from the viewpoint of the entity itself, imagining it as an experiencing subject.

Reality thus consists of an interacting network of individual *moments of experience*. These integrated moments he calls "actual occasions" or "actual entities." We can call them "entities" (emphasizing their integration), or "events" (emphasizing their temporality), but we must always keep in mind both their wider relationships and their interiority as moments of experience.

Whitehead describes the *self-creation* of each new entity as an individual instant of experience under the guidance of its "subjective aim." Even the influence of the past on the present, which can be viewed externally as efficient causality, can also be considered the action of the present entity as a momentary subject conforming to the objectified past and reproducing or reenacting its pattern. Each such subject has at least a modicum of creative freedom in shaping the particular unity of experience into which its past inheritance is woven and integrated. During its brief existence it is autonomous, closed to any additional data, and on its own in making something of itself -- even if its activity essentially repeats that of its predecessors in a routine and "mechanical" fashion.

Efficient causality characterizes the transition between entities, while final causality dominates the momentary internal growth of the entity itself as it progressively actualizes its own synthesis, embodying a particular pattern of forms. The prototype of this process would be the way in which memory, feeling, bodily data, and sensory data are integrated actively, selectively, and with anticipation, in *a moment of human experience*. But a similar synthesis, in much simpler forms, can be postulated for the experience of any unified entity, though not for inanimate objects such as stones or aggregates such as plants, which lack a center of unified experience.

Summarizing Whitehead's detailed discussion, we may say that *causality* is a complex process in which many strands are interwoven. (a) Every new entity is in part the product of *efficient causation*, which refers to the influence of previous entities on it. Objective "data" from the past are given to each present entity, to which it must conform, but it can do so in alternative ways. (b) There is thus an element of *self-causation* or self-creation, for an entity unifies its "data" in its own manner from its unique perspective on the universe. Every entity contributes something of its own in the way it appropriates its past, relates itself to various possibilities, and produces a novel synthesis that is not strictly deducible from the antecedents. (c) Thus a creative selection occurs from among alternative potentialities in terms of goals and aims, which is *final causation*. Causality thus includes many influences, none of which is coercive or strictly deterministic. The outcome is not predictable. In brief, every new occurrence can be looked on as a present response (self-cause) to past entities (efficient cause) in terms of potentialities grasped (final cause).

Whitehead ascribes the ordering of these potentialities to God. God as *the primordial ground of order* structures 'potential forms of relationship before they are actualized. In this function God seems to be an abstract and impersonal principle. But Whitehead's God also has specific purposes for the realization of maximum value, selecting particular possibilities for particular entities. God is *the ground of novelty* as well as of order, presenting new possibilities among which alternatives are left open. God elicits the self-creation of individual entities and thereby allows for novelty as well as structure. By valuing particular potentialities to which creatures can respond, God influences the world without determining it. God acts by being experienced by the world, affecting the development of successive moments. But God never determines the outcome of events or violates the self-creation of each being. Every entity is the joint product of past causes, divine purposes, and the new entity's own activity.

2. Diverse Levels of Experience

Whitehead wants his basic categories to apply to all entities, but he proposes radical differences in the way these categories are exemplified in entities at different levels. There are great differences in degree and in the relative importance of the categories, which amount to differences in kind, and yet there is a continuity in evolutionary history and in ontological structure. There are no absolute lines of the sort which dualists defend. In chapter 6 we talked about levels of analysis and levels of organization and activity. A Whiteheadian scheme would also have to consider levels of experience.

An *electron*, as understood in quantum physics, has an episodic, transitory, and unpredictable character. On the other hand, *an atom* is more stable and unified, acting as a whole vibratory pattern whose component electrons cannot be distinguished. The atom essentially repeats the same pattern, with negligible opportunity for novelty. It is dominated by efficient causation, in which the influence of the past is passed on with no significant modification. *Inanimate objects* such as stones have no higher level of integration, and the indeterminacy of the atoms simply averages out statistically. A stone has no unified activity beyond the physical cohesion of the parts.⁵

A *cell*, by contrast, has considerable integration at a new level. It can act as a unit with at least a rudimentary kind of responsiveness. There is an opportunity for novelty, though it is minimal. If the cell is in a *plant*, little overall organization or integration is present. There is some coordination among plant cells, but plants have no higher center of experience. But *invertebrates* have an elementary sentience as centers of perception and action. The development of a nervous system made possible a higher level of unification of experience, the evolutionary function of which was to synthesize sensory data and coordinate appropriate motor responses. We discussed earlier the new forms of memory, learning, anticipation, and purposiveness in *vertebrates*. Consciousness, like sentience, was selected and intensified because it guided behavior that contributed to survival.

In *human beings*, the self is the highest level in which all of the lower levels are integrated. The human self may hold conscious aims and consider distant goals. Final causation and novelty in individual and cultural life predominate over genetic and biological determinants, though the self is always dependent on lower-level structures. Symbolic language, rational deliberation, creative imagination, and social interaction go beyond anything previously possible. Humans enjoy a far greater intensity and richness of experience than occurred previously.

In a complex organism, *downward causation* from higher to lower levels can be present because, according to process philosophy, every entity is what it is by virtue of its relationships. Reality consists of interrelated events rather than unchanging particles. The atoms in a cell behave differently from the atoms in a stone. The cells in a brain behave differently from the cells in a plant. The sixteen cells in an animal embryo soon after conception will normally produce different parts of the animal; yet one of those cells alone, if separated from the others, will produce a whole animal. Every entity is influenced by its participation in a larger whole. Emergence arises in the modification of lower-level constituents in a new context. But causal interaction between levels is not total determination; there is some self-determination by entities at all levels.

The process view of *the mind/body relation* is a version of what I called a "multilevel theory." It can also be termed "nondualistic interactionism."⁶ Process thinkers agree with dualists that interaction takes place between the mind and the cells of the brain, but they reject the dualists' claim that this is an interaction between two totally dissimilar entities. Between the mind and a brain cell there are enormous differences in characteristics, but not the absolute dissimilarity that makes interaction so difficult to imagine in dualism. Moreover, the mind/body relation is only one example of the relation between levels, not a problem unique to human and perhaps animal minds. The process view has much in common with two-language theories or a parallelism

that takes mental and neural phenomena to be two aspects of the same events. But unlike these views, it can refer to interaction, downward causality, and the constraints that higher-level events exert on events at lower levels. At higher levels there are new events and entities and not just new relationships among lower-level events and entities.

Looking at diverse types of individuals, Whitehead attributes *subjective experience* in progressively more attenuated forms to persons, animals, lower organisms, and cells (and even, in principle, to atoms, though at that level it is effectively negligible), but not to stones or plants or other aggregates. David Griffin proposes that this should be called *pan-experientialism* rather than *panpsychism*, since for Whitehead mind and consciousness are found only at higher levels.⁷ Consciousness occurs only when there is a central nervous system. (Griffin suggests that Whitehead's technical concepts of a "physical pole" and a "mental pole" in all entities might better have been called the "receptive" and "self-creative" phases of experience, since the latter is present even when there is no mind.⁸) Every entity is a subject for itself and becomes an object for others. But only in higher life forms is the data from brain cells integrated in the high-level stream of experience we call mind. Consciousness and mind are thus radically new emergents in cosmic history.

Whitehead thus does not attribute mind or mentality (as ordinarily understood) to lower-level entities, but he does attribute at least *rudimentary forms of experience* to unified entities at all levels, which runs against the assumptions of many scientists. What are the reasons for such attribution?

1. The Generality of Metaphysical Categories. In Whitehead's view, a basic metaphysical category must be universally applicable to all entities. The diversity among the characteristics of entities must be accounted for by the diversity of the modes in which these basic categories are exemplified and by differences in their relative importance. The subjective aspects of atoms are vanishingly small and may for all practical purposes be considered absent, but they are postulated for the sake of metaphysical consistency and inclusiveness. Mechanical interactions can be viewed as very low-grade organismic events (since organisms always have mechanical features), whereas no extrapolation of mechanical concepts can yield the concepts needed to describe subjective experience. Starting with mechanical concepts, one either ends with materialism or one has to introduce a dualistic discontinuity.

2. Evolutionary and Ontological Continuity. There are no sharp lines between an amoeba and a human being, either in evolutionary history or among forms of life today. The universe is continuous and interrelated. Process thought is opposed to all forms of dualism: living and nonliving, human and non-human, mind and matter. Human experience is part of the order of nature. Mental events are a product of the evolutionary process and hence an important clue to the nature of reality. A single fertilized cell gradually develops into a human being with the capacity for thought. We cannot get mind from matter, either in evolutionary history or in embryological development, unless there are some intermediate stages or levels in between, and unless mind and matter share at least some characteristics in common.

3. Immediate Access to Human Experience. I know myself as an experiencing subject. Human experience, as an extreme case of an event in nature, is taken to exhibit the

generic features of all events. We should then consider an organism as a center of experience, even though that interiority is not directly accessible to us. In order to give a unified account of the world, Whitehead employs categories (such as "self-creation" and "subjective aim") that in very attenuated forms can be said to characterize lower-level events, but that at the same time have at least some analogy to our awareness as experiencing subjects. Such a procedure might be defended on the ground that if we want to use a single set of categories, we should treat lower levels as simpler cases of complex experience, rather than trying to interpret our experience by concepts derived from the inanimate world or resorting to some form of dualism.

Whitehead's categories are readily applicable to organisms with *a middle range of complexity*. Even for simpler organisms it is reasonable to speak of elementary forms of perception, memory, sentience, anticipation, purpose, and novelty. The distinctiveness of higher forms is maintained by treating consciousness, mind, and self-consciousness as irreducible *emergents*, which are not present in even rudimentary form at lower levels. But Whitehead's analysis seems somewhat strained at the two ends of the spectrum.

At the upper end, his categories seem to me inadequate to express *the continuing identity of the human self* Whitehead holds that every actual entity is a discrete moment of experience, which in its self-creative phase is on its own, cut off from the world. Here Whitehead was influenced by quantum physics, in which interactions are discrete and transitory. He was also influenced by relativity, in which a finite time interval is required for the transmission of any effect from one point to another. In process thought, endurance is represented by the repetition of a pattern, not by an enduring substance. For Whitehead, the self comes into being only at the end of the brief moment of unification, by which time it is already perishing. I would question whether human experience has such a fragmentary and episodic character. Perhaps reality at higher levels is more like a continually flowing process, from which temporal moments are abstractions. This might allow for a continuing self-identity without reverting to static or substantive or dualistic categories.⁹

In dealing with *the inanimate world*, the Whiteheadian analysis does not present any direct inconsistency with contemporary science. Creativity is said to be either totally absent (in the case of stones and inanimate objects, which are aggregates without integration or unified experience) or so attenuated that it would escape detection (in the case of atoms). A vanishingly small novelty and self-determination in atoms is postulated only for the sake of metaphysical consistency and continuity. But does process philosophy allow adequately for the radical diversity among levels of activity in the world and the emergence of genuine novelty at all stages of evolutionary history? Could greater emphasis be given to emergence and the contrasts between events at various levels, while preserving the basic postulate of metaphysical continuity? I have stressed the hierarchical character of a multiplicity of levels in organisms and persons, whereas many process writers refer to only two levels at a time (the mind and the cells of the brain, for example, without reference to intermediate levels of organization). Other authors have said that intermediate levels of organization in an organism can be included in the framework of process philosophy.¹⁰ I believe that the Whiteheadian system could be modified in such directions without endangering its coherence.

3. Science and Metaphysics

There is in general a two-way relationship between science and metaphysics. In the first direction, science is one of the fields of inquiry from which metaphysics must draw. A metaphysical system must offer a plausible interpretation of the natural sciences, along with the data of other academic disciplines (psychology, history, religion, and so forth) and diverse types of human experience. In the reverse direction, metaphysical assumptions will, over a period of time, affect the kinds of phenomena that scientists study and the kinds of concepts they employ. Metaphysics will influence the broad conceptual frameworks that we earlier referred to as scientific paradigms.

There are many features of *contemporary science* with which process metaphysics is very congenial. Temporality, indeterminacy, and holism are characteristics of the microworld as understood by contemporary physics, a world that can be known only through observational interaction. Process thought rejects determinism, allows for alternative potentialities, and accepts the presence of chance as well as lawful relationships among events. In biology, especially in molecular biology, reductionistic and mechanistic approaches remain fruitful, but I have argued that there are irreducible properties of higher-level wholes, as process philosophy asserts. We have seen that information is contextual in character, whether it is transmitted by genes, by memory in brains, by symbolic language, or by cultural artifacts and institutions. Information is an improbable configuration, which is a message only when it is read off in relation to a wider context.

Process thought shares with *evolutionary biology* the assumption of historical continuity, including the continuity of non-human and human life. The process understanding of the psychosomatic unity of the human being and the social character of selfhood is consonant with the evidence from many fields of science. Process thought shares with ecology the themes of relationality and mutual interdependence. To both, nature is a community and not a machine.

Process categories can make an important contribution to *environmental ethics*. Human and non-human life are not separated by any absolute line. If other creatures are centers of experience, they too are of intrinsic value and not just of instrumental value to humanity. Yet there is a great difference between the richness of experience of a person and that of a mosquito, so they are not of equal intrinsic value. Another process theme with environmental implications is the idea of interdependence. Moreover, process thought leads to an emphasis on divine immanence in nature rather than the traditional emphasis on transcendence; this also encourages respect for nature. These issues in environmental ethics are taken up in the subsequent volume.

Strong parallels exist between *systems theory* and process philosophy. Whitehead's thought may be compared with Ludwig von Bertalanffy's general systems theory and Ervin Laszlo's systems philosophy.¹¹ A common theme is hierarchical ordering of levels of organization. The context and the larger whole constrain the parts. Wholes possess a degree of autonomy, especially at higher levels; freedom increases with complexity and organization. In systems theory, information is context-dependent and expresses a limitation of possibilities. James Huchingson suggests that a Whiteheadian "actual entity" is like an information processing system selecting from

among possibilities. Moreover, he proposes, we could think of God and the world as a coupled system with rich feedback loops. It is an open system, not a predetermined order. Cybernetics leads to flexible, provisional action and continual relevant adjustment, not the effecting of a detailed preset plan.¹² These all seem to me to be legitimate parallels, providing that we acknowledge the importance of feelings and purposes as well as conceptual information in process thought. Systems theory has had only limited success in representing the personal characteristics of human life.

Several questions might be raised about process thought in relation to science. Is the *subjective experience* of an entity, which is postulated in process metaphysics, accessible to scientific investigation? Does not science have to start from objective data, excluding anything subjective in the object of inquiry? Whitehead sometimes stresses the selectivity of science and the abstractive character of its concepts. It is "the fallacy of misplaced concreteness" to take scientific concepts as an exhaustive description of the real world. "Science can find no individual enjoyment in nature; science can find no aim in nature; science can find no creativity in nature; it finds mere rules of succession. These negations are true of natural science; they are inherent in its methodology."¹³ On this reading, we must accept the limitations of science and supplement it by including it in a wider metaphysical synthesis, which integrates diverse kinds of experience. This would also limit the contribution that process metaphysics might make to science.

Griffin has pointed out other passages in which Whitehead says that more adequate metaphysical categories are *in the interest of science itself* and that scientific concepts are reformable.¹⁴ Griffin suggests that if every entity is for itself a moment of experience, one would expect this to be reflected in observable behavior. We have noted the inadequacy of psychological behaviorism, which tries to avoid all reference to mental events. Ethnologists use explanatory concepts referring to the mental life of animals. In an earlier chapter we noted that a group of organisms may first adopt a novel and adaptive pattern of behavior; at a later time, mutations that facilitate this behavior may be selected. In such a case, the initiative and creativity of the organisms, rather than a random mutation, was the primary factor in initiating an evolutionary change. As we consider lower levels, how can we draw a sharp line at any point? Conversely, scientists adopting a process metaphysics might sometimes redirect research to problems formerly neglected and might propose new concepts and hypotheses to be tested against observations.

Scientists have been understandably wary of *concepts of purpose*. The idea of divine purpose in nature, especially the assumption of a precise design or plan, has sometimes cut short the search for natural causes. Reference to the purposes held by natural agents has at times hindered the progress of science. Aristotle, for example, said that falling bodies seek their natural resting place and that an oak seed seeks to become an oak. But process thinkers avoid these pitfalls. They hold that the behavior of inanimate objects can be explained entirely by efficient causation. They do argue that concepts of anticipation and purposeful behavior can in attenuated form be extended far down the scale of life, but this does not exclude the presence of efficient causes. The resistance of some biologists to any reference to purposes may be partly a legacy of atomistic and materialistic assumptions of the past. There are, to be sure, dangers in the anthropomorphic extension of human qualities to the non-human sphere, but there are also dangers in "mechanomorphic" attempts to explain

everything with the concepts of physics and chemistry. On balance, then, process philosophy seems to be a promising attempt to provide a coherent system of concepts for interpreting a wide variety of phenomena in the world.

III. Process Theology

In looking at the theological significance of process thought we must first consider the writings of its most influential exponents, Whitehead and Hartshorne. We will then consider some Christian theologians who have explicitly used process categories. Last, we will examine the treatment of the problem of evil and suffering by process theologians.

1. The Role of God

In Whitehead's metaphysics, God has a threefold role in the unfolding of every event.¹⁵ First, God is *the primordial ground of order*. God envisages the potential forms of relationships that are not chaotic but orderly, even before they are actualized. This aspect of God is an answer to the question Why does the world have the particular type of order it has rather than some other type? This function of God seems to be automatic, passive, and unchanging; God would only be an abstract metaphysical principle, the impersonal structure of the world, "the inevitable ordering of things conceptually realized in the nature of God." But Whitehead's God selects possibilities for the "initial subjective aims" of particular entities. Such relevance presupposes God's knowledge of and responsiveness to the world.

Second, God is *the ground of novelty*. Here the question is, Why do new kinds of things come into existence (in evolutionary history, for instance) rather than merely repeat the patterns of their predecessors? "Apart from God," Whitehead writes, "there would be nothing new in the world, and no order in the world."¹⁶ God presents novel possibilities, but there are many of these, so alternatives are left open. God elicits the self-creation of individual entities and thus allows for freedom as well as structure and directionality. By valuing particular potentialities to which creatures respond, God influences the world without determining it. New possibilities are open even for inanimate atoms, as their evolution into animate beings has disclosed. On the level of humanity, God's influence is the lure of ideals to be actualized, the persuasive vision of the good. God's goal is the harmonious achievement of value.

A third characteristic is that God is *influenced by events in the world* (Whitehead calls this "the consequent nature of God"). The central categories of process philosophy (temporality, interaction, mutual relatedness) apply also to God. God is temporal in the sense that the divine experience changes in receiving from the world and contributing to it. God's purposes and character are eternal, but God's knowledge of events changes as those events occur. God influences the creatures by being part of the data to which they respond. God is supremely sensitive to the world, supplementing its accomplishments by seeing them in relation to the infinite resources of potential forms and reflecting back to the world a specific and relevant influence. Whitehead occasionally uses personal images as well as more abstract principles to portray this action:

But the principle of universal relativity is not to be stopped at the consequent nature of God. This nature itself passes into the temporal world according to its gradation of relevance to the various concrescent occasions. . . . For the perfected actuality passes back into the temporal world, and qualifies this world so that each temporal actuality includes it as an immediate fact of relevant experience. For the kingdom of heaven is with us today. The action of the fourth phase is the love of God for the world. It is the particular providence for particular occasions. What is done in the world is transformed into a reality in heaven, and the reality in heaven passes back into the world. By reason of this reciprocal relation, the love in the world passes into the love in heaven, and floods back again into the world. In this sense, God is the great companion -- the fellow-sufferer who understands.¹⁷

Charles Hartshorne was strongly influenced by Whitehead, but he uses a more familiar terminology and occasionally differs in emphasis. He maintains that classical Christianity attributed a one-sided perfection to God in exalting permanence over change, being over becoming, eternity over temporality, necessity over contingency, self-sufficiency over relatedness. He advocates *dipolar theism*, the view that God is both eternal and temporal (but in differing ways, so there is no contradiction in asserting both). God is eternal in character and purpose but changing in the content of experience. God's essential nature is not dependent on any particular world. God will always exist and be perfect in love, goodness, and wisdom. God is omniscient in knowing all reality -- though not the future, which is undecided and hence inherently unknowable. Even aspects of the divine that change have a perfection of their own. God is not merely influenced by the world; God is "infinitely sensitive" and "ideally responsive." Divine love is supremely sympathetic participation in the world process.¹⁸

As compared to traditional theologians, Hartshorne does indeed qualify *God's sovereignty over nature*. God participates in the self-creation of other beings, but they have effective power too. Yet God is adequate to all needs, including the need of the creatures to make their own decisions. God does all that it would be good for God to do, but not all that it would be good for us in our freedom to do. God has power sufficient to influence the universe in the best way consistent with the divine purposes. The risks of evil might have been reduced by eliminating freedom, but positive opportunities for creative value would have been lost. God accepts the risks that are inescapably linked to the opportunities. Hartshorne holds that the world is in God (*panentheism*), a view that neither identifies God with the world (*pantheism*) nor separates God from the world (*theism*). "God includes the world but is more than the world."¹⁹ In the next chapter we will look at Hartshorne's analogy of the world as God's body.

2. God's Action in the World

Between God and the world there is interdependence and reciprocity, according to Whitehead, but the relationship is not symmetrical. God is affected by the world, but God alone is everlasting and does not perish. "Though not self-sufficient or impassible, God is not totally within the temporal order, and God's basic purposes are unchanging. Divine immanence is thus more strongly emphasized than transcendence, yet God's freedom and relative independence are defended, along with priority in

status. For nothing comes into being apart from God. Within the cosmic community, God has a unique and direct relationship to each member. God is omnipresent, a universal influence, one who experiences all actualities and preserves their achievements eternally.²⁰

Whitehead portrays God's activity as more akin to *persuasion* than to compulsion. God does not determine the outcome of events or violate the self-creation of all beings. God is never the sole cause of an event but is one influence among others. Divine love, like love between human beings, is a significant influence which is causally effective, making a difference in the activity of other beings but not sacrificing their freedom. The power of love consists in its ability to evoke a response while yet respecting the integrity of the other. Thus causality within interpersonal relationships, rather than mechanical force, seems to provide the basic analogy for God's relation to the world. Whitehead strongly rejects the coercive element he finds in traditional theism. The rejection appears to be partly based on moral grounds (coercion is on a lower ethical plane than persuasion) and partly on metaphysical grounds (divine determination is incompatible with creaturely freedom).

For Whitehead, God's action is *the evocation of response*. Since human capacity for response far exceeds that of other beings, it is in human life that God's influence can be most effective. God's ability to engender creative change in lower beings seems to be limited. God is always one factor among others, and particularly with respect to low-level beings, in which experience is rudimentary and creativity is minimal, this power seems to be negligible. Insofar as natural agents exercise causal efficacy, God's ability to compel change is thereby restricted. But we must remember that God is not absent from events that monotonously repeat their past, for God is the ground of order as well as novelty. At low levels, God's novel action may be beyond detection, though signs of it may be present in the long sweep of cosmic history and emergent evolution. Even in contributing to novelty, God always acts along with other causes. The Whiteheadian analysis allows for the actions of a multiplicity of agents.

Whitehead modifies the traditional view of *God as creator*, but he does not totally repudiate it. He disavows creation out of nothing in an act of absolute origination but offers a version of continuous creation. No entity comes into being apart from God, and no materials are given to God from some other source. "He is not *before* all creation but *with* all creation."²¹ Whitehead suggests that there may have been many cosmic epochs with differing forms of order. God always acts along with other causes, and yet everything depends on God for its existence. God provides all initial aims, and "in this sense he can be termed the creator of each temporal actual entity."²² God evokes new subjects into being and preserves their achievements and is thus both the source and conserver of all finite values. While creativity is universally present in the self-creation of every entity, God is the primary instance of creativity and is active in all its instances.

In Whitehead's view, God has *priority of status* over all else, though not absolute temporal priority. God was never without a universe, and in every moment there is given to God a world that has to some extent determined itself. But this does not represent an ultimate dualism; this is not Plato's God struggling to impose form on recalcitrant matter. Whitehead attributes to God the all-decisive role in the creation of

each new occasion, namely provision of its initial aim. Every occasion is dependent on God for its existence as well as for the order of possibilities it can actualize.

Does the role of God in process thought conflict with *the assumptions of science*? In the past, God has been invoked to explain a variety of phenomena for which no scientific explanation was available. "The God of the gaps" has, of course, been a losing proposition, as one gap after another was filled by new scientific advances. In the Whiteheadian view, however, God does not intervene at discrete points but is present in all events in a role different from that of natural causes. God is the source of order and novelty, an answer to a different sort of question than the questions that science answers. We can speak of God acting, but God always acts with and through other entities rather than by acting alone as a substitute for their actions.

Whereas some theologians identify God's role with order, and others with violations of order, for Whitehead God is involved in *both order and novelty*. Order arises from God's structuring of possibilities and from the entity's conformation to its past. Novelty arises from God's offering of alternative possibilities and from the entity's self-creation. This means that no event can be attributed solely to God. God's role in the world is not readily detectable. The process theologian Daniel Williams writes,

God's causality is exercised in, through, and with all other causes operating. There is no demand here to factor out what God is adding to the stream of events apart from those events. But there is the assignment of specific functions to God's causality. . . . Every "act of God" is presented to us in, through, and with the complex of human nature and life in which we are. When we say God elected Israel, or that he sends his rain on the just and the unjust, we must not ignore the complex analysis of assignable causes and factors in Israel's history or in the cosmic record of rainfall. We have no way of extricating the acts of God from their involvement in the activities of the world. To assign any particular historical event to God's specific action in the world is to risk ultimate judgment on our assertions. Faith leads us to take the risk.²³

At *lower levels*, especially in the inanimate world, God's action is almost entirely confined to the maintenance of the order whose regularities are precisely those studied by the scientist. God's purpose for low-level beings is that they be orderly; God's gift is the structuredness of the possibilities they exemplify. At lower levels, where law predominates over creativity and efficient causes are more important than final causes, God's novel action is beyond detection. Moreover, even when there is novelty at higher levels, God always acts along with other causes, qualifying but not abrogating their operation. This seems to limit God's power severely, as compared to traditional ideas of omnipotence. But it is consistent with our understanding of evolution as a long, slow, gradual process over billions of years. Each stage is built on previous stages and supports the next stage. Complex forms presuppose simple ones. Life had to await appropriate conditions. Cosmic history resembles a long trial-and-error experiment more than a detailed predetermined plan. Process thought holds that God works patiently, gently, and unobtrusively.

If God does not act unilaterally but only through the responses of other beings, we would expect the divine influence to be more effective at *higher levels* where

creativity and purposeful goals are more prominent. It is not surprising that the rate of evolutionary change accelerated in early human and then cultural history. In human life, in religious experience, and in the rise of the major religious traditions -- especially in the biblical tradition and the person of Christ -- God's influence and human response could occur in unprecedented ways. The Whiteheadian understanding of God, in short, is consistent with what we know about biological and human history. But is it consistent with the biblical tradition?

3. Christian Process Theology

Whitehead and Hartshorne were primarily philosophers, though both were influenced by Christian ideas. A number of theologians have used process categories in reformulating specifically Christian beliefs in the contemporary world. Cobb and Griffin express the dipolar character of process theism by speaking of God as *creative-responsive love*. God as creative is the primordial source of order and novelty, which can be identified with the biblical concept of *logos* as rational principle and divine Word. God as responsive is temporal and affected by the world. These qualities are particularly evident in the message and life of Christ and in the idea of the Holy Spirit as God's presence in nature and in the community.²⁴

The process view does allow for *particular divine initiatives*. If God supplies distinctive initial aims to each new entity, no event is wholly an act of God, but every event is an act of God to some extent. There is thus a structural similarity between God's actions in non-human and human life, but there are also important differences. God's basic *modus operandi* is the same throughout, but the consequences will vary widely between levels of being.

In *the human sphere*, God builds on the past, including existing cultural traditions, and depends on the free responses of individuals and communities. God loves all equally, yet that love may be revealed more decisively in one tradition or person than another. God calls all, but people respond in diverse ways. Some experiences of God's grace may be felt with exceptional power, and an individual may have an unusual commitment to the fulfillment of God's will. In process theology we can discuss God's action in nature, in religious experience, and in Christ, using a common set of concepts while recognizing the distinctive features of each. Continuing creation and redemption are brought within a single framework.

Cobb and Griffin can thus speak of *Christ as God's supreme act*. In Israel there was already a tradition of divine initiative and human response, which could be carried further. Christ's message and life were rooted in this past and in God's new aims for him, and he powerfully expressed God's purposes and love. Christ can be taken as incarnation of the *logos*, the universal source of order, novelty, and creative transformation wherever they occur. In Christ we see a specific and crucial instance of a more general divine action. But Christ's free decision and faithful response were also needed to actualize God's aims for him, so the full humanity of Christ was not compromised. Here the character of God as persuasive and vulnerable love is evident. Christ was subject to the same conditions and limitations as were other persons but was unique in the content of God's aims for him and in his actualization of those aims. This was not a discontinuous and coercive intrusion from outside, but the decisive instance of God's creative presence throughout the world; he is thus our clue

to that wider presence. If we see Christ's life and his vision of God as revealing the nature of reality, we can be open to the power of creative transformation in our own lives.²⁵

Here the importance of *revelation in history* is evident. Lewis Ford points out that in the process view God's action in the world is contingent on what happens in the world. If God has interacted historically, we can learn about this only from the particularities of history and not from the general structures of reality, which metaphysics studies.²⁶ Because historical events are unique and unpredictable, they cannot be deduced from universal principles, as we saw in chapter 3. But the particular work of God as redeemer must be consistent with the broader work of God as creator. As Paul Sponheim puts it, our metaphysics must "provide structural possibilities for the illumination of God's particular activity."²⁷

I submit that it is in the biblical idea of *the Spirit* that we find the closest parallels to the process understanding of God's presence in the world and in Christ. We have seen that in the Bible the Spirit was associated with the initial creation and with the continuing creation of the creatures: "When thou sendest forth thy Spirit, they are created." The Spirit inspires the prophets (for example, Isa. 42:1) and is present in worship and prayer: "Take not thy holy Spirit from me" (Ps. 51:11). Christ received the Spirit at his baptism (Mark 1:10), and the early community received it at Pentecost (Acts 2). In the previous chapter, I cited Lampe's argument for understanding Christ as inspired by the Spirit. This would allow us to acknowledge God's particular activity in Christ within the context of God's activity in nature, in religious experience, and in other religious traditions. In each case grace operates through and within natural structures rather than by replacing or superseding them.

Let us look at some implications of process theology for *religious life*. Marjorie Suchocki has used process categories to understand and express the Christian experience of sin and redemption. After setting forth a social and relational view of reality, she defines sin as the violation of relationships. It is an absolutizing of the self and a denial of interdependence. Sin is experienced, not only in individual alienation from God and other people, but also in social structures of injustice and exploitation. Suchocki holds that redemption is release from the prison of the detached self. God's love is also a judgment on the structures that isolate us from each other. In Christ's life, God's love was embodied and expressed. In him we see at work a transformative power stronger than death, a power that can bring reconciliation into our lives.²⁸

In the process framework, the goal of *prayer* is openness and responsiveness to the divine call. It involves conforming one's decisions to the possibilities offered by God, or, in traditional terms, "doing the will of God." God's will here is the achievement of value and harmony among all beings, the realization of inclusive love. Such love may sometimes be identified with traditional teachings and church authorities, but it may sometimes require us to question these teachings and authorities. The Spirit leads us in unexpected ways in healing our brokenness as individuals and as a society. Prayer can also be an occasion of wonder and gratitude for life as a gift and a time of self-examination and confession of our failure to respond to the call of inclusive love.²⁹

The Jewish existentialist Martin Buber urges us to look on our lives as *a dialogue with God* in which we respond with our actions. In every event we are addressed by

God. This does not mean that everything that happens is God's will or is a result of God's action alone. But we can ask ourselves what God might be saying to us in every event. Our response occurs in "the speech of our lives" and not just in our words. Buber seeks the sanctification of everyday life, through which we are in dialogue with the Eternal Thou.³⁰ It seems to me that this theme in Buber's writing is consistent with the process understanding of living in God's presence.

A significant contribution of process thought is a concept of *responsible selfhood*, which avoids a soul/body dualism. The previous chapter referred to the spirit/matter and soul/body dualisms in medieval Christianity, which seem to have been more indebted to Greek than to biblical sources. The Christian tradition has too often encouraged a negative asceticism, an alienation from the body, and a concern only for the salvation of the soul. More recently, many people in Western culture have reacted against the repression of the body and have sought an uncontrolled sensuality. The process view avoids both these extremes. It acknowledges our embodiment and asserts that bodily events enter into each moment of experience. Process writers encourage respect for the body but also assert human freedom, self-determination, and the power of personal and social goals beyond bodily gratification. Responsible selfhood is a holistic concept that includes but transcends the body.

Process thought makes common cause with *feminism* in rejecting the dualisms that have led to hierarchical domination. Feminists have pointed to the links between three forms of dualism: man/woman, mind/body, and humanity/nature. The first term of each pair has in the past been assumed to be superior to the second. The three dualisms support each other because the first terms (man, mind, humanity) have been associated together, as are the second set of terms (woman, body, nature). Feminists usually agree with process thinkers, not only in rejecting these dualisms, but in replacing them with a holistic relationality and an inclusive mutuality. They also agree in insisting on openness and creativity in human self-determination and in seeking freedom from the hierarchical roles of the past. Feminists bring an active commitment to social change and human liberation, which may be more influential than the abstract writings of some process theologians.⁵¹

Feminists and process writers also agree in criticizing the *patriarchal* and *monarchical* view of God expressed in traditional ideas of omnipotence. Feminists value the caring and nurturing aspects of both human nature and the divine. Whitehead explicitly rejected the image of God as an imperial ruler and spoke of God's "tender care that nothing be lost" and "the Galilean vision of humility." God's consequent nature is receptive and empathetic as well as active. One reason for developing a theology of the Holy Spirit today is that the Spirit has few associations with masculine imagery. Process thought thus has important implications for both theological formulation and religious life.

4. The Problem of Evil and Suffering

The problem of evil and suffering is so important theologically that we should consider alternative responses to it before looking at the distinctive position of process theologians. The classical question of *theodicy* is, Why would an all-good and all-powerful God allow widespread evil and suffering? We have seen that pain, conflict, and death are pervasive in evolutionary history and in non-human nature today.

Suffering, violence, and tragic evil have been present throughout human history. The suffering of innocent children is a particular challenge to religious faith, as seen in several poignant scenes in modern literature. Ivan in Dostoevski's *Brothers Karamazov*, Elie Wiesel in his autobiographical novel *Night*, and Dr. Rieux in Camus's *The Plague* all protest the agonizing death of an innocent child. Father Paneloux says to Rieux, "Perhaps we should love what we cannot understand," and Rieux replies, "No, Father. I've a very different idea of love. And until my dying day I shall refuse to love a scheme of things in which children are put to torture."³² The death of six million Jews in Nazi extermination camps presents the starkest example of unmitigated evil and suffering, and it challenges the ideas of God's justice and providential care, which both the Jewish and Christian traditions have held.

The problem does not arise in *Buddhism* or *Hinduism*, for in those traditions all suffering is deserved. According to the impersonal law of *karma*, all souls are reborn (reincarnated) in human or animal forms according to their just deserts. Any suffering in this life is merited by actions in previous lives. There is no purposeful creator God on whom our suffering might be blamed. Moreover, in Hinduism suffering belongs to the phenomenal world of *maya* (illusion), which is not ultimately real. Suffering can be escaped when we realize the identity of the soul (atman) with the all-inclusive One (Brahman). In Buddhism, suffering is a product of our egocentric attachments and desires, and it is overcome in nonattachment and the dissolution of the self that occurs in enlightenment.³³

The most influential Christian position was formulated by Augustine, who held that all evil and suffering are *the consequences of human sin* in Adam and his successors. Sin is misused freedom and cannot be blamed on God. Nature and humanity were created perfect but were corrupted by Adam's fall, through which death and disharmony entered the world. Human suffering is not unjust, according to Augustine, for we all deserve punishment for sin, even if some are by God's grace spared such punishment. Moreover, the righteous will be rewarded and the wicked punished in a future life, vindicating God's justice in the long run. Similar views can be found earlier in the writings of Paul and later (with some variations) in Aquinas, Luther, Calvin, and other classical theologians. I have suggested, however, that neither a primeval state of perfection nor a historical fall are credible today. I argued that the story of Adam should be taken as a symbolic statement of the estrangement of each of us from God, neighbor, self, and nature. Death and suffering were inescapable features of an evolutionary process long before the appearance of humanity.

Some theodicies minimize *the reality of evil* by interpreting it as a discipline or a test of faith. Evil would then be a temporary means to good ends. "Everything works for good for those who love God." Other writers defend the reality of evil and the omnipotence of God, and they end by compromising *the goodness of God*. If everything that happens is God's will, then God is responsible for evil. In a more sophisticated version, if God is the source of all that is, then evil as well as good must in some sense be present in God. Hegel, Berdyaev, and Tillich are among the authors who have spoken of positivity and negativity within the Godhead. Still others have asserted all three components of the classical theodicy problem and have concluded that there is no rational solution. It is *a mystery* that we do not understand but that we should accept in faith and submission to God.

Most Christian theodicies have continued to defend God's goodness and the reality of evil but have in some way qualified *God's power*. The most extreme limitation of God's power would be the existence of a cosmic principle of evil. Zoroastrianism and Manichaeism, for example, pictured a cosmic struggle between the forces of light and the forces of darkness, but the church fathers rejected such an ultimate dualism. (Satan was said to be a fallen angel who is no permanent threat to God.)

Many modern Christian theodicies have asserted God's *voluntary self-limitation* in order to effect three goals:

1. *Human Freedom*. Augustine said that sin in Adam and his successors was freely chosen. However, human freedom is difficult to reconcile with Augustinian ideas of original sin and predestination. Later interpreters held that freedom requires a genuine choice of good or evil, and therefore God had to allow the possibility that individuals would choose evil. In a world of mutual interdependence, those choices could hurt other individuals (even on the scale of the Holocaust). But could God not have created beings who were free to sin but would never do so? No, according to the "free-will defense," for virtues come into being only in the moral struggle of real decisions, not ready-made by divine fiat. Further, God wants our free response of love, not actions to which we have no alternatives.³⁴

2. *Laws of Nature*. There must be dependable regularities in the world if we are to make responsible decisions about the consequences of our actions. An orderly world reflects God's rationality and dependability. Moreover, the growth of human knowledge would be impossible without the existence of such regularities. Neither moral character nor scientific knowledge would be possible if God intervened frequently to save us from suffering. Earthquake disasters and cancer are products of such natural laws, not the result of divine punishment. Animal pain was an inescapable concomitant of increased sentience, and it facilitated the avoidance of danger, which contributed to evolutionary survival.

3. *Moral Growth*. Suffering often has an educational value. The trials of ancient Israel were seen as "the furnace of affliction" in which, as with a precious metal, refinement could occur. Paul said that "suffering produces endurance, and endurance produces character, and character produces hope" (Rom. 5:3). Sometimes undeserved suffering can have a redemptive effect on others, as in the suffering servant passages of Isaiah and the Christian understanding of the cross. More generally, moral courage would be impossible without danger, temptation, and struggle. The suffering of others also calls forth our sympathy and love.

John Hick has developed this idea of *moral growth*. He traces his view back to Irenaeus in the second century, who said that humanity was not created perfect but imperfect with an opportunity for moral development. Irenaeus held that perfection could lie only in the future, not in the past. Hick sees this as consistent with an evolutionary view in which animal instinct develops into early human aggression and then into greater human maturity, moral insight, and capacity for love. The world is a place of "soul-making," an appropriate environment for moral action. In a pain-free world our decisions would have no harmful consequences. Moral virtues have to be acquired in the long hard struggle of life. Only in a world of challenge and response can the higher potentialities of personality be realized. Hick recognizes that growth is

not completed in this life, and he holds that it will continue in the afterlife. In the end, all people will be won over by the infinite love of God. A limitless good beyond this world is adequate justification for the painful process of preparing for it.³⁵

Hick's view qualifies God's power in practice but not in principle. God's power is infinite, but it is *voluntarily self-limited* for the sake of human growth. Hick's theodicy deals only with human suffering and says nothing about subhuman pain or the waste of billions of years preparing for humanity. Could these not have been avoided, if God is omnipotent? Again, does moral growth require the intensity and pervasiveness of evil and suffering we see around us? Some people may be strengthened by suffering, but others are broken and embittered by it. The world may be a moral gymnasium or a school for character, but some people seem to have little chance of succeeding in it. Hick has minimized the destructiveness of evil to justify its presence. He also has to invoke the afterlife to justify the injustices in this life.

Process theologians share many of Hick's ideas but go further in *the limitation of God's power*. Griffin rejects creation *ex nihilo* and speaks of the continuing creation of order out of chaos. Evolution is a long, slow, step-by-step process. Inescapable struggle and conflict have taken place because there has always been a multiplicity of beings with at least some power of their own. There were also inescapable correlations in evolutionary advance. With greater intensity of experience came a greater capacity for enjoyment, but at the same time a greater capacity for suffering. Greater power of self-determination goes hand-in-hand with greater power to be affected by others. Interdependence allows us to benefit from others but also to be harmed by them. These are metaphysically necessary correlations, which would obtain in any world. Even God could not escape them, though these are principles that belong to the divine essence and are not external conditions imposed on God.³⁶

Griffin maintains that in relation to low-grade entities God's influence is very limited, and changes occur only over a long period of evolutionary history. God cannot stop the bullet speeding toward your head, because a bullet is an aggregate and not a unified occasion of experience susceptible to God's persuasion. Human beings can change more rapidly, but they can also deviate more dramatically from God's aims. Griffin argues that God is not morally blameworthy or directly responsible for particular evils, which arise from the powers of the creatures. The world never fully embodies God's will, which is for the good alone. But there is no ultimate dualism. Evil and suffering could have been avoided only by refraining from creating, which is contrary to the divine nature; in that sense, God is ultimately responsible for evil. The positive opportunities, however, were worth the risks that went with them.

Process thought can contribute not only to the theoretical explanation of the existence of suffering but also to the practical question of how we respond to it. One theme in traditional Christian thought is that *God shares in our suffering* and stands with us in it. One meaning of the cross is that God participates in human suffering. Many Christians have felt that God was especially near in times of suffering. Classical theology, however, has said that God is impassible, unaffected by us, and incapable of suffering. At this point the process understanding of God's consequent nature allows a stronger assertion that God suffers with us in our suffering. God is with us and for us, empowering us in our present lives.

But process thinkers also defend immortality in one of two forms. *Objective immortality* is our participation in God's consequent nature, whereby God's life is permanently enriched. Our lives are meaningful because they are preserved everlastingly in God's experience, in which evil is transmuted and the good is saved and woven into the harmony of the larger whole. God's goal is not the completed achievement of a static final realm, but rather a continuing advance toward richer and more harmonious relationships. Other process writers defend *subjective immortality*, in which the human self continues as a center of experience in a radically different environment but amid continuing change rather than a changeless eternity. (Whitehead said that this would be consistent with his metaphysics, though he himself accepted only objective immortality.) Cobb speculates that we might picture a future life, neither as absorption into God nor as the survival of individuals in isolation, but as a new kind of community transcending individuality.³⁷

Process thought is consistent with recent themes in science. It also offers some distinctive insights to theology. A final evaluation of its theological adequacy must await a comparison with some current theological alternatives in the final chapter.

Footnotes:

1. Barbour, *Issues in Science and Religion*, chaps. 2 and 3. See also N. Max Wildiers, *The Theologian and His Universe* (New York: Seabury, 1982).
2. Alfred North Whitehead, *Process and Reality* (New York: Macmillan, 1929), p. vi.
3. An introduction to process metaphysics is given in John B. Cobb, Jr. and David Ray Griffin, *Process Theology: An Introduction* (Philadelphia: Westminster Press, 1976), chap. 1. The basic sources are Alfred North Whitehead, *Science amid the Modern World* (New York: Macmillan, 1925) and *Process amid Reality*. Systematic expositions are given in William Christian, *An Interpretation of Whitehead's Metaphysics* (New Haven: Yale University Press, 1959), and Ivor Leclerc, *Whitehead's Metaphysics* (New York: Macmillan, 1958). See *Issues in Science and Religion*, pp. 128-31, 344-47. I have tried to present Whitehead's ideas with a minimal use of his technical terms.
4. Charles Birch and John B. Cobb, Jr., *The Liberation of Life* (Cambridge: Cambridge University Press, 1981).
5. Charles Hartshorne, *Reality as Social Process* (Glencoe, IL: Free Press, 1953), chap. 1, and *Time Logic of Perfection* (LaSalle, IL: Open Court, 1962), chap. 7.
6. I am indebted here to David Ray Griffin, "On Ian Barbour's Issues in Science and Religion," *Zygon* 23 (1988): 57-81.

7. David Ray Griffin, "Some Whiteheadian Comments," in *Mind in Nature: Essays on the Interface of Science and Philosophy*, eds. John Cobb, Jr. and David Ray Griffin (Washington, DC: University Press of America, 1977).
8. David Ray Griffin, "Of Minds and Molecules: Postmodern Medicine in a Psychosomatic Universe," in *The Re-enchantment of Science*, ed. D. Griffin (Albany: State University of New York Press, 1988), p. 154.
9. See David Pailin, "God as Creator in a Whiteheadian Understanding," in *Whitehead and the Idea of Process*, eds. H. Holz and E. Wolf-Gazo (Freiburg and München, Germany: Karl Alber Verlag, 1984); Frank Kirkpatrick, "Process or Agent: Two Models for Self and God," in *Philosophy of Religion and Theology*, ed. David Ray Griffin (Chambersburg, PA: American Academy of Religion, 1971); Paul Sponheim, *Faith and Process: The Significance of Process Thought for Christian Thought* (Minneapolis: Augsburg, 1979), pp. 90-98.
10. William Gallagher, "Whitehead's Psychological Physiology: A Third View," *Process Studies* 4 (1974): 263 -74; Joseph Earley, "Self-Organization and Agency in Chemistry and in Process Philosophy," *Process Studies* 11 (1981): 242-58.
11. Mark Davidson, *Uncommon Sense: The Life and Thought of Ludwig von Bertalanffy, Father of General Systems Theory* (Los Angeles: J. P. Tarcher, 1983); Ervin Laszlo, *An Introduction to Systems Philosophy* (New York: Gordon & Breach, 1972).
12. James Huchingson, "Organization and Process: Systems Philosophy and Whiteheadian Metaphysics," *Zygon* 11 (1981); 226-41.
13. Alfred North Whitehead, *Modes of Thought* (Cambridge: Cambridge University Press, 1938), p. 211.
14. Griffin, "On Ian Barbour's Issues," p. 57.
15. See *Issues in Science and Religion*, pp. 440-42.
16. Whitehead, *Process and Reality*, p. 377.
17. *Ibid.*, p. 532.
18. Charles Hartshorne, *The Divine Relativity* (New Haven: Yale University Press, 1948), and *Reality as Social Process*; Charles Hartshorne and William L. Rees, *Philosophers Speak of God* (Chicago: University of Chicago Press, 1953).
19. Hartshorne, *The Divine Relativity*, p. 90.
20. See William Christian, *Interpretation of Whitehead's Metaphysics*; Ivor Leclerc, *Whitehead's Metaphysics*.

21. Whitehead, *Process and Reality*, p. 521.
22. *Ibid.*, p. 343.
23. Daniel Williams, "How Does God Act? An Essay in Whitehead's Metaphysics," in *Process and Divinity*, eds. W. L. Reese and E. Freeman (LaSalle, IL: Open Court, 1964).
24. Cobb and Griffin, *Process Theology*, chap. 3.
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Part 3: Philosophical and Theological Reflections

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Chapter 9: God And Nature

How can God act if the world is governed by scientific laws? What is God's relation to the causal processes of nature? Any answer to such questions presupposes a view of nature as well as a view of God's activity. In this chapter we start from the theological side, examining some of the ways in which God's action in the natural order is currently portrayed and then evaluating these interpretations in the light of our previous conclusions. We will explore several answers to these questions within the Christian tradition.¹

Our answers are crucial to the intellectual task of articulating a theology of nature. Our understanding of God's relation to nature also has practical implications for the way we treat the environment in the face of the crises that threaten it today. In the first section, classical theism is discussed. Then some alternatives are examined: God's self-limitation, existentialism, and ideas of God as agent and the world as God's body. In the final section, the strengths and weaknesses of process theism are analyzed. Each of these views, I argue, holds a dominant model of God's relation to the world, as summarized in figure 5.

I. Classical Theism

In earlier chapters we saw that the Bible includes a great variety of models of God. In relation to nature, God is represented as a purposeful designer imposing order on chaos, a potter or craftsman making an artifact, and an architect setting out the foundations of a building. Again, God is a life-giving Spirit at work throughout nature and a communicator expressing meaning and rational structure through the divine Word. God is Lord and King, ruling both history and nature to effect intended purposes. In relation to Israel, God is the liberator delivering the community from bondage and the judge dedicated to righteousness and justice. In relation to individuals, God is the judge but also the careful shepherd, the forgiving father and (more rarely) the nurturing mother. God is also the redeemer who brings new wholeness to communities and individuals -- and even to nature in the final fulfillment.

THEOLOGY DOMINANT MODEL CONCEPTUAL ELABORATION

Classical Ruler-Kingdom Omnipotent, omniscient, unchanging sovereign

Deist Clockmaker-Clock Designer of a law-abiding world

Neo-Thomist Workman-Tool Primary cause working through secondary causes

Kenotic Parent-Child Voluntary self-limitation and vulnerability

Existentialist None God acts only in personal life

Linguistic Agent-Action Events in the world as God's action

Embodiment Person-Body The world as God's body

Process Leader-Community Creative participant in the cosmic Community

Fig. 5. Models of God's Role in Nature

In subsequent history, some of these models were emphasized and developed in theological concepts and systematic doctrines, while others held only subordinate roles. We look first at the monarchical model of divine sovereignty in medieval and Reformation theology. We then consider recent neo-Thomist and neo-Reformation writers who hold that God as primary cause works through the lawful secondary causes, which science studies.

1. The Monarchical Model

We have seen that during its early centuries Christian theology developed with a strong input from Greek thought. Neoplatonic ideas influenced Augustine and others toward a dualistic view of matter and spirit. Matter, nature, and the body are tainted by evil, they said, though not irredeemably corrupted, as the Manichaeans held. In the Middle Ages, biblical and Aristotelian ideas were brought together, especially in the writings of Thomas Aquinas, which were so influential in later Catholic theology. The biblical model of God as king and ruler was elaborated into formal theological doctrines of divine omnipotence and omniscience. The dominant model was that of the absolute monarch ruling over his kingdom, though other models were also present. A similar view of God was prominent in the Reformation, particularly in Calvin's emphasis on divine sovereignty and predestination.

In the classical doctrine of divine *omnipotence*, God governs and rules the world in providential wisdom. All events are totally subordinate to God's will and power. Foreordination was said to involve not only foreknowledge but also the predetermination of every event. Both medieval Thomism and Reformation Protestantism held that God intervenes miraculously as a direct cause of some events, in addition to a more usual action of working through secondary natural causes. There is a strictly asymmetrical, one-way relation: God affects the world, but the world does not affect a God who is eternal, unchanging, and impassible.

God's *eternity* was, of course, a biblical theme, and the human quest for the security of a permanence beyond change is a perennial one. But the exclusion of all temporality from God's nature seems to have been indebted mainly to Greek thought. Plato had pictured a realm of eternal forms and timeless truth, imperfectly reflected in the world; the perfect was the unchanging. Aristotle had spoken of God as the Unmoved Mover, the immutable Absolute. Aquinas argued that God is *impassible*, unaffected by the world. God loves only in the sense of doing good things for us, but without passion or emotion. God is pure act without potentiality. God's being is wholly self-sufficient and independent of the world and receives nothing from it. Since God knows all events in advance and controls every detail, divine knowledge is unchanging, and in God there is no element of responsiveness. In the last analysis, the passage of time is unreal to God, for whom all time is spread out simultaneously.² All of this seems to contrast with the dynamic God of the Bible who is intimately involved in Israel's history and responds passionately to its changing situations.

To be sure, other themes qualified this image of divine sovereignty. God's control was never sheer power, for it was always the power of love. Dante ends *The Divine Comedy* with a vision of God as "the Love that moves the Sun and other stars."³ Classical theism indeed emphasized transcendence, and God is said to act occasionally by supernatural intervention from outside nature. But classical theism also defended divine immanence. God is preeminently present in the incarnation, the sacraments, and the life of the church, but the Holy Spirit animates nature as well as human life. The metaphysical dualism of spirit and matter was mitigated insofar as the spiritual realm permeates the material realm. Even though the goal of this life is to prepare for the next, many expressions of the Middle Ages and later Catholicism provided an affirmation of life in this world -- seen, for example, in artistic and intellectual creativity. In the Thomistic synthesis, grace fulfills nature rather than destroying it, and revelation completes reason rather than contradicting it.

A number of authors in this century have defended the idea of God's *immutability* and *impassibility*. E. L. Mascall maintains that God is timeless and sees all time simultaneously. We cannot add anything, he says, to God's eternal perfection. The highest form of love is totally disinterested and uninvolved.⁴ Similarly, H. P. Owen holds that God does not change in any way. God does respond to the needs of the world but without being changed internally by such a response.⁵ Richard Creel in *Divine Impassibility* argues that God is immutable in nature, in will, in feeling, and in knowledge of possibilities. God is self-sufficient, and the world is strictly unnecessary for the divine being. God's joy and inner life are unaffected by the world. God could not be grieved by our choices. Creel grants that God's knowledge of actualities must change as they occur, but God has decided in advance on appropriate responses to deal with all possible events; those responses can be implemented without any change on God's part.⁶

Clearly, much can be said in support of a monarchical model, which focuses on God's power. It is in accord with the awe and mystery that we earlier identified with numinous religious experience. Supreme power, if combined with supreme goodness, is an attribute that makes worship appropriate. It is also in accord with some (but not all) features of the biblical witness. The ideas of transcendence and sovereignty are indeed present in the creation story and other biblical passages (Isa. 6 and 40-48, or Job 38-41, for example). In the classical view, God's power was uniquely manifest in

the resurrection (though sometimes this was articulated in ways that are difficult to reconcile with the message of Christ's teachings, life, and the cross). Some aspects of science may also accord well with the monarchical model, especially the power and mystery of the Big Bang, the immense sweep of cosmic history, and the marvel of biological and human life. But six problems with this model lead many theologians to qualify, modify, or reject it.

1. Human Freedom. Divine omnipotence and predestination appear incompatible with the existence of genuine alternatives in human choice. No subtleties in distinguishing foreknowledge from foreordination seem to be able to circumvent this basic contradiction. Humanity's total dependence on and submission to an authoritarian God is also in tension with human responsibility and maturity; these ideas too often have resulted in the repression rather than the fulfillment of human creativity. If all power is on God's side, what powers are assignable to humanity?

2. Evil and Suffering. In the previous chapter we explored the problem of theodicy: Why would a good and omnipotent God allow evil and suffering? We saw that solutions that minimize the reality of evil and suffering are inconsistent with human experience. Nor can evil and suffering be taken as the consequences of Adam's fall if we accept evolutionary science. But if omnipotence is defended, and everything that happens is God's will, then God is responsible for evil and suffering, and God's goodness is compromised. We saw that many current theodicies refer to God's voluntary self-limitation in the interest of human freedom, the lawfulness of nature, or a world suitable for moral growth. These solutions are considered again in section II below, but we can note here that they entail a major qualification of the monarchical model, if not a rejection of it. Exponents of the kenotic model speak of God's vulnerability and participation in suffering, and they reject the classical ideas of impassibility and immutability.

3. Patriarchy. The characteristics of the monarchical God are those our culture identifies as "masculine" virtues: power, control, independence, rationality, and impassibility, rather than what are stereotyped as "feminine" virtues: nurturance, responsiveness, interdependence, and emotional sensitivity. The identification of God with "masculine" qualities seems to reflect the biases of a patriarchal culture, and this model of God has in turn been used to justify male dominance in society.

4. Religious Intolerance. The exaltation of God's power encouraged an exclusivist view of revelation. Taken with a hierarchical understanding of the authority of the church, it was used to support absolute claims to religious truth. When coupled with political and military power, it led to religious persecution, crusades, holy wars, and colonial imperialism, all in God's name. Such views are a continuing danger in a world of religious pluralism and nuclear weapons. An extreme form of such absolutism is the assertion of some fundamentalists that we do not need to try to avoid nuclear brinksmanship, since if nuclear war breaks out it will be the final Armageddon, in which we can count on God's omnipotence to assure our victory over the forces of evil.

5. An Evolutionary World. During the centuries when the monarchical model was formulated, a static and hierarchical view of reality was assumed. The world was accepted as a fixed order whose basic forms were unchanging, given once for all. This

tended to reinforce the idea of creation *ex nihilo* in an absolute beginning; the biblical idea of continuing creation was virtually ignored. Each lower form served the higher in the hierarchy: God/man/woman/animal/plant. This fixed order was unified by God's sovereign power and omniscient plan. These assumptions were, of course, challenged by evolution.

6. *Law and Chance in Nature.* With the rise of modern science, the idea of supernatural intervention in nature seemed increasingly dubious. By the time of Newton, God's wisdom and power were seen only in the initial design of the universe, not in its continuing governance (except for occasional interventions). Deism took seriously the lawfulness of nature at the price of relegating God's activity to the distant past. We have seen that more recently the role of chance has called into question both the determinism of predestination and the determinism of lawful causes.

2. Primary and Secondary Causes

As indicated earlier, with the growth of science in the seventeenth century nature was increasingly viewed as a law-abiding machine. God was the clockmaker and the world was the clock -- an autonomous and self-sufficient mechanism. Newton's contemporary, Robert Boyle, started by defending God's freedom and sovereignty but ended by asserting that God planned things so that no intervention was needed. The unflinching rule of law, not miraculous intervention, is the evidence of divine benevolence. Providence is expressed not by action in particular events but by the total cosmic design, the overall structure and order of the world.⁷ This was the inactive God of deism, who started the mechanism and then let it run by itself. Nature was viewed as a self-contained system whose interactions are to be exhaustively accounted for in the purely natural terms of lawful cause and effect.

The mechanical view of nature was conducive to the growth of technology. When we understand the laws of nature, we can use them to control and manipulate the world around us. And if nature apart from humanity is just a complicated machine, it has no rights or interests or intrinsic value over against us, and it has no organic unity that we might violate. Deism is also religiously inadequate because its God is remote and inactive; there is no place for continuing creation or personal encounter in the present, much less for the biblical view of God's acts in history.

More recently, a number of neo-Thomist authors have tried to defend divine omnipotence and the lawful world of science without accepting the inactive God of deism. They do so by developing the Thomistic distinction between *primary and secondary causes*, which allows God a continuing role. God as primary cause works through the secondary causes, which science describes. Etienne Gilson invokes the model of a worker and a tool. In God's hands "creatures are like a tool in the hands of the workman." One can say that an ax cuts the wood or that the man using the ax cuts the wood; each produces the, whole effect. Unlike the woodsman, though, God has conferred on all things their forms and their distinctive powers.⁸

The first level of God's action in nature is *conservation*. If God ceased to sustain the world, it would lapse again into nothingness. Moreover, the powers of natural agents require a continual influx of divine power to be efficacious. Powers are only potentialities until they are actualized; every potency must be moved to act by God.

Divine *concurrence* includes a more direct control over the actions of natural agents. God operates in the operation of created agents. God foresees and predetermines every detail in the world, ordering and governing every occurrence. This foreknowledge is itself the cause of all things.

Gilson also insists, however, on the reality of *secondary causes*. It is misguided to say that God is the only cause or that what appear to be natural causes are only the occasions on which God produces the effects. God delegates causal efficacy to the creatures. There are genuine centers of activity, interrelated and dependent on each other as well as on God. The conviction of the regularity of such cause-effect relationships provides a basis for science. Lawfulness obtains because each being has its essence, its natural way of behaving, and so it always produces the same effect.⁹

How then can the same effect be attributed to both *divine* and *natural* causality? The resolution must start by recognizing that these are not two actions doing essentially the same thing, not two causes on the same level, each contributing to part of the effect. Rather, the whole effect is produced by both divine and natural causes, but under completely different aspects. Two causes can both be operative if one is instrumental to the other. God is primary cause, in a different order from all instrumental secondary causes. God sometimes produces effects directly, as in the case of miracles, but usually works through natural causes.

Does such divine control preclude *contingency* and *human freedom*? As Garrigou-Lagrange puts it, God "infallibly moves the will to determine itself freely to act." The apparent inconsistency of a foreordained free choice, which will "infallibly come to be contingently," is resolved as follows. A contingent event is defined as one that is not uniquely determined by its natural causes. If God were merely to calculate the future from the present, as we would have to, God could not know the future. Since God is eternal, however, the future is present to God as it will actually be, a single definite outcome. God, being above time and having unchanging knowledge, does not know the future as potentially and indeterminately contained in its worldly causes, but determinately as specified in the eternal divine decree. Within the world, an act is uncertain before it takes place. But for God there is no "before"; for God it has taken place.¹⁰

In neo-Thomist thought, moreover, *divine causality* is rich and many-faceted, far from any simple mechanical coercion. God is the origin of form and matter but also has a role in final causation. Each being is given a natural inclination, which is genuinely its own but which also expresses God's purposes. God endows every creature with an intrinsic nature and a way of acting and leaves it free to follow the goal toward which it strives. Divine causality can occur at various levels. In the case of the human will, God moves it from within, inclining it toward the good, calling forth its own powers, so its free acts remain its own. Here God's influence is the final causality of attraction to the good, and God's action becomes the power of love. This seems to me a more apt analogy than "instrumental causes" (such as worker and tool) in which the instrument is totally subordinated to the user. These aspects of neo-Thomism have much in common with process thought.

As another example, consider the discussion of *double agency* by the Anglican theologian Austin Farrer. "God's agency must actually be such as to work

omnipotently on, in and through creaturely agencies, without either forcing them or competing with them." God acts through the matrix of secondary causes and is manifest only in the overall resulting pattern. "He does not impose an order against the grain of things, but makes them follow their own bent and work out the world by being themselves. . . . He makes the multitude of created forces make the world in the process of making or being themselves." ¹¹ Primary and secondary causes operate at totally different levels, according to Farrer. We can't say anything about *how* God acts; there are no "causal joints" between infinite and finite action and no gaps in the scientific account. So, too, the free act of a person can at the same time be ascribed to the person and to the grace of God acting in human life.

Neo-Reformation (neo-orthodox) writers have also used the idea of primary and secondary causes to defend *divine sovereignty over nature*. Karl Barth asserts that God "rules unconditionally and irresistibly in all occurrence." Nature is God's "servant," the "instrument of his purposes." God controls, orders, and determines, for "nothing can be done except the will of God." God foreknows and also predetermines and foreordains. "The operation of this God," Barth writes, "is as sovereign as Calvinist teaching describes it. In the strictest sense it is predestinating." ¹²

Barth insists, however, that divine omnipotence must always be considered in the light of God's action in Christ. He feels that both Aquinas and Calvin represented sovereignty as absolute power in the abstract, which tended toward metaphysical necessity or arbitrary despotism. Our concern should be, not omnipotence as such, but the power revealed in Christ, which is *the power of love*. God's power is simply the freedom to carry out purposes centering in the covenant of grace. Moreover, Barth defends both human freedom and the lawfulness of the created order. God respects the degree of independence given to the creatures, preserving them in being and allowing creaturely activity to coexist with divine activity. The divine work is not just a higher potency supervening on a lower, but an activity "within a completely different order." God's governance is on another plane distinct from all natural causes.

Barth thus affirms both *divine sovereignty* and *creaturely autonomy*. God controls, and all creaturely determination is "wholly and utterly at the disposal of his power." The creature "goes its own way, but in fact it always finds itself on God's way." All causality in the world is completely subordinate to God. When a human hand writes with a pen, the whole action is performed by both -- not part by the hand and part by the pen; Barth declares that creaturely causes, like the pen, are real but "have the part only of submission" to the divine hand that guides them. ¹³

The idea of primary and secondary causality among these writers has the great merit of respecting the integrity of the natural causal nexus, which science studies. They avoid deism by insisting that the natural order does not stand on its own but requires the continued concurrence of God. Of course, such general, uniform concurrence, working equally in all events, does not fully represent the biblical God who acts. Most defenders of double agency claim that God has also intervened directly at a few points in history, perhaps in miracles, or at least in the particularity of incarnation in Christ. But it is more difficult to allow here for any forms of divine action intermediate between general concurrence and miraculous intervention. Moreover, the "paradox of double agency" employs ideas of causality that remain problematic. The woodsman causes the motion of the ax, which is his instrument, but primary causes do not cause

secondary causes in a similar way. Finally, by retaining classical conceptions of God's omnipotence, foreknowledge, and eternity, the interpretation is in the end deterministic, despite protracted efforts to allow for human freedom. If in God's view there is only one outcome, no genuine alternatives exist, though we may think they do. Chance and evil in the world are also difficult to reconcile with such divine determination.

II. Some Alternatives

Let us consider four recent alternatives to classical theism. In the first, omnipotence and immutability are qualified by God's self-limitation. In the second, God's action is limited to the realm of personal life, which is contrasted with the lawful and objective realm of nature. In the third, God's action is said to be like human actions, which are described in the language of intentions rather than in the language of causes. In the fourth, the world is viewed as God's body.

1. God's Self-Limitation

Divine omnipotence has been questioned by a number of theologians who have suggested that the creation of the world required God's voluntary self-limitation. Several biblical scholars have explored the theme of God's suffering in the Bible,¹⁴ but I will confine myself to examples from recent British theologians. A statement by the Doctrine Commission of the Church of England criticizes both the monarchical model and the clockmaker model and rejects immutability and impassibility. Two alternative models are proposed. The first is that of *the artist and the work of art*. The artist's vision changes and is reformulated as the work proceeds. Moreover, the medium (the sculptor's wood or stone, for instance) always imposes constraints on the artist. God has similarly chosen a medium that imposes inescapable constraints; God exercises a limited control and redeems imperfections rather than preventing them.¹⁵

The second model proposed in the Anglican statement is that of *the parent and the growing child*. As the child matures, the parent exercises persuasion and holds up moral standards rather than acting coercively. Some forms of intervention would defeat the parent's goals. So, too, in the face of Israel's rebelliousness, God is patient and faithful and will not abandon the covenant people. God loves like a father who suffers when a son fails to respond. In a section on "the suffering of God," the statement insists that the cross and the resurrection always go together and that new life is given amid suffering and death. God does not promise that we will be protected from life's ills. The promise is that God will be faithful and will empower us with endurance and insight if we are open to them.

W. H. Vanstone says that authentic love is always accompanied by *vulnerability*. In human life, inauthentic love seeks control, as when a possessive parent holds onto a child. Authentic love is precarious and brings the risk of rejection. It requires involvement rather than detachment, and this also makes a person vulnerable. The biblical God is affected by the creation, delighting in its beauty but grieved by its tragic aspects. Vanstone holds that there is no predetermined plan or assured program. There is, rather, "a vision which is discovered in its own realization."

The creation is "safe," not because it moves by program towards a predetermined goal, but because the same loving creativity is ever exercised upon it. . . . It implies only that that which is created is other than he who creates; that its possibility must be discovered; that its possibility must be 'worked out' in the creative process itself; and that the working out must include the correction of the step which proved a false step, the redemption or the move which, unredeemed, would be tragedy. . . . Our faith in the Creator is that He leaves no problem abandoned and no evil unredeemed.⁶

Vanstone says that evil is inescapable in the long process of creation. God must wait on the responses of nature and humanity. Nature is not just the stage for the human drama; it is the result of a labor of love and as such is worthy of our celebration and care. Here Vanstone extends the ancient theme of *kenosis* or self-emptying: in the incarnation God set aside omnipotence, "taking the form of a servant" (Phil 2:7). He concludes his book with a "Hymn to the Creator," ending with this stanza:

Thou art God; no monarch Thou
Thron'd in easy state to reign;
Thou art God, Whose arms of love
Aching, spent, the world sustain.¹⁷

Brian Hebblethwaite suggests that though God has an unchanging goal, many paths lead to it. The future is *open and unpredictable*, awaiting the creatures' choices. There can be no detailed foreknowledge, and God changes in response to what the creatures do. Hebblethwaite defends human freedom and also indeterminacy and chance at lower levels. He rejects the idea that God determines what appear to us as chance atomic events; he insists that there is real randomness, which even God cannot know in advance. Evolution reflects millions of years of chance; God respects the structures of creation but somehow weaves these events into unforeseeable providential patterns. In this framework, he says, the problems of evil and suffering are more tractable than under the assumption that every detail is predestined.¹⁸

Keith Ward ascribes *reciprocity* and *temporality* to God. He rejects divine omnipotence and self-sufficiency. Creativity is inherently temporal, responsive, and contingent. God's power, knowledge, and beatitude are limited by the creatures' power, freedom, and suffering, respectively. But these are voluntary self-limitations, since God could at any time destroy or modify the world. Chance, law, and plurality in the world produce the possibility of conflict and evil; sentience makes pain and suffering as well as pleasure and joy possible. God chooses good and accepts evil as its concomitant.

Ward says that God is *neither omnipotent nor helpless* but guides an evolutionary process that includes law, chance, and the emergence of novelty. God's nature and purposes are eternal and unchanging, but divine knowledge and creativity are changing. Ward acknowledges indebtedness to the dipolar theism of process thought but claims that Whitehead's God is helpless and passive, a "cosmic sponge" (Which seems to me to be a misreading of Whitehead). Ward accepts only God's voluntary self-limitation, whereas for Whitehead the limitations of divine power are metaphysical and inescapable.¹⁹

Another Anglican who appreciates but also criticizes Whitehead is John Macquarrie. He finds the traditional emphasis on transcendence, eternity, and impassibility one-sided and wants to balance these characteristics by *immanence*, *temporality*, and *vulnerability*. He calls his view "Dialectical Theism." God is "above time" in the constancy of a purpose that suffering does not defeat or overwhelm. Macquarrie draws heavily from such exponents of mysticism as Plotinus, Eriugena, and Eckhart, who emphasized immanence and the inward unity of all things in God. He says that evil is inescapable in such a creation, and it can be more readily accepted if we know that God participates in the world's suffering.²⁰

A final example is Paul Fiddes's *The Creative Suffering of God*. Of all these authors, Fiddes is the most sympathetic to process thought, and he draws extensively from it, though in the end he departs from it. He gives detailed critiques of ideas of God's immutability, self-sufficiency, and timelessness, and he accepts the process position concerning God's relatedness and temporality. God is with us in our suffering but is not overwhelmed or defeated by it. But Fiddes does not agree with process thought that God's involvement with the world is necessary or that God needs the world in order to be fully actualized. He maintains that God has freely chosen and accepted self-limitation for the sake of human freedom. Here he is indebted to Barth's theme that God loves in freedom and chooses to be in relation to the world. Fiddes says that relatedness, fellowship, and community are already present *within* the life of the trinitarian God and do not require a world to be actualized.²¹

Fiddes is impressed with the process understanding of how *God's suffering affects us*. We feel another person's sympathy with our feelings. In Christ's death we experience judgment but also an acceptance that enables us to accept the truth about ourselves. Costly forgiveness can have a transforming effect. But Fiddes holds that this can be better expressed through trinitarian ideas: "Process thought, then, points in a valuable way to the powerful effect which an exchange of feelings between us and a suffering God can have upon us, but I believe this insight can be carried through better with the more thoroughgoing personal analogy for God which is offered in Trinitarianism."²²

Compared to the monarchical model, these views seem to accord better with the biblical understanding and also with evolutionary history and human experience. We have seen similar ideas expounded by Arthur Peacocke in his writings on evolution. The models of artistic creativity and parental love appear particularly appropriate. These views go far toward answering the objections raised against the monarchical model: the problems of freedom, evil, evolution, and chance. They could also be developed to answer the classical tendencies toward patriarchy and religious intolerance. I will suggest that process theology expresses many of the same insights but develops them further in a coherent metaphysical system.

2. Existentialism

Another reaction to the scientific view of the world has been the restriction of religious assertions to the sphere of selfhood. According to existentialists, the objectivity and detachment appropriate to the study of nature are to be sharply contrasted with the personal decision, commitment, and involvement required in the religious life. God acts only in person-to-person encounter in the present moment. Human freedom, which is problematic in the monarchical and deist models, is

strongly defended by existentialists, but nonhuman nature remains an autonomous and deterministic causal network.

Rudolf Bultmann is a forceful exponent of the proposition that God does not act in the objective arena of nature but in *existential self-understanding*. He considers nature to be a rigidly determined mechanical order. What he takes to be the scientific view of the universe as a completely closed system of cause-and-effect laws excludes belief in God's action in the world. Moreover, the idea that God produces external changes in space and time is held to be theologically objectionable. A *myth*, in Bultmann's definition, is any representation of divine activity as if it were an objective occurrence in the world. The transcendent is falsely objectivized when it is spoken of in the language of space and time or imagined as a supernatural cause. Miracles and "supernatural events" objectify the divine as a cause and also run counter to the scientific understanding of the world as law-abiding. But Bultmann holds that rather than simply rejecting these mythical elements *in toto*, as earlier liberals did, we must recover their deeper meaning. If mythical imagery misrepresented the action of the transcendent as if it were an objective occurrence, we must translate it back into the language of personal experience.²³

To *demythologize* thus means to reinterpret existentially in terms of human self-understanding. All along, the real function of myths was to provide new insight into human existence and its fears, hopes, decisions, and the meaning of life and death. Bultmann holds that he is not imposing an alien idea on the biblical message but rather seeing it for what it is -- a call to repentance, faith, and obedience. He wants us to ask of any myth what it says about our relation to God now and what new possibilities it suggests for our lives.

All religious formulations must be statements about a new understanding of *personal existence*. The doctrine of creation is not a neutral statement about God and the world but a personal confession of dependence, an acknowledgment of one's life as a gift. The resurrection was not an observable event but rather the rebirth of faith in Christ among the disciples, a transformation that is repeated anew throughout the history of the church. In response to Christ, individuals can today find the possibility of achieving authentic existence, overcoming despair, and gaining an openness to the future and to other persons.

In this framework, can one say that *God acts* in history or in nature? We must take great care, says Bultmann, to avoid referring to God's action as something objective and external to us. "When we speak of God as acting we mean that we are confronted by God, addressed, asked, judged, or blessed by God."²⁴ Thus God's action always occurs in the present transformation of our lives. Christ becomes God's act only when we respond to him, so "the incarnation is being continuously reenacted in the events of the proclamation."

According to Bultmann, God does not violate the close system of natural causality. Thus the idea of providence is comprised entirely in the way a person *looks at* natural events:

In faith I can understand an accident with which I meet as a gracious gift of God or as his punishment, or as his chastisement. On the other hand, I can

understand the same accident as a link in the chain of the natural course of events. If, for example, my child has recovered from a dangerous illness, I give thanks because he has saved my child. . . . I need to see the worldly events as linked by cause and effect, not only as a scientific observer, but also in my daily living. In doing so there remains room for God's working. This is the paradox of faith, that faith "nevertheless" understands as God's action here and now an event which is completely intelligible in the natural or historical connection of events.²⁵

Presumably we cannot say that God's action influenced the outcome of the child's illness, for that would be to identify divine action with an objective event. Is the difference, then, only in how we take an outcome that was itself determined by inexorable and impersonal causal laws?

Bultmann's reluctance to affirm God's activity in the world and his retreat to the inner realm of personal existence arise in part from his view of nature as an inviolable and mechanically determined *causal system* -- a view more consonant, I have said, with eighteenth-century than with contemporary science. One critic deplors Bultmann's acceptance of "the Kantian bifurcation of reality into nature and spirit and the expulsion of God's activity from the realm of nature. . . . God was banished from the world of nature and history in order to secure for man's scientific conquest an unembarrassed right of way, and for faith a sanctuary."²⁶

I agree with Bultmann that the center of Christian experience is the transformation of personal existence. But he has ended by privatizing and interiorizing religion to the neglect of its communal aspects. Personal life is always lived in the context of wider relationships in nature and society. In chapter 1, I discussed existentialism as an example of the Independence thesis, in which religion and science are compartmentalized as totally separate realms. But we have seen that the sharp line between humanity and nature can be criticized on scientific grounds. Evolutionary biology and ecology have shown us the continuities between the human and nonhuman worlds.

The existentialist dichotomy between the sphere of personal selfhood and the sphere of impersonal objects can also be criticized on theological and ethical grounds. The retreat to the realm of human inwardness leaves nature unrelated to God and devoid of enduring significance. What was God doing in the long history of the cosmos before the appearance of humanity? Is the world only the impersonal stage for the drama of human life? Should we then treat it as an object to be exploited for human benefit? In the biblical view, by contrast, the natural world is no mere setting, but part of the drama that is a single, unified, creative-redemptive work. Today we need a theology of nature as well as of human existence.

3. God as Agent

Another model of God's relation to the world is drawn from the relation of agents to their actions. Many proponents of this model have been influenced by *linguistic analysis*, which holds that diverse types of language serve radically differing functions. (This was another version of the Independence thesis in chapter 1.) Writings in the philosophy of action contend that the explanation of actions by

intentions is very different from the explanation of effects by *causes*. An action of a human agent is a succession of activities ordered toward an end. Its unity consists in an intention to realize a goal. An action differs from a bodily movement. A given bodily movement (for example, moving my arm outward in a particular way) may represent a variety of actions (such as mailing a letter, sowing seeds, or waving to someone). Conversely, a given action may be carried out through a variety of sequences of bodily movements. An action cannot be specified, then, by any set of bodily movements, but only by its purpose or intent.²⁷

Analysis in terms of *intentions* does not preclude analysis in terms of *scientific laws*. The physiologist need not refer to my purposes in explaining my arm movement. In addition, intentions are never directly observable. Calling it an action involves an interpretation of its meaning and often requires observation over a considerable temporal span; it may, of course, be misinterpreted and wrongly identified. The agents of actions are embodied subjects acting through their bodies. Instead of a mind/body dualism of two distinct substances, we have two ways of talking about a single set of events. An agent is a living body in action, not an invisible mind interacting with a visible body. Yet the agent transcends any single action and is never fully expressed in any series of actions.

Similarly, we can say that cosmic history is an action of *God as agent*. Reference to divine intentions does not exclude a scientific account of causal sequences. John Compton writes,

We can distinguish the causal development of events from the meaning of these events viewed as God's action. Scientific analysis of physical nature and of human history has no more need of God as an explanatory factor than the physiologist needs my conscious intent to explain my bodily movements. Nor does God need to find a "gap" in nature in order to act, any more than you or I need a similar interstice in our body chemistry. Each story has a complete cast of characters, without the need for interaction with the other story, but quite compatible with it. What happens is that the evolution of things is seen or read, in religious life -- as my arm's movement is read in individual life -- as part of an action, as an expression of divine purpose, in addition to its being viewed as a naturalistic process.²⁸

The *intentions of an agent* are never directly observable and may be difficult to guess from events in a limited span of time. In the case of God's intentions, a paradigm tradition provides a vision of a wider context within which the pattern is interpreted. There is indeed a strong biblical precedent for talking about God in terms of purposes in history. Today the linguistic approach would encourage us to treat the language of divine action as an alternative to scientific language, not as a competitor with it. The cosmic drama can be interpreted as an expression of the divine purpose. God is understood to act in and through the structure and movement of nature and history.

The theologian Gordon Kaufman suggests that the whole course of evolutionary development can be considered as *one all-encompassing action*, unified by God's intentions. Within this master action are various subactions -- the emergence of life, the advent of humanity, the growth of culture -- which are phases of a total action moving toward greater consciousness, freedom, and community. Kaufman sees the

history of Israel and the life of Christ as special subactions decisively expressing the divine intention. He maintains that the evolutionary process is at the same time an unbroken causal nexus, which the scientist can study without reference to God's purposes.²⁹

Maurice Wiles has recently elaborated the thesis that cosmic history is *one overarching action*. He rejects the traditional understanding of particular divine actions in the providential guidance of individual events:

Think of the whole continuing creation of the world as God's one act, an act in which he allows radical freedom to his human creation. The nature of such a creation, I have suggested, is incompatible with the assertion of further particular divinely initiated acts within the developing history of the world. God's act, like many human acts, is complex. I have argued that particular parts of it can rightly be spoken of as specially significant aspects of the divine activity, but not as specific, identifiable acts of God.³⁰

Wiles proposes that God's intention is unvarying and God's action is uniform, but our responses will vary in differing contexts:

God's fundamental act, the intentional fruit of the divine initiative, is the bringing into existence of the world. That is a continuous process, and every part of it is therefore in the broadest sense an expression of divine activity. Differences within the process, leading us to regard some happenings as more properly to be spoken of in such terms than others, are dependent not on differing divine initiatives but on differing degrees of human responsiveness. The players in the improvised drama of the world's creation, through whom the agency of the author finds truest expressions, are not ones to whom he has given some special information or advice, but those who have best grasped his intention and developed it.³¹

Wiles differs from deism by holding that God acts in the whole of cosmic history, not just in its initial design. But he agrees with deism in holding that God does not act with particular intentions at particular points in that history. It seems to me that by abandoning the idea of particular divine initiatives in history, Kaufman and Wiles have departed significantly from the biblical witness. Moreover, in their interpretation Christ seems to be special only because of the way we respond to him, not because of any special divine action in his life.

4. The World as God's Body

Several theologians have developed the model of the world as God's body. Sallie McFague's use of this model was mentioned in chapter 2. Grace Jantzen, in *God's World, God's Body*, starts by defending a holistic understanding of the human person as a psychosomatic unity, citing support from the Old Testament and recent psychology and philosophy. She rejects the classical mind/body dualism with its devaluation of matter and the body. The God/world relation is analogous to that of person/body, rather than mind/body or soul/body. Jantzen thinks that the classical view of God as disembodied spirit is a product of the Christian Platonism that contrasted eternal forms with a lower realm of temporal matter; this view held that

God is immutable and therefore immaterial. But a few church fathers, such as Tertullian, accepted the Stoic assertion that God is embodied, though they rejected the determinism and pantheism of Stoicism.

Jantzen acknowledges that there are significant differences between God and human persons but suggests that these can be described in terms of *God's perfect embodiment*, rather than disembodiment. We have direct awareness of our thoughts, feelings, and many events in our bodies, but much is going on in our bodies of which we are not aware (for example, the processes in our internal organs). God, by contrast, has direct and immediate knowledge of all events in the cosmos. God as omnipresent perceives from every point of view, not from a limited viewpoint as we do. With such directness, God needs no analogue of a nervous system. Again, we can directly and intentionally affect a limited range of actions of our bodies; much that goes on, such as the beating of our hearts, is unintentional. God, however, is the universal agent for whom all events are basic actions, though some events may be more significant and revelatory than others. Instead of treating all of cosmic history as one action, as Wiles does, Jantzen holds that there are particular actions arising from God's response to changing situations.³²

Though God is free of many of the limitations that the human body imposes, the presence of any body does impose limitations, but Jantzen maintains that in the case of God these are voluntary *self-limitations*. God is always embodied but has a choice about the details of embodiment, which we do not have. A universe has always existed, but its present form is a voluntary self-expression. God could eradicate the present universe and actualize something different; God could exist without this world, but not without any world. God is always in complete control and the world is ontologically dependent. Yet God has voluntarily given the creatures considerable independence and autonomy. At this point Jantzen resembles the proponents of God's self-limitation discussed earlier, though she departs from them when she says that God and the world are "one reality." But she maintains that God transcends the world, just as we can say that a person transcends physical processes if we reject a mechanistic reductionism. She also suggests that the idea of the world as God's body would lead us to respect nature and would encourage ecological responsibility.³³

Thomas Tracy, on the other hand, argues that God is a *nonbodily* agent. In the human case, he says, embodiment means (1) existence as a unified organic process, and (2) limitation by subintentional, automatic processes. But the world, says Tracy, does not resemble a unified organism. Instead, there seems to be a looser pluralism, a society of distinct agents. Moreover, God is not inherently limited by involuntary processes, though some self-imposed limitations accompanied the choice to create other agents and to respect their integrity. Tracy accepts the more traditional position that God could exist without any world. God's vulnerability is the result of love and not necessity. Tracy describes his position as intermediate between classical theism (in which God's being is independent of the world) and process theism (in which God and the world affect each other). He concludes that God is a nonbodily agent with unrestricted intentionality who interacts temporally with the world in mutually affecting relations.³⁴

I would agree with Tracy that the world does not have the kind of unity that a human body possesses. To be sure, the mystical tradition has testified to an underlying unity

and has sometimes referred to God as the world-soul; but mystics speak of an undifferentiated identity wherein distinctions are obliterated, which is very different from the organized integration of cooperatively interacting parts that characterizes the unity of a body. Every body we have encountered also has an external environment, whereas with a cosmic body all interactions would be internal. The most serious objection to the model is that it does not allow sufficiently for the independence of God and the world. God's relation to other agents seems to require a social or interpersonal analogy in which a plurality of centers of initiative is present.

III. Process Theism

In process thought reality is envisaged as a society in which one member is preeminent but not totally controlling. The world is a community of interacting beings rather than a monarchy, a machine, the setting for an interpersonal dialogue, the action of an agent, or the body of an agent. We look first at the advantages of process theism in comparison with the options considered above and then analyze some of the problems it entails.

1. God as Creative Participant

We have seen that the process view 's *social* in that it portrays a plurality of centers of activity. It can also be called *ecological* in that it starts from a network of relationships between interdependent beings, rather than from essentially separate beings. We can think of God as *the leader of a cosmic community*. It is neither a monarchy nor a democracy, since one member is preeminent but not all-powerful. God is like a wise teacher, who desires that students learn to choose for themselves and interact harmoniously, or a loving parent who does not try to do everything for the members of a family. God's role is creative participation and persuasion in inspiring the community of beings toward new possibilities of a richer life together.

Some process thinkers have used the *mind-body relation* in a distinctive way as an analogy for God's relation to the world. Hartshorne is willing to call the universe God's body, provided we remember that a person's character can remain unchanged amid major bodily changes and that God's essence is uniquely independent of the particulars of the universe. Like Jantzen, Hartshorne points out that we have only dim awareness of some portions of our bodies and our pasts, whereas God knows the world completely at every point and forgets nothing. Hartshorne proposes that the mind-body analogy, if appropriately extended, provides an image of God's infinitely sympathetic and all-embracing participation in the world process, a mode of influence that is internal rather than external.

Hartshorne goes further, however, by showing that in process thought the *mind-body analogy* is itself *social* in character, because a human being is a society -- a network of living cells plus one dominant member, the mind. The immediacy of our knowledge of the body and the directness of our action through the body can appropriately be extended as images of God's perfect knowledge and action. Hartshorne says that the relationship between human persons is indirect and is mediated by language or physical objects, so that a human society is a less apt analogy for God's relation to the world.³⁵

Hartshorne's development of the mind-body model is helpful, but I believe that *interpersonal social models* best represent the combination of independence and interdependence that characterizes individual entities in relation to each other and in relation to God. We have more independence than cells in a cosmic organism. Here Whitehead's more pluralistic model allows a larger role for both human and divine freedom, intention, and action. In his scheme we can think of God as the leader of the cosmic community.

Drawing on the discussion in the previous chapter, we can see that the process model offers distinctive answers to each of the six problems in the monarchical model, which were indicated earlier.

1. Human Freedom. Human experience is the starting point from which process thought generalizes and extrapolates to develop a set of metaphysical categories that are exemplified by all entities. Self-creativity is part of the momentary present of every entity. It is not surprising, then, that process thought has no difficulty in representing human freedom in relation to both God and causes from the past. In particular, omnipotence and predestination are repudiated in favor of a God of persuasion, whose achievements in the world always depend on the response of other entities. Process theism strongly endorses our responsibility to work creatively to further God's purposes, as well as recognizing human frailty and the constraints imposed by the biological and social structures inherited from the past. We are participants in an unfinished universe and in God's continuing work. God calls us to love, freedom, and justice. Time, history, and nature are to be affirmed, for it is here that God's purposes can be carried forward.

2. Evil and Suffering. Human sin can be understood as a product of human freedom and insecurity. Suffering in the human and nonhuman world is no longer a divine punishment for sin or an inexplicable anomaly. The capacity for pain is an inescapable concomitant of greater awareness and intensity of experience. Greater capacity to hurt others is a concomitant of the new forms of interdependence present at higher levels of life. In an evolutionary world, struggle and conflicting goals are integral to the realization of greater value. By accepting the limitations of divine power we avoid blaming God for particular forms of evil and suffering; we can acknowledge that they are contrary to the divine purposes in that situation. Instead of God the judge meting out retributive punishment, we have God the friend, with us in our suffering and working with us to redeem it.

3. "Masculine" and "Feminine" Attributes. The classical view of God was heavily weighted toward what our culture thinks of as "masculine" virtues: power, rationality, independence, and impassibility. By contrast, process thinkers also ascribe to God what our culture takes to be "feminine" virtues: nurturance, sensitivity, interdependence, and responsiveness. These authors refer to God's tenderness, patience, and responsive love. The typical male image of control and self-sufficiency is rejected in favor of images of participation, education, and cooperation. In reacting against the monarchical model of God's power, process thinkers may sometimes seem to make God powerless, but in fact they are pointing to alternative forms of power in both God and human life. The goal in picturing both divine and human virtues is to integrate masculine/feminine attributes within a new wholeness, like the wider unity

within which the Taoists held that the contrasting qualities of yin and yang are embraced.

4. Interreligious Dialogue. In contrast to the exclusivist claims of revelation in classical theism, process thought allows us to acknowledge that God's creative presence is at work at all points in nature and history. But it also allows us to speak of the particularity of divine initiatives in specific traditions and in the lives and experience of specific persons. Unlike deism, existentialism, and the language of cosmic agency, it defends the idea of God's continuing action in the world -- including actions under special conditions that reveal God's purposes with exceptional depth and clarity. Such a framework would offer encouragement to the path of dialogue among world religions as an alternative to both the militancy of absolutism and the vagueness of relativism (chapter 3). We can accept our rootedness in a particular community and yet remain open to the experience of other communities.

5. An Evolutionary and Ecological World. We have seen that process thought is in tune with the contemporary view of nature as a dynamic process of becoming, always changing and developing, radically temporal in character. This is an incomplete cosmos still coming into being. Evolution is a creative process whose outcome is not predictable. Reality is multileveled, with more complex levels built on simpler ones, so we can understand why it had to be a very long, slow process if God's role was evocation and not control. Also fundamental to process metaphysics is a recognition of the ecological interdependence of all entities. Moreover, it presents no dualism of soul and body and no sharp separation between the human and the nonhuman. Anthropocentrism is avoided because humanity is seen as part of the community of life and similar to other entities, despite distinctive human characteristics. All creatures are intrinsically valuable because each is a center of experience, though there are enormous gradations in the complexity and intensity of experience. In addition, by balancing immanence and transcendence, process thought encourages respect for nature.

6. Chance and Law. Within the monarchical model, any element of chance is a threat to divine control (unless God controls what to us appears to be chance). Within both deism and existentialism it is assumed that all events in nature are objectively determined. Process thought is distinctive in holding indeterminacy among its basic postulates. It affirms both order and openness in nature. Here divine purpose is understood to have unchanging goals but not a detailed eternal plan; God responds to the unpredictable. Process thought recognizes alternative possibilities, potentialities that may or may not be realized. There are many influences on the outcome of an event, none of them absolutely determining it.

2. Problems in Process Theology

I take seriously three criticisms of process theology, though I believe that there are answers to each.

1. Christianity and Metaphysics

The context of religious discourse is the worshiping community. Writings in process theology, by contrast, often seem abstract and speculative. God is described in philosophical categories rather than through stories and images. But we must remember that differing types of discourse can have the same referent. A husband can refer to his wife in the personal language of endearment or in the objective language of a medical report. Moreover, process metaphysics is not proposed as a substitute for the language of worship but as a substitute for alternative metaphysical systems. Metaphysics is inescapable as soon as one moves from the primary language of worship (story, liturgy, and ritual) to theological reflection and doctrinal formulation.

The use of *philosophical categories* in theology is not new. Augustine was indebted to Plato, Aquinas to Aristotle, nineteenth-century Protestantism to Kant. In each case the theologian had to adapt the philosopher's ideas to the theological task. In turn, the theologian's philosophical commitments led to greater sensitivity to some aspects of the biblical witness than to others. The components of any creative synthesis are themselves altered by being brought together. Whitehead, like Kant, was a philosopher already deeply influenced by the Christian vision of reality. Whitehead recognized the tentative and partial character of his attempt at synthesis; he held that every philosophical system illuminates some types of experience more adequately than other types, and none attains to final truth.

At certain times in the past the imposition of a rigid *philosophical system* has hindered both scientific and theological development. The dominance of the Aristotelian framework from the thirteenth to the seventeenth centuries was in some ways detrimental to both science and theology. In the search for unity and coherence, we must avoid any premature or externally imposed synthesis. We can expect no complete and final system; our endeavors must be tentative, exploratory, and open, allowing a measure of pluralism in recognition of the variety of experience. Christianity cannot be identified with any metaphysical system. The theologian must adapt, not adopt, a metaphysics. Many process insights may be accepted without accepting the total Whiteheadian scheme. These insights can lead to the modification of classical religious models so that they more accurately reflect the experience of the Christian community as well as contemporary scientific understanding.

2. God's Transcendence and Power

It has been said that the God of process philosophy lacks the transcendence and power characteristic of the biblical God. One critic says that such a weak God would evoke our pity rather than our worship.³⁶ Transcendence is indeed less emphasized in process theology than in classical Christianity, but it is still strongly represented. God is distinct from the world and not identified with it, as in pantheism. Every entity is radically dependent on God for its existence and the order of possibilities that it can actualize, God's freedom and priority in status are upheld; God alone is everlasting, omniscient, and omnipresent. God is perfect in love and wisdom. God's unchanging purposes for good are not contingent on events in the world.

The process God does have power, but it is the *evocative power* of love and inspiration, not controlling, unilateral power. It is power that is also creative empowerment, not the abrogation of creaturely powers. The power of love and goodness is indeed worthy of worship, commitment, and also gratitude for what God

has done, whereas sheer power would only be cause for awe and fear. God's love is not irresistible in the short run, but it is inexhaustible in the long run.

Several themes in Christian thought support the portrayal of a *God of persuasion*. Christ's life and death reveal the transformative power of love. We have freedom to respond or not, for grace is not irresistible. In the last analysis, I suggest, the central Christian model for God is the person of Christ himself. In Christ it is love, even more than justice or sheer power, which is manifest. The resurrection represents the vindication rather than the denial of the way of the cross, the power of a love stronger than death. Process theology reiterates on a cosmic scale the motif of the cross, a love that accepts suffering. By rejecting omnipotence, process thought says that God is not directly responsible for evil. Whereas exponents of kenotic self-limitation hold that the qualifications of divine omnipotence are voluntary and temporary, for Whiteheadians the limitations are metaphysical and necessary, though they are integral to God's essential nature and not something antecedent or external to it.

Process theology does call into question the traditional expectation of an *absolute victory over evil*. In chapter 5 we traced the historical development from the prophetic eschatology of God's Kingdom on earth to the apocalyptic eschatology of a final supernatural victory. Process thought is more sympathetic to the former. It holds that God does not abolish evil but seeks to turn it to good account by transmuting it and envisaging the larger pattern into which it can be integrated. This is a God of wisdom and compassion who shares in the world's suffering and is a transforming influence on it, and who also preserves its accomplishments forever within the divine life. Process thought does not look to a static completion of history but to a continued journey toward greater harmony and enrichment. We have seen that subjective immortality is affirmed by some process theologians, while others defend only the objective immortality of contributing to God's everlasting experience.

In process thought, *God's power over nature* is indeed limited. Lower-level events are essentially repetitive and mechanical, though this in itself accords with God's intentions. Yet even the inanimate included an infinitesimal element of new potentiality, which only the long ages of cosmic history could disclose. Continuing creation has been a long, slow travail, building always on what was already present. Evolutionary history seems to point to a God who acts not by controlling but by evoking the response of the creatures.

It is in *human life*, then, that the greatest opportunities for God's influence exist. In religious experience and historical revelation, rather than in nature apart from humanity, the divine initiative is most clearly manifest. Here our earlier methodological assertion that theology should be based on religious experience and historical revelation is supported by our understanding of God's mode of action.

3. Criteria for Theological Reformulation

Process theology has been criticized for departing too far from classical theology. Can its reformulation of the earlier tradition be justified? The answer must make use of all four of the criteria presented in chapter 2.

The first criterion is *agreement with data*. This refers to the continued intersubjective testing of beliefs against the experience of the religious community. Since all data are theory-laden, and religious experience is influenced by theological interpretation, this criterion cannot be decisive, but it is nevertheless important. The process view of God as creative love accords well with what I described as the Christian experience of reconciliation. I have suggested that the numinous experience of the holy can also be adequately accounted for in the process understanding of God's transcendence and moral purpose, despite its emphasis on immanence. The experience of moral obligation has often been mentioned in process writings. And, of course, the experience of order and creativity is given a central place in all process thought.

Mystical experience of the unity of all things has been less prominent in the West than in the East, and process thought agrees with the Christian tradition in rejecting monism. But process theologians have often been sympathetic to meditative practices and more open to God's presence in nature than many forms of Western theology. They have appreciated the contribution of the Franciscan tradition to environmental awareness and welcomed the combination of mysticism and concern for nature in Teilhard's writing and in some of the classical Christian mystics.

I suggested earlier that the stories and rituals of a tradition are part of the data that must be interpreted. This would mean that process insights should be tested against the biblical record and the subsequent life of the religious community, rather than against previous theological formulations alone. The Bible itself is a diverse document, and process thought seems more in tune with some of its themes than with others. We have said, for example, that it finds prophetic eschatology more consistent with the overall biblical message than apocalyptic eschatology. Process theology directs attention to Christ's life and the suffering love of the cross, and it sees the resurrection as evidence of the transforming power of that love rather than as an independent manifestation of God's power.

The second criterion is *coherence*. Any reformulation must be consistent with the central core of the Christian tradition. We saw that, according to Lakatos, the "hard core" of a tradition may be protected by making modifications in "auxiliary hypotheses" in order to accommodate discordant data. I take the central core of Christianity to be belief in God as creative love, revealed in Christ. Omnipotence is then treated as an auxiliary hypothesis, which can be modified to accommodate the data of human freedom, evil and suffering, and an evolutionary cosmos. I have suggested that the new view of nature requires reformulating our understanding of God's relation to nature, but this can be done without abandoning the tradition's core.

Process theology deserves high marks for internal coherence. It brings together within a single set of basic categories the divine initiatives in nature, history, religious experience, and the person of Christ. I maintained that this coherence is also expressed in the biblical idea of the Holy Spirit at work in all of these spheres. This can in turn help us to integrate the personal, social, and ecological dimensions of our lives.

Scope is the third criterion. Process thought seeks comprehensiveness in offering a coherent account of diverse types of experience -- scientific, religious, moral, and aesthetic. It tries to articulate an inclusive world view. It pays a price in the

abstractness of its concepts, but its basic categories allow for a greater diversity of types of experience than most metaphysical systems. In particular, the idea of levels of experience and evolutionary emergence provide a better balance between continuity and discontinuity (both in history and in ontology) than do either materialist or dualist alternatives. Process theology is responsive to the experience of women as well as men. Its scope is also broad in its openness to other religious traditions. It can accept the occurrence of divine initiative in other religious traditions, while maintaining fidelity to the central core of the Christian tradition, in accordance with the path of dialogue in a pluralistic world.

Fertility is the fourth criterion. Lakatos says that a program is progressive only if it leads to new hypotheses and experiments over a period of time. Process thought has stimulated creative theological reflection, and it has been extended to new domains and disciplines in recent decades. But the fertility of religious ideas has many dimensions. Is ethical action encouraged and sustained? Process theologians have given distinctive analyses of some of the most urgent problems of our times, such as the ecological crisis and social injustice. Process theology has the capacity to nourish religious experience and personal transformation. It must be expressed in individual religious life, communal worship, and social action, as well as in theological reflection. I believe that by these four criteria the reformulations of classical tradition proposed in process theology are indeed justified.

IV. Conclusions

Theology is critical reflection on the life and thought of the religious community. The context of theology is always the worshiping community. Religious experience, story, and ritual are the starting points for articulating doctrines and beliefs.

The biblical tradition starts with response to *God as Redeemer*. For the Christian community, renewal and wholeness have been found through confrontation with historical events. Here people have known release from insecurity and guilt, from anxiety and despair; here they have discovered, at least in a fragmentary way, the power of reconciliation that can overcome estrangement. Here they have come to know the meaning of repentance and forgiveness and of the new self-understanding and release from self-centeredness that are the beginning of the capacity for love. They can only confess what has occurred in their lives: that in Christ something happened that opens up new possibilities in human existence. The purpose of creation is made known in Christ, "the new creation," who is at the same time the full flowering of the created order and the manifestation of continuing creation. The power of God is revealed as the power of love. God is thus encountered in historical events, in the creative renewal of personal and social life, in grace that redeems alienation. These aspects of the biblical witness are well represented in neo-orthodoxy, existentialism, and linguistic analysis.

But I have urged that while theology must start from historical revelation and personal experience, it must also include a *theology of nature* that does not disparage or neglect the natural order. In neo-orthodoxy, nature remains the unredeemed stage for the drama of human redemption. In existentialism, the world is the impersonal setting for personal existence, and religion is radically privatized and interiorized. In linguistic analysis, discourse about phenomena in the natural order has no functions in common

with discourse about God. These positions minimize the continuity between nature and grace, between impersonal and personal realms, and between language about nature and language about God. But the Bible itself takes a predominantly affirmative attitude toward the natural world; God is Lord of all of life, not of a separate religious realm. The biblical God is Creator as well as Redeemer.

Each of the models of God examined in this chapter has its strengths and its shortcomings. The *monarchical model* dwells on the transcendence, power, and sovereignty of god. These attributes correspond to the numinous experience of the holy. This model was already present in the biblical view of God as Lord and King. It is appropriate for many aspects of the three main biblical stories: the grandeur of the creation narrative, the liberating events of the exodus and covenant, and the transforming experience of the resurrection of Christ. Some parts of science are in keeping with this model: the awesome power of the Big Bang, the contingency of the universe, the immense sweep of space and time, and the intricate order of nature. But the elaboration of this model in the classic doctrines of omnipotence and predestination conflicts with the evidence of human freedom, evil and suffering, and the presence of chance and novelty in an evolutionary world.

The *neo-Thomist model* of worker and tool (or double agency) shares many of the strengths of the monarchical model. It is expressed in the idea of primary and secondary causes, which operate on totally different planes. Some scientists welcome this idea, since it upholds the integrity of the natural causal nexus. God's normal role is to maintain and concur with the natural order, yet all events are indirectly predetermined in the divine plan. Thus all the problems inherent in the concept of omnipotence are still present. Furthermore, any particular divine initiatives (in Christ, or in grace in human life) are supernatural interventions of a totally different kind. Creation and redemption are contrasting rather than similar modes of divine action.

The *kenotic model* of God's voluntary self-limitation answers many of the objections to the monarchical model. Here the proposed analogies are artistic creativity and parental love. Love always entails vulnerability, reciprocity, and temporality rather than impassibility, unilateral power, and unchanging self-sufficiency. God's self-limitation allows for human freedom and the laws of nature, and it thereby renders the problems of evil and suffering more tractable. Yet because the self-limitation is voluntary **it** does not imply any inherent limitation in God's ultimate power. Such a view accords with the Christian experience of reconciliation and with many features of the biblical witness, such as Israel's free choice in accepting the covenant and Christ's acceptance of the cross. It also seems to fit the pattern of evolutionary history as a long and costly process. I find it a very valuable contribution to theological reflection. It shares many of the assumptions of process theology. When its metaphysical implications are systematically developed, I expect that it will move even closer to process views.

Existentialist authors rightly insist that personal involvement, decision, and commitment are essential characteristics of the religious life. We are participants in the story, not detached spectators. We encounter God as individuals in the I-Thou dialogue of personal life. But existentialism tends to leave Out the social context of dialogue, the religious community. And it leaves out the natural context, the community of life. Restricting God's action to the sphere of selfhood and viewing

nature as an impersonal system governed by deterministic laws leads to an absolute separation of spheres. I have suggested that such a sharp line between humanity and nonhuman nature is not consistent with either biblical religion or current science. Nor does existentialism provide the basis for an environmental ethic.

The model of *God as agent* is in keeping with the biblical identification of God by actions and intentions. The linguistic analysts who use this model have made helpful distinctions between the functions of scientific and religious language, but they have ended by isolating them in completely separate spheres. Causes and intentions should be distinguished, but they cannot remain totally unrelated, in either human or divine action. When Wiles and Kaufman speak of cosmic history as one divine action, they have given up the biblical understanding of particular divine initiatives, and they have jeopardized both divine and human freedom.

The model of *the world as God's body* emphasizes divine immanence, which has been a somewhat neglected theme in traditional theology. Advocates of this model say that the relation of God to the world is even closer than that of the human mind to the body, since God is aware of all that is and acts immediately and directly. This model would indeed give strong encouragement to ecological responsibility. As developed by Hartshorne, the mind-body analogy can be considered one form of social analogy, since in process thought a human being is a society of entities at many levels, with one dominant entity, the mind. I have argued, however, that the cosmic organism image does not allow sufficiently for the freedom either of God or of human agents in relation to each other. It also has difficulty in adequately representing God's transcendence.

In the *process model*, God is a creative participant in the cosmic community. God is like a teacher, leader, or parent. But God also provides the basic structures and the novel possibilities for all others members of the community. God alone is omniscient and everlasting, perfect in wisdom and love, and thus very different from all other participants. Such an understanding of God, I have suggested, expresses many features of religious experience and the biblical record, especially the life of Christ and the motif of the cross. Process thought is consonant with an ecological and evolutionary understanding of nature as a dynamic and open system, characterized by emergent levels of organization, activity, and experience. It avoids the dualisms of mind/body, humanity/nature, and man/woman. Of all the views considered here, it gives the strongest endorsement of environmental responsibility.

Process thought represents God's action as Creator and Redeemer within a single conceptual scheme. God's action in the nonhuman and human spheres is considered within a common framework of ideas. The biblical stories can be taken as a single story of continuing creation and renewal, the story of life and new life. The *logos*, the divine Word, is the communication of rational structure and personal meaning. The Spirit is God's presence in nature, the community, religious experience, and Christ. Creation and redemption are two aspects of a single continuing divine activity. We can therefore tell an overarching story that includes within it the story of the creation of the cosmos, from elementary particles to the evolution of life and human beings, continuing in the stories of covenant and Christ -- with a place in it for the stories of other religious traditions.

In volume 2, I will consider an ethics of obedience and an ethics of natural law, but I will defend a view of Christian ethics as *response to what God has done and is doing*. In previous Christian thought, an ethics of response has been understood primarily as response to God as Redeemer rather than to God as Creator. The tradition has also focused on what God has done, rather than on what God is doing. I will suggest that an ethics for technology and the environment must involve response to both redemption and creation, and that in each we must look at both past and present. The reformulation of the doctrine of creation in the current volume will thus play an important role in the subsequent volume.

The process model thus seems to have fewer weaknesses than the other models considered here. But according to critical realism, all models are limited and partial, and none gives a complete or adequate picture of reality. The world is diverse, and differing aspects of it indeed may be better represented by one model than by another. God's relation to persons will differ from God's relation to impersonal objects like stars and rocks. The pursuit of coherence must not lead us to neglect such differences. We need diverse models to remind us of these differences. In addition, the use of diverse models can keep us from the idolatry that occurs when we take any one model of God too literally. Only in worship can we acknowledge the mystery of God and the pretensions of any system of thought claiming to have mapped out God's ways. We must also ask which models lead to responsible action in today's world. This is the topic of the second volume, which deals with the intersection of theology, ethics, and technology.

Footnotes:

1. For an overview of some of these options, see Owen Thomas, ed., *God's Activity in the World* (Chico, CA: Scholars Press, 1983). See also Ian G. Barbour, *Issues in Science amid Religion*, chap. 13.
2. Thomas Aquinas, *Summa Theologica* I, q. 22, art. 4; q. 19, art. 4; q. 105, art. 5, etc. See also Étienne Gilson, *Time Christian Philosophy of Thomas Aquinas* (New York: Random House, 1956).
3. Dante Alighieri, *The Paradiso*, trans. John Ciardi (New York: New American Library, 1970), canto 33.
4. E. L. Mascall, *He Who Is: A Study in Traditional Theism* (London: Longman's, Green & Co., 1945).
5. H. P. Owen, *Concepts of Deity* (London: Macmillan, 1971).
6. Richard Creel, *Divine Impassibility: An Essay in Philosophical Theology* (Cambridge: Cambridge University Press, 1986).
7. Robert Boyle, "The Usefulness of Experimental Philosophy," in *The Works of the Hon. Robert Boyle*, ed. T. Birch (London, 1772); Richard S. Westfall, *Science and Religion in Seventeenth-Century England* (New Haven: Yale University Press, 1958).

8. Etienne Gilson, "The Corporeal World and the Efficacy of Second Causes," in *God's Activity in the World*, ed. O. Thomas.
9. Ibid.; also Gilson's *The Spirit of Medieval Philosophy* (New York: Charles Scribner's Sons, 1940), chap. 7; Brother Benignus Gerrity, *Nature, Knowledge, and God* (Milwaukee: Bruce Publishing, 1947).
10. Reginald Garrigou-Lagrance, *God: His Existence and His Nature* (St. Louis: Herder, 1934).
11. Austin Farrer, *A Science of God?* (London: Geoffrey Bles, 1966), pp. 76 and 90. See also his *Faith and Speculation* (London: Adam & Charles Black, 1967), chaps. 4 and 10.
12. Karl Barth, *Church Dogmatics*, vol. 3, pt. 3 (Edinburgh, Scotland: T & T Clark, 1958), p. 148.
13. Ibid., pp. 42, 94, 106, and 133.
14. H. Wheeler Robinson, *The Cross in the Old Testament* (London: SCM Press, 1955); Terence E. Fretheim, *The Suffering of God: An Old Testament Perspective* (Philadelphia: Fortress Press, 1984). "The divine pathos" is discussed by the Jewish scholar Abraham Heschel in *The Prophets* (San Francisco: Harper & Row, 1965), pp. 24, 237, and 483. A Christian rendition is given in Jürgen Moltmann, *The Crucified God*, trans. R. A. Wilson and J. Bowden (London: SCM Press, 1974).
15. Doctrine Commission of the General Synod of the Church of England, *We Believe in God* (London: Church Publishing House, 1987), chap. 9.
16. W. H. Vanstone, *Love's Endeavor, Love's Expense* (London: Dartmon, Longman and Todd, 1977), pp. 63 and 64.
17. Ibid., p. 120.
18. Brian Hebblethwaite, "Providence and Divine Action," *Religious Studies* 14 (1978): 223-36, and "Some Reflections on Predestination, Providence, and Divine Foreknowledge," *Religious Studies* 15 (1979): 433-48.
19. Keith Ward, *Rational Theology amid the Creativity of God* (Oxford: Basil Blackwell, 1982).
20. John Macquarrie, *In Search of Deity: An Essay in Dialectical Theism* (London: SCM Press, 1984).
21. Paul S. Fiddes, *The Creative Suffering of God* (Oxford: Clarendon Press, 1988).
22. Ibid., p. 157.

23. Rudolf Bultmann, *Jesus Christ and Mythology* (New York: Charles Scribner's Sons, 1958), and *Kerygma and Myth*, ed. H. Bartsch (London: SPCK, 1953).
24. Bultmann, *Jesus Christ and Mythology*, p. 68.
25. *Ibid.*, pp. 62 and 65.
26. Robert Cushman, "Is the Incarnation a Symbol?" *Theology Today* 15 (1958): 179.
27. Alan White, ed., *The Philosophy of Action* (Oxford: Oxford University Press, 1968).
28. John J. Compton, "Science and God's Action in Nature," in *Earth Might be Fair*, ed. Ian G. Barbour (Englewood Cliffs, NJ: Prentice-Hall, 1972), p. 39.
29. Gordon Kaufman, "On the Meaning of 'Act of God,'" *Harvard Theological Review* 61 (1968): 175.
30. Maurice Wiles, *God's Action in the World* (London: SCM Press, 1986), p. 93.
31. *Ibid.*, p. 107.
32. Grace Jantzen, *God's World, God's Body* (Philadelphia: Westminster Press, 1984).
33. *Ibid.*, p. 156.
34. Thomas Tracy, *God's Action and Embodiment* (Grand Rapids: Eerdmans, 1984).
35. Charles Hartshorne, *Man's Vision of God* (Chicago: Willet Clark, 1941), chap. 5, and *The Logic of Perfection* (LaSalle, IL: Open Court, 1962), chap. 7.
36. Colin Gunton, *Becoming amid Being: The Doctrine of God in Charles Hartshorne amid Karl Barth* (Oxford: Oxford University Press, 1978).

Additional note: David A. Pailin in *God and the Processes of Reality* (London: Routledge, 1989) defends a revisionist Whiteheadian theism. Pailin accepts "dipolar panentheism" but rejects panpsychism and the idea of particular divine purposes or actions in nature and history. As one model for divine-human relationships he suggests the role of an imaginative play-group leader who stimulates children to explore their potential and encourage their creative activity (Pailin, p. 124).

Some aspects of science may also accord well with the monarchical model, especially the power and mystery of the Big Bang, the immense sweep of cosmic history, and the marvel of biological and human life. But six problems with this model lead many theologians to qualify, modify, or reject it. 1. Human Freedom. With the rise of modern science, the idea of supernatural intervention in nature seemed increasingly dubious. By the time of Newton, God's wisdom and power were seen only in the initial design of the universe, not in its continuing governance (except for occasional interventions). Deism took seriously the lawfulness of nature at the price of relegating God's activity to the distant past. Ian G. Barbour is Professor of Science, Technology, and Society at Carleton College, Northfield, Minnesota. He is the author of *Myths, Models and Paradigms* (a National Book Award), *Issues in Science and Religion*, and *Science and Secularity*, all published by HarperSanFrancisco. Published by Harper San Francisco, 1990. This material was prepared for Religion Online by Ted and Winnie Brock. SUMMARY. What is the place of religion in an age of science? How can one believe in God today? What view of God is consistent with the scientific understanding of the world? My goals are to explore the place of religion in an age of science and to present an interpretation of Christianity that is responsive to both the historical tradition and contemporary science.

Having authored several influential books dealing with the relation of science and religion, such as *Science and Secularity* (New York, 1970), *Issues in Science and Religion* (Englewood Cliffs, N J , 1966), and *Myths, Models, and Paradigms* (New York, 1974), Barbour is equal to his ambitious goal of exploring the place of religion in an age of science. and presenting an interpretation of Christianity that is responsive to both the historical tradition and contemporary science. As Schleiermacher did with his *Glaubenslehre*, Barbour opens *Religion in an Age of Science* with an in-depth study of method, which in Barbour's case forms part one of a three-part work. Xv, 297 pages ; 25 cm. Includes bibliographical references (pages 271-290) and index. Part One: Religion and the methods of science -- 1. Ways of relating science and religion -- I. Conflict -- 1. Scientific materialism -- 2. Biblical literalism -- II. Independence -- 1. Contrasting method -- 2. Differing languages -- III. Dialogue -- 1. Boundary questions -- 2. Methodological parallels -- IV. Integration -- 1. Natural theology -- 2. Theology of nature -- 3. Systematic synthesis -- 2. Models and paradigms -- I. The structures of science and religion -- 1. Theory and data in science -- 2. Belie What is the place of religion in an age of science? How can one believe in God today? What view of God is consistent with the scientific understanding of the world? My goals are to explore the place of religion in an age of science and to present an interpretation of Christianity that is responsive to both the historical tradition and contemporary science. Part 1: Religion and the Methods of Science. Chapter 1: Ways of Relating Science and Religion. Scientific materialism makes two assertions: (1) the scientific method is the only reliable path to knowledge; (2) matter (or matter and energy) is the fundamental reality in the universe. The relationship between religion and science is the subject of continued debate in philosophy and theology. To what extent are religion and science compatible? Are religious beliefs sometimes conducive to science, or do they inevitably pose obstacles to scientific inquiry? The interdisciplinary field of "œscience and religion", also called "œtheology and science", aims to answer these and other questions. It studies historical and contemporary interactions between these fields, and provides philosophical analyses of how they interrelate. This entry provides an overview of the topics and discuss Other articles where Religion in an Age of Science is discussed: Ian Barbour: Religion in an Age of Science (1990) and Ethics in an Age of Technology (1993), a two-volume set based on a series of lectures he presented in Scotland, received the 1993 book award from the American Academy of Religion. Among the topics Barbour examined were: Religion in an Age of Science (1990) and Ethics in an Age of Technology (1993), a two-volume set based on a series of lectures he presented in Scotland, received the 1993 book award from the American Academy of Religion. Among the topics Barbour examined were: Read More. Inspire your inbox " Sign up for daily fun facts about this day in history, updates, and special offers. Enter your email. Subscribe.