

THE DIALOGUE BETWEEN RELIGION AND SCIENCE: WHICH GOD?

by K. Helmut Reich

Abstract. As exemplified by three cases, difficulties in the dialogue between religion and science not infrequently arise from differing views of God's omnipotence and omniscience. From the side of theology, reflections on the biblical and church-related sources of those views, on Auschwitz and the problem of theodicy, on God as Creator of the universe, and on how to read and interpret the Bible show that a view of a God who self-limits almightiness and all-knowing in order to grant freedom and functional integrity to a Creation about which God cares can be multiply justified. Such a view is not dissonant with regard to a self-organized, open universe, producing "unexpected" emergent features as seen by science.

Keywords: dialogue between religion and science; divine causation; God; interpreting the Bible; linked time modes; omnipotence; omniscience; science; theology.

The way God is viewed and understood markedly influences the potential fruitfulness of the dialogue between religion and science. That is the thesis of this essay. For instance, the concept of a traditional omnipotent and omniscient God who is the *direct* cause of *all* events is not self-evidently compatible with a scientific view of the world as a *self*-organizing, evolving, open system based on natural causes; hence, that God-concept does not offer a bright prospect for a fruitful dialogue. My aim is not to arrive at a concordist solution by looking for possible "compromises" but to (a)

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make the potential problem visible by way of examples, (b) look for clarifications from a theological and a scientific perspective inspired by the assumed compatibility of the “two books” (the book of scripture and the book of nature), and (c) draw some conclusions.

Given my background, I shall argue almost exclusively from a Christian perspective. In accordance with the confession of Christian faith, God should be understood as the Trinity. However, the issue being already rather complex, I shall essentially concentrate on the concept of an inclusive Godhead (Genesis 1:27), although I am aware of the resulting loss (Daecke 1985; Larson 1995; Moltmann 1993; Peters 1993). Another caveat concerns the limitations of the enterprise: “For my thoughts are not your thoughts, nor are your ways my ways, says the LORD. For as the heavens are higher than the earth, so are my ways higher than your ways and my thoughts than your thoughts” (Isaiah 55:8–9 NRSV), and “O the depth of the riches and wisdom and knowledge of God! How unsearchable are God’s judgments and how inscrutable God’s ways! (Romans 11:33 NRSV). Can we hope ever to take the full measure of God’s majesty and humbleness, God’s sense of justice and of forgiveness, God’s doing and letting it be done?”

WHAT IS AT STAKE?

A major purpose of the debate between science and theology is to enlarge the mental horizons of the participants—to further insights into a deeper truth and gain a more encompassing view of all-there-is. Unfortunately, in actual practice, the result sometimes hardly approaches those lofty objectives. A case that comes to mind is the limited fruitfulness of the debates between creationists and (agnostic) mainstream scientists. There are several reasons for this, but is not one of them the creationists’ concept of an omnipotent, omniscient God who is the direct cause of all that there is and all that occurs? How much room does that leave for a “self-organizing” universe, the “laws” that the scientist is set to elucidate? How fruitful can a dialogue between the creationist and that scientist actually be under those conditions?

In fact, the issue regrettably extends into debates among self-confessed Christians, as exemplified by the recent exchanges between chemist and theologian Philip P. Duce and physicist Howard J. Van Till, essentially about God’s omnipotence. For Duce God’s power is unrestrained; for Van Till it is self-limited. Duce (1996) assessed the potentialities and limitations of the complementarity concept for characterizing the interaction of science and theology, or for biblical interpretation. In doing so, he quoted from Van Till’s *Fourth Day* (1986) and critiqued Van Till’s “categorical complementarity” as verging on compartmentalization (Duce 1996, 148), thereby making a dialogue between scientists and religionists more difficult. For Van Till (1996b, 157) “categorical complementarity” means that,

for instance, the Scriptures and the Creation are two distinct, categorically different sources of information regarding the universe, yet they complement each other. From his contrasting perspective, Duce (1996, 149) approvingly quoted Donald MacKay, “If the divine activity means anything, then *all* the events of what we call the physical world are dependent on that activity,” as well as Henri Blocher, “religion has to do with *everything*, precisely because *all* realms are created by God and continue to depend on him” (emphasis added throughout). In the subsequent exchange—after a statement about some mutual agreement on the limited usefulness of the concept of complementarity in the present context (see Van Till 1996b; Reich 1994)—the differences of views, which were already surfacing, came fully to light. Duce (1997, 151) critiqued the “functional integrity” (a certain freedom given to an evolving nature by a self-limiting God) favored by Van Till (1996a—see what follows): “I remain unconvinced that it is a good example of restatement and explanation of the Biblical *doctrine* of creation.” Van Till (1997, 153) summed up one result of their double exchange as follows: “On the particular question of how a Christian today might evaluate the scientific concept of biotic evolution, however, Duce and I will presumably remain in disagreement.” While both are scientists and self-confessed Christians, Duce and Van Till cannot agree on the issue of whether God’s specific actions were or are needed time and again to keep biotic evolution going (Duce) or whether the Creation (Nature) has been endowed by God with gifts that make evolutionary continuity possible without specific divine intervention, case by case (Van Till).

As to God’s omniscience, an example would be the exchange between systematic theologian John Jefferson Davis and biochemist and Anglican priest Arthur Peacocke. Davis argues contra Peacocke “that the realities of quantum physics do *not* require an abandonment of the concept of maximal divine omniscience . . .” (1997, 144). Peacocke, who perceives God as limiting God’s own omniscience in order to permit the existence of a world characterized by freedom and contingency, argues his case from three perspectives: (a) definition of “omniscience,” (b) quantum mechanics, and (c) theology (1997, 145–47). Against Davis’s “*omniscience means to know all that could conceivably be known*,” Peacocke takes his meaning from Richard Swinburne (1979, 8) as “*having knowledge of whatever is logically possible to know*.” Given that quantum events (instituted by God) are governed by probabilities—not deterministic “rules”—a particular outcome logically cannot be known ahead of time, hence God’s self-limitation of omniscience. In theology other self-limitations have been accepted since long ago, such as God’s permitting evil to exist or God’s *kenosis*, a deliberate self-restriction for a loving purpose. The difference of views, then, again comes down to the issue of whether or not God exercises self-limitation.

As a final example, let us turn to the exchange between geologist Euan G. Nisbitt and applied mathematician Chris Clarke. Nisbitt (1996, 131),

in an otherwise dispassionate essay about caring for planet Earth, wrote: “Biblical teaching (Job 38–41) is that God is found neither in Darwin nor Gaia. ‘Hear O Israel,’ God transcends all, creates all. . . . Creation worship and creation spirituality are dangerous bypaths, attempts to bring down God into the narrowness of what we can see, measure, and attempt to understand.” Clarke, who is a supporter of the Association of Creation Spirituality, objects to this argumentation of “heresy” (denial of God’s transcendence) notably on the grounds that the critiqued movement has adopted Meister Eckhart as a kind of patron saint, and hence values God’s transcendence *and* immanence (*unio mystica*) (1997, 155). Furthermore, Matthew Fox (1983), another supporter of the critiqued movement, insists on the apophatic way (*apophasis*, Greek for “negation” or “denial”: God cannot be known in terms of human categories), which again is clearly not about “measuring” God. Clarke indicates as a major bone of contention Nisbitt’s view (1996, 127) that “God is not to be seen in the creation but apart from it, the creator of the ends of the earth.” For R. J. Berry (1997), Clarke has opened up some important questions, but Berry cannot agree with Clarke’s approach to the answers. In particular, Berry objects to Fox’s rejection of the authority of both the Old and the New Testaments as “manmade word-books” (Fox 1983, 38) in order to develop his own theses unfettered by revelation. Thus, as in some of the other debates, the attitude toward the Bible and its interpretation play an important role for our theme, an issue we shall return to shortly. However, a main bone of contention appears once more to be God’s omnipotence and omniscience: limitless or self-limited?

THEOLOGICAL CONSIDERATIONS

Issues. The concept of God’s creating the universe from nothing (*creatio ex nihilo*) is comparatively easy to defend in that—despite some claims to the contrary—science cannot explain the step from no space-time, no matter-energy, no “laws of nature” to a universe featuring all that. It is a quite different matter when it comes to God’s continuing creation (*creatio continua*): cosmology and neo-Darwinian biotic evolution in particular now claim to provide a sufficient, far-reaching explanation, much of it backed up by considerable evidence. Theologians are called upon to provide not only a God story that makes sense to scientists but also one in consonance with a traditional God image—that is, one representing neither deism nor pantheism. The stipulation of making sense to scientists will presumably be criticized by arguing that theology and science are incommensurable language games and that to expect any bridging is not reasonable. To the contrary, if the two disciplines deal (partly) with the same universe, then some conceptual bridges should exist at least potentially. They need to be constructed in actuality if theology is not to exist in a ghetto. As to the God image adopted, extremes would be on the one hand an overpowering

God who leaves no creative possibilities to anybody or to anything else, and on the other hand too weak a God, for instance one who can at best persuade (as in a version of process theology) rather than coerce when need be. In addition, God images are not just an academic issue but may have further-reaching social and political consequences (Case-Winters 1997). Hence, they need careful consideration from a number of perspectives.

Sources. “I believe in God the Almighty . . .” is being confessed in many churches on each Sunday the world over, and biblical references back up that confession—for instance, “the Lord tossed the Egyptians into the sea” (Exodus 14:27); or “for he spoke, and it came to be; he commanded, and it stood firm” (Psalm 33:9). According to the New Testament, “not one sparrow will fall to the ground apart from your Father. And even the hairs of your head are all counted” (Matthew 10:29–30)—indeed, “for God all things are possible” (Mark 10:27, Matthew 19:26, Luke 18:27). The message of God’s omnipotence and omniscience has been and is being reinforced by church councils (for example, the Fourth Lateran Council, 1215), catechisms, liturgies, hymns, and sermons.

The Nature of Biblical Language. At this point already let us notice that the biblical writings often have their origin and relevance within concrete historical situations. As such they are an expression of confidence and hope—but also of fear of God’s justice when God’s laws have not been obeyed. They can be a confident call for help in a potentially menacing situation such as that of the Jews in Babylonian captivity or later in Hellenistic times or that of the early Christians under certain Roman emperors (Feldmeier 1997, 30–34; Ritter 1997a, 129; 1997b, 124–25). This is in contrast to a definition, a timeless characterization of God’s nature or the like. For instance, in the Septuagint, God is referred to as *Pantokrator* (*pantokratoros*, Greek for “the all-powerful”) about one hundred eighty times (Feldmeier 1997, 22), but that does not involve an explanation of *how* God rules. In the New Testament God is occasionally referred to explicitly as “Lord Almighty” or at least “the Almighty” (2 Corinthians 6:18, Revelation 1:8; 4:8; 11:17; 15:3; 16:7, 14; 19:6, 15; 21:22), again without explicating that term in detail. The Hebrew Bible does not raise abstract conceptualizations to the same high level as Greek philosophy does. In fact, the Bible “is not intended as a philosophical treatise but as a record of human experience of God, with all its ambiguities” (Peacocke 1997, 147)—and as a record of God’s experience with humanity (Genesis 6:11–12)! When Moses asked God who he was (Exodus 3:13–14), the answer was “I am who I am.” To make that answer more concrete, God time and again described what God had done instead of giving a definition in abstract terms. Correspondingly, when asked who one’s neighbor was, Jesus did not delve into a philosophical definition but rather told a story (Luke 10:29–37).

Auschwitz. Although the concept of an omnipotent and omniscient God had its dissenters all along, their voices grew stronger after Auschwitz. Hans Jonas (1987; 1996) insists that according to the Jewish tradition human beings can comprehend at least partially God's will, intentions, and perhaps even some characteristic features (*sein Wesen*). Günther Schiwy observes (1995, 38) that, as for Eliezer Berkovits and others after Auschwitz, for Jonas those horrors mean giving up the concept of God's omnipotence, it being understood that God's benevolence cannot be questioned without turning away from the biblical God. Jonas refers to the Kabbala of Isaac Luria with its concept of *Zimzum* to explain God's voluntary self-limitation. Using philosophical rather than biblical language, Jonas conceives of God as follows:

In the beginning, as a choice unrecognizable by us, the divine Ground of Being decided to deliver himself into the hands of chance, of dangerous ventures, and of the infinite multitudes of becoming. And this *totally*: As the Godhead entered the adventure of space and time, he held back nothing, no part stayed behind . . . for controlling, correcting, and finally guaranteeing the Creation. (Jonas 1987, 15, quoted by Schiwy 1995, 80; certain parallelisms with the conceptualization of Pierre Teilhard de Chardin will be apparent)

However, one of God's all-important characteristics is God's love and caring for the creation, expressed, for instance, by Hosea (2:19–20) as the forgiving marriage with the unfaithful sinner, "And I will take you for my wife forever; I will take you for my wife in righteousness and justice, in steadfast love, and in mercy. I will take you for my wife in faithfulness; and you shall know the LORD." The corresponding part of the "wife" is to accept the offer, to be open to the marriage, and be a loving partner (compare 1 Corinthians 13:1–13). Dietrich Bonhoeffer, Etty Hillesum, Karl Rahner, and others have evolved similar conceptualizations (Jonas 1987; 1996; Schiwy 1995). However, for the sake of completeness: Obedience to God's laws is quite important, too, as pointed out, for instance, by the same prophet Hosea in chapter 4.

Theodicy. As already implied, according to a number of authors Auschwitz rendered the issue of theodicy (justifying God in the face of evil) as much more crucial. Why was this issue hardly raised in antiquity, or in the Middle Ages for that matter? One or more of the following conditions then were not fulfilled: (1) belief in a powerful, just, personal Godhead (not in a blind fate, a potentate-dictator God, or a polytheistic pantheon); (2) a well-developed, differentiated concept of innocence and guilt; (3) an individualized accounting of reward and punishments (not one by family, clan, or community); (4) a eudaemonistic worldview: well-being as reward for lawful behavior and vice versa; the accounting and balancing being done in this life and without delay (von Soden 1995, 60); (5) a view of oneself as capable of judging God and entitled to it, and

possibly a proneness to neglect one's own responsibility for the world and oneself.

According to Wolfgang Schoberth (1997, 55–59), Gottfried Leibniz's theodicy issue is not really about God but about a rational worldview powerful enough to pierce all secrets. However, solutions such as projections into a better future world (Leibniz, Immanuel Kant, Georg Hegel, and successors, including the prophets of gene technology), where increased human knowledge and wisdom has more or less eradicated evil, do not seem to be realistic. Rather, the "God of the philosophers" needs to be replaced by the biblical God (Schoberth 1997, 60). The biblical God is not *omnipotent*, in the sense that God does not need omnipotence as a necessary attribute, without which God could not be God. Nevertheless, God is *almighty*, meaning that "from a biblical perspective, it is not logically impossible for God to lose (part of) [God's] power and at the same time continue to be God" (van den Brink 1993, 245).

From that perspective, God need not demonstrate God's power and knowledge continuously to be God. Remember also that at times Jesus refused to work miracles (Matthew 12:38–39). God need not be the *direct* cause of all and everything that happens. How is the Creation's freedom thinkable otherwise? The problem is not to explain everything "rationally" (Schoberth 1997, 60–64), but to accept that God "makes his sun rise on the evil and on the good, and sends his rain on the righteous and on the unrighteous" (Matthew 5:45), to accept that not all suffering can be rationalized. In the book of Job, it is not his friends—who argue for a just, rational world—who come out winners in the end, but Job, who maintains all along his innocence in the face of incomprehensible suffering. It is true that at times he accuses God (Job 30:16–31), but in the end Job recognizes God's almightiness and trusts God (41:1–3). One important point is that Job's suffering came to an end and was accepted as a fact of the past (see Revelation 21:4), without speculation about what could have been different. Having faith in God's almightiness means believing that God "gives life to the dead and calls into existence the things that do not exist" (Romans 4:17). An example of such an event is Jesus' crucifixion and resurrection. Could it be that we need to become more aware of God's humility? God chose the homeless Israelites—not the Babylonians, Egyptians, or another powerful people—as covenant partners. God can come in a sound of sheer silence, not only in a great wind, earthquake, or fire (1 Kings 19:11–12). Jesus, God's son, died on the cross between two common criminals, not at a royal court. And God calls for our cooperation with Creation in Creation rather than doing everything alone. Why should God have to prove God's power and might, justice, and uninterrupted universal agency all the time? Without the norm of such a continuous demonstration, does not the very notion of theodicy collapse?

God as Creator. The powerful development of technology and humanity's enormous destructive potential calls for theological reflection on the limits of scientific rationality in the light of the unity and wholeness of God's creation. Albert Schweitzer expressed his pioneering insights as follows: "In a thousand ways my existence is in conflict with others. I cannot escape the necessity to annihilate life and to damage life" (quoted in Altner [1987] 1988, 191). The resulting "indescribable shudder of being" is an expression of the yet unsolved riddles of nature. According to Albert Schweitzer, the only "religious" response that makes sense is to respect life in all its forms, to dare to engage oneself in a caring manner, to live and to suffer (*Erleben und Erleiden*—see Altner [1987] 1988, 193–95). This experience of sense making intimates that God is revealed in suffering with the sufferers and cares about them. A self-limiting yet caring and sustaining God is thus also conceivable from the perspective of a theology of nature—a not entirely new insight.

Van Till (1996a) recalls that a certain transfer of the agency of creative action from God to nature was already envisaged by early writers such as St. Basil and St. Augustine (and taken up by later writers). These writers argued what Van Till calls the functional integrity of the creation by starting from Genesis 1:11 ("Then God said, 'Let the earth put forward vegetation: plants yielding seed, and fruit trees of every kind on earth that bear fruit with the seed in it.' And it was so") as well as from Genesis 1:20 ("And God said, 'Let the waters bring forth swarms of living creatures, and let birds fly above the earth across the dome of the sky'"). Saint Augustine expressed his view as follows (Van Till 1996a, 31): "In the seed, then, there was invisibly present all that would develop in time into a tree. And in the same way we must picture the world, when God made all things together. . . . This not only includes heaven with sun, moon, and stars . . . but it includes also the beings which earth and water produced in potency and in their causes before they came forth in the course of time. . . ."

Today we have vastly more information to appreciate creation's functional integrity, yet the insight of the church fathers, that "the universe was brought into existence in a less than fully formed state but gifted with the capacities to transform itself, in conformity with God's will" (Van Till 1996a, 32), stays comprehensible and acceptable, even more so. Michael Welker (1995, 36–41) defends such views against a doctrine of the universe as being entirely and exclusively God's creation, dependent on God for all and everything, and elaborates some of the views presented here. On the basis of a reading of Genesis 1 and 2, Welker (1995, 24) insists in particular on (a) a view of God as also reacting (perceiving, valuing, naming, even learning from experience), and (b) the "independent" activity of created entities and its interrelationship with God's activity.

Philip Hefner has written extensively about human beings as God's created co-creators. According to Hefner, God's will for human beings is that

we exercise the agency, acting in freedom, “to birth the future that is most wholesome for the nature that has birthed us—the nature that is not only our own genetic heritage, but also the entire human community and the evolutionary and ecological reality in which and to which we belong” (1993, 27). Niels Henrik Gregersen has presented similar, partly extended arguments to the same effect (1998, 347–53).

Reading and Interpreting the Bible. Bernard Rordorf (1997) argues that both literalists and experts in historical criticism, while each making a contribution, miss the true message of the Bible as a testimonial of witnesses to the making and the fulfillment of God’s promises, which need to be understood afresh for each new situation. (In that context, “promises” covers both the “good” and the “bad” ones, rewards as well as punishments). The psalmist considers happy those who smash the heads of their enemies’ small children against a rock (Psalm 137:8–9), and that is very different from Jesus’ prayer, “Father, forgive them; for they do not know what they are doing” (Luke 23:34). (But again, Jesus also announces their punishment to wrongdoers—for example, in Matthew 26:24 and Luke 17:1–2.) How is one to discern God’s promise as witnessed by writers who not only were immersed in a worldview different from ours but possibly also had other motivations and objectives (see, for example, Batto 1992 and von Soden 1985) on the one hand, and its meaning in a given new situation on the other? In the *Babylonische Gefangenschaft* of 1520 (The Babylonian Captivity of the Church—a denial that there are seven sacraments; furthermore an exposition that Baptism, Penance, and the Lord’s Supper are held in captivity by the Roman Church), Martin Luther explains the links between Bible reading and faith thus: “Where there is God’s word, his promise, there needs to be faith, which is the acceptance of the promise. . . . Both need each other, the promise and faith. Without promise, faith would be without content; without faith, the promise could not be fulfilled” (quoted by Rordorf 1997, 11). Reading and interpreting the Bible involves taking risks and entails responsibility. Maybe we need more praying communities of believers in which participants can offer their experiences and insights toward a common construction of a multifaceted view of God’s promise for our current and future life. As it is, in the Roman Catholic Church that privilege is reserved for the *magisterium*, and Protestants sometimes have the unfortunate tendency to found a new denomination or even a sect when a dissident view arises.

Summary of the Theological Considerations. God’s almightiness (which allows God to relinquish temporarily or even to lose power) and benevolence are part of God’s nature without which God would not be the biblical God. However, that need not imply omnipotence, the attribute of limitless power and its continuous exercise as a necessary condition for being God. Reflections on Auschwitz and the wider theodicy problem,

and the theology of nature, are all consistent with the recognition that God has limited at least the visibility of God's own reign and knowledge in order to allow creation—and that includes humanity—freedom and a certain autonomy. One result is unexplainable suffering, but not God's abandonment: God stays with the sufferers.

Concluding Remarks. To understand such a complex state of affairs, a developed form of correspondingly complex reasoning (for example, in Reich 1991; 1998; 1999) may well be required. Also, the notions of causality and of "free" agent need to be discussed in a more sophisticated way than usual. Murali Ramachandran (1997) discerns between (1) preemptive causation (a faster causal chain inhibits a slower causal chain, and thereby the causal sequence of the faster chain proceeds); (2) fragile causation (two causes provoke together one event, which in turn causes a second event; the issue is whether only one of the original causes would have caused the chain reaction or not); and (3) indeterministic causation (for example, on account of indetermined action and reaction times, it is not clear beforehand which of parallel causal chains will "win" in a given case). To deal with those and other types of causation, Ramachandran (1997, 270–76) proposes an M-set ("minimal dependence set") analysis. As the name indicates, that set contains not the entire parallel causal chains but simply a minimum number of elements that would cause a given event under a variety of conditions. That analysis is by no means comprehensive yet. However it is said to strengthen the counterfactual approach, that approach looks also at conditions under which a given event does not take place or takes place differently.

Randolph Clarke (1993) proposes an agent-causal account of free will, which circumvents the difficulties of earlier accounts claiming that such an agent is an uncaused cause of the agent's so acting. "What an agent directly causes, when she acts with free will, is her acting on (or for) certain of her reasons rather than others, and her acting for reasons ordered in a particular way by weight, importance, or significance as the reasons for which she performs that action" [and not any alternative action] (Clarke 1993, 196). That conceptualization remains valid even if it is allowed that all events are caused probabilistically by prior events. Clarke's root model is that "ultimately . . . causal relations are grounded in laws of nature, which consist of second-order relations among universals" (1993, 197). Similar relations obtain between a person and her action when she acts with free will. "There might . . . be a law of nature to the effect that any individual who acts with such a capacity [reflective practical reasoning] acts with free will." If that were so, then agent causation on free will would be "seen as thoroughly natural" (1993, 198). Richard T. McClelland and Robert J. Deltete in their article, "Divine Causation" (2000), elaborate on such tentative considerations.

SCIENTIFIC CONSIDERATIONS

As is well known, scientific knowledge about the universe has increased stupendously since biblical times and even the beginning of modern times (see Ferris 1997). As opposed to the earlier view of a static universe, we now are fairly confident that the existing expanding universe has evolved from a minute, unimaginably hot core; we have some notion of how stars formed in galaxies and our planetary system came into being. After the first forms of life on our planet 3.5 to 4 billion years ago, single-celled organisms reigned for about 3 billion years, although not the same ones. When the atmosphere reached a certain percentage of oxygen, only some of the earlier species adapted themselves to the new environment; the majority perished. Then, beginning in the (Pre-)Cambrian Period (from about 650 million years ago onward), multi-celled organisms evolved in a great variety (of which again a majority disappeared not long afterward), culminating in the dinosaurs, which disappeared 65 million years ago. Mammals greatly expanded next—but insects, not to mention bacteria, stayed even more numerous. *Homo sapiens* is a latecomer (several hundred thousand years ago), and our present-day consciousness developed presumably much later yet. How to explain such spectacular changes?

Günter Altner (1997, 70) has no high hopes that scientists will ever know all of the answers with certainty—this, of course, in striking contrast to the spirit of the times a century ago. Altner ([1987] 1988, chapter 4; 1997, 71–86) reconstructs the relevant scientific history from Charles Darwin, Thomas Henry Huxley, and Ernst Haeckel to Ilya Prigogine, Erich Jantsch, Konrad Lorenz, and Rupert Riedl. Common features he mentions are (1) evolution is emergent evolution—nature transcends itself, with the new features not infrequently “out of tune” with what was there before (major example: the human brain and its functions); and (2) systems theory is needed to understand biotopes and the like—in other words, individuals and even species do not develop totally independent of each other; numerous (mutual) cross-links exist.

Scientifically speaking, it does not seem clear, though, whether evolution is going nowhere or somewhere (Genet 1988, 2). Also, the foregoing considerations do not yet answer the question of the active mechanisms, the real causes of the indicated state of affairs.

A rather detailed examination is needed to grapple with the question of how God actually interacts with a world determined by “laws” (Polkinghorne 1996; Reich 1997). Gregersen’s attempt (1998; 1999) potentially shows a way, but the difficulties of such an enterprise also are evident (Brun 1999; McClelland and Deltete 1999). All the same, tackling that task is indispensable for theology’s future. Here, I present just one further consideration.

A hierarchical-layer structure model (physical entities at the bottom, cultural entities at the top, as in Peacocke 1993, 213–44; Murphy 1997,

198, *passim*) is one attempt to cope with at least some of the issues involved. There is thought to be both bottom-up and top-down causality. Altner ([1987] 1988, 115–24) draws attention to one shortcoming of such models by referring to the late A. M. Klaus Müller’s linking of time modes (inspired by St. Augustine’s observation that we experience only linked modes, not pure modes). Referring to past time (P), current time (C), and future time (F), the following matrix can be constructed from linked modes:

PP	PC	PF
CP	CC	CF
FP	FC	FF

The middle *column* represents in particular the time experience of art and will not be further considered here. In the middle *row*, CP (*memoria*, memory), CC (*contuitus*, evidence before the eyes), and CF (*expectatio*, expectation) refer to usual human experiences. A hundred years ago it was claimed that scientific knowledge, being considered true for all times in its entirety, occupies the central position, CC. That was obviously an illusion, the negative effects of which still exist today. According to our current understanding, science has to do with the entire middle row: CP, CC, and CF. FP pertains to historiography and any lessons from the past for the future, a difficult enterprise, yet perhaps surpassed in difficulty and uncertainty by the pronouncements of futurologists. What about PF, the past of the future, the insights that the future holds for understanding the past? Obviously, when the future is open, that is an even more difficult issue. Yet, the other two extreme positions, PP and FF, are even more unattainable by science. Who can permanently dwell only in the past or even only in the future? Given that (empirical) science covers only a limited part of the matrix, on the one hand that restriction justifies attempts to reach the other linked modes by methods such as those in hermeneutics, and on the other hand it clarifies a difference between science and religion (which is not limited to the middle row, according to Fagg 1995, 78–91). Müller also constructed threefold-linked modes in order better to represent evolutions of the time structure (Altner [1987] 1988, 119). Summing up, science conceives of the world as an evolving open system capable of “transcending” itself by way of emergent changes, the mechanisms of which call for further study. One way of stating the limits of empirical science is to note that it covers only part of the matrix of linked time modes.

CONCLUDING REMARKS

From the foregoing, it seems that several themes could provide a basis for dialogue between experts in religion (theologians) and scientists: (1) Is

evolution genuinely progressive, given the periodic catastrophes and even annihilations of entire species? (2) What enables the evolution of the universe to proceed—God’s general providence or God’s case-by-case intervention? (3) How can we best explore the matrix of linked time modes? (4) What exactly is one to think about divine causation? But maybe even more fruitful could be another dialogue: (5) What can each discipline contribute to a survival of planet Earth and all life on it? Altner (1997, 86–93) ascribes potential fruitfulness to the Korean Minjung theology of a proximate God who can be found right in life’s fabric. It does not surprise me that such a theology comes from a culture that has not been corrupted by Aristotle, as one Japanese physicist once put it. Without belittling in any way the need for, the importance of, and the value of philosophical definitions and argumentation, of logic and strict rule-bound reasoning, could we not conclude that not all issues are best handled exclusively that way? Might we not try a different approach when results are not forthcoming after a reasonable time? In particular, do we need to bring more contextuality, more “both-and” into the debate of possible self-imposed limitations of God’s omnipotence and omniscience? And, above all, should not the various protagonists try to achieve something substantial together and permit “truth” to reveal itself through its fruit?

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