

A RELATIVISTIC ESCHATOLOGY: TIME, ETERNITY, AND ESCHATOLOGY IN LIGHT OF THE PHYSICS OF RELATIVITY

by Antje Jackelén

Abstract. Unique epistemological challenges arise whenever one embarks on the critical and self-critical reflection of the nature of time and the end of time. I attempt to construct my preference for an eschatological distinction between time and eternity from within a middle way, avoiding both the hubris that claims complete comprehension and the resignation that concedes readily to know nothing. Surveying the history of reflection on this multifaceted question of time, with its ephemeral and everlasting dimensions, I argue that the eschatological interplay between the “already” and the “not yet” has much to offer: promise for the religion-science dialogue as well as hope for humanity, especially for those on society’s bleakest edges. But understandings of time, to be authentically theological, must be also informed by cosmology and the physics of relativity. My proposal seeks to respect the theological and scientific interpretations of the nature of time, serving the ongoing, creative interaction of these disciplines. Between physics and theology I identify four formal differences in analyzing eschatology, all grounded in the one fundamental difference between extrapolation and promise. Discussion of what I term deficits in both the scientific and theological approaches leads to further examination of the complex relationship between time and eternity. I distinguish three models of such relationships, which I label the *ontological*, the *quantitative*, and the *eschatological* distinction between time and eternity. Because of the way it embraces a multiplicity of times, especially relating to the culmination and the consummation of creation, I opt for the eschatological model. The eschatological disruption of linear chronology relates well to relativistic physics: This model is open, dynamic, and relational, and it may add a new aspect to the debate over the block universe.

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Some years ago, when I was doing research on time and eternity from a science-and-theology perspective, I had the opportunity to discuss eschatology with two very well-known scholars in religion and science. One of them said something like “Why would you deal with eschatology? There is nothing we can say about it.” The other referred to one of his books: “Read chapter 9. It’s all there.” These two responses represent fairly well the two major challenges that eschatological thinking has to face. First, it requires a fair amount of agnosticism; no one can know the future for sure. In that sense, there is indeed very little we can say. Second, eschatological claims constitute a reality that calls for critical analysis in theological thought and writing. Eschatological ideas and beliefs influence strategies and actions of individuals and communities. For this reason alone they justify the writing of numerous book chapters.

In this essay I attempt to navigate between these two challenges by providing critical theological analysis without overstepping the boundaries beyond which we cannot claim to make valid statements. I focus my reflections on issues arising from the nature of time and “the end of it all.” Are there any eschatological insights that result from scientific theories? If so, what are they?

Before addressing these questions, some definitions need to be clarified.

RELATIVISTIC ESCHATOLOGY DEFINED

Eschatology. Literally, eschatology is the teaching about *ta eschata*, the last things. In Protestant theology, the term did not become an established concept until around 1840. In Roman Catholic doctrine its use is even more recent, dating back only to the twentieth century. Thoughts about the so-called last things are much older than the technical term, however. In popular piety, questions about death and eternity, heaven and hell, judgment and everlasting life played a role long before theologians operated with the term eschatology, a fact that is reflected for example in the hymnody of past centuries. Prosper of Aquitaine (ca. 390–463) has been recurrently proven right: *Lex orandi* precedes *lex credendi*, which in free translation means that the order of liturgy precedes and shapes doctrinal reasoning. Thus understood, theology is the critical and self-critical reflection on the content and effect of the religious traditions that often arise before and occasionally even in spite of theological thinking.

The twentieth century witnessed a powerful eschatological upswing. What had been a short and harmless chapter at the very end of textbooks in dogmatics became a catalyst for theological thought as such. One Swedish theologian observed that eschatology became the keyword for a radical theological reorientation that contributed to the liberation of Christian theology from what he called “the oppressive clutches” of the “worldview of the Enlightenment” (Holmström 1935). “If Christianity be not altogether thoroughgoing eschatology, there remains in it no relationship whatever with Christ,” exclaimed the young Karl Barth (1933, 314), and Jürgen Moltmann declared right in the beginning of his *Theology of Hope* from 1964: “From first to last, and not merely in the epilogue, Christianity is eschatology, is hope, forward looking and forward moving, and therefore also revolutionizing and transforming the present. The eschatological is not one element of Christianity, but it is the medium of Christian faith as such” ([1964] 1967, 16).

In the course of this development eschatology has come to be redefined. It is no longer just the doctrine of the last things. Rather, it has become the exploration of the question “What may we hope for?”—with the “we” understood in the most inclusive way possible. Eschatology in this sense must be distinguished from *apocalypticism*, a term derived from the Greek word for revelation. More than eschatology, apocalyptic thought is preoccupied with deliberations and sometimes even calculations about the end of the cosmos. While often taking the cosmic dimensions more seriously than eschatological thought about last things does, apocalypticism has a special liking for the catastrophic ingredients in the events of the end. “Freeze or fry,” which is shorthand for the rather bleak prospects for the far future of the universe according to cosmology, would be the apocalyptic vision in a nutshell.

I distinguish three different ways of using the term eschatology, each of them related to a specific grammatical form of the Greek word *eschatos*. *Tā eschata*, the neuter plural, “the last things,” refers to those questions that traditionally are dealt with at the end of Christian dogmatics, such as death, resurrection, judgment, and new creation. Eschatology in this sense deals with the future, the grand finale of life, world, and cosmos. It is about the *chronologically* last things. *To eschaton*, the neuter singular, turns the interest away from chronological last things to *existential* ultimate things. It is about the “last” in the sense of the deepest meaning of everything. Paul Tillich, who introduced this shift, spoke of the eschaton as the “transcendent meaning of events” (1963, 67). This would mean that every event carries an eschatological deep dimension of ultimate meaning. We can call this the existential understanding of eschatology. The third variant, *ho eschatos*, the masculine singular, refers to Jesus Christ—especially the Jesus who announces “The time is fulfilled, and the kingdom of God has come near; repent and believe in the good news” (Mark 1:15 NRSV) and of whom

Paul says “when the fullness of time had come, God sent his Son, born of woman, born under the law” (Galatians 4:4 NRSV).

So, in the course of this journey of the concept, focus has shifted from a chronological to an existential and then a christological understanding of eschatology, centered around the advent of the reign of God. In the last two cases, eschatology conceives of the last things “no longer as the finale, but rather as the ferment of theology,” as Gerhard Sauter expresses it (1995, 2–3). It is the ferment version more than the finale version that serves as my focus throughout this essay.

Relativistic. A relativistic eschatology is a short expression for an eschatology that takes seriously the best knowledge we have about the natural world in its past, present, and future states and that with equal seriousness applies the best theological knowledge we have available. The result might be called a relativistically appropriate eschatology or, as Robert John Russell has it, a “relativistically correct Christian eschatology.” For Russell this is an eschatology that is reconstructed “in light of contemporary physics—specifically relativity and quantum physics—as well as what cosmology tells us about the history of the universe” (Russell 2002, 23) and, we should add, in discussion with the more or less preliminary projections cosmologists make about the far future of the universe. In this specific sense, “relativistic” stands as a marker for a theological eschatology that is formulated in greatest possible consonance with physics and cosmology. In a wider sense, I also want to understand relativistic eschatology as an eschatology that gives prime attention to issues of relatedness. Therefore, my preferred interpretation of the polyvalent term *relativistic* is *an eschatology marked by differentiated relationality*. This definition includes the necessity of an adequate understanding of contemporary physics but is not limited to it.

I make three basic assumptions in connection with the formulation of a relativistic eschatology. Such eschatology applies to a world where *potentiality* is a heavy category, *time* is a heavy category (though intimately connected with space), and to a world where *relation* is a heavy category. I base all of these three assumptions on insights from both science and theology. The assumption about potentiality is undergirded scientifically by interpretations of quantum physics. Theologically it is supported by approaches that argue for the ontological primacy of possibility over reality (Jüngel 1983, 214). The claim about time is inspired by physicist and philosopher Carl Friedrich von Weizsäcker’s observation that Albert Einstein’s “mistake” in regard to the role of determinism was a result of “the unconscious decision of so many physicists that space ontologically precedes time,” whereas “Conversely, the decision for the priority of quantum theory contains . . . an unconscious preliminary decision for the philosophical priority of time, since probability signifies the temporal mode of futurity” (von Weizsäcker 1971, 15–16). Theologically, the significance of time is anchored in the role of the concept of a history of salvation. The

claim about relation is founded on the general turn away from the priority of substance toward a new paradigm that is more concerned with relationships and correlations than with the nature or essence of a thing as such (Jackelén 2001).

In a hermeneutical perspective, these three assumptions are the result of a creative interaction between physics, cosmology, philosophy, and theology. This moving between disciplines must not be understood in the sense of a simple blending together of unrelated ingredients, however. I do not favor hasty conclusions such as that processes of quantum entanglement correspond to *perichoresis* (the mutual indwelling of the three persons in each other) in the divine Trinity. Nonetheless, as a minimum commitment, relativistic physics has a strong heuristic function in the following thoughts about a relativistic eschatology, which turns out to be an eschatology deeply shaped by notions of relationality.

SCIENTIFIC AND THEOLOGICAL ESCHATOLOGIES

At first glance, science and eschatology do not look like a couple made for each other. The past four centuries have seen a few examples of theologians who in varying ways have paid attention to developments in the sciences and allowed those developments to influence their accounts of eschatology (Hess 2001). Yet, eschatological discourse in the twentieth century cannot rightly be said to have had much of an interest in the sciences. Too much of theology in general and eschatology in particular has been done as if the theories of relativity had not come into existence. Theologians have often dealt with questions of the end of the world and the fulfillment of history without ever asking what the long-term perspective for the universe looks like from a scientific point of view. Apart from a few exceptions, it is only in recent years that eschatological reflection and science have been brought together deliberately as well as deliberatively. The 2000 volume *The End of the World and the Ends of God: Science and Theology on Eschatology*, edited by John Polkinghorne and Michael Welker, is perhaps the first comprehensive work that brings modern physics and eschatology together. This book was followed in 2002 by *Resurrection: Theological and Scientific Assessments*, edited by Ted Peters, Robert John Russell, and Michael Welker.

One of the earliest receptions of the theory of relativity by a theologian must be Karl Heim's essay from 1921, *Gedanken eines Theologen zu Einsteins Relativitätstheorie* (Heim [1921] 1928, 330–47), in which Heim sees the theory of special relativity as, for the time being, the final step in a process of relativizing the absolute foundations of an old worldview. What started with Ptolemy and accelerated with Nicolaus Copernicus climaxed in Einstein. For Heim, the philosophical consequence of the theory of relativity is the overcoming of a false concept of objectivity. Relativity means interconnectedness of subject and object. It means that a viewpoint is always

operative from a specific point of view. A neutral perspective is impossible. Yet, this does not amount to mere subjectivity or relativism. For Heim, acknowledgment of relativity leads back to respect for the absolute given, beyond what physics can deal with, namely, the foundation of the world that carries the entire space-time-continuum, which hosts the roots of the original settings that first make everything else possible: "Weltgrund, der das geschlossene raumzeitliche Kontinuum trägt, in dem die Ursetzungen wurzeln, die alles andere erst möglich machen" (p. 347). Moving beyond Heim, if I am to summarize in two words the philosophical implications of the special theory of relativity, I once again suggest the term *differentiated relationality*.

The general neglect of modern science has contributed to flaws in theological eschatology. At times, theologians have shown an unfortunate tendency to using the words nature, earth, world, creation, cosmos, and universe as if they were synonyms. In their ignorance or disregard of the vastness of time and space, much of traditional eschatological thinking has been caught in anthropocentrism and geocentrism and has thus reduced the Creator of the universe to a tribal god. Not even the shift from the closed (finite) cosmos of the ancient world and the Middle Ages to the open (infinite) universe of modernity has always been allowed to inform eschatological thought (cf. Hübner 1994; Koyré [1957] 1994).

Faced with such change and with the insights and visions of the future presented by current cosmology, eschatology has to confront unpleasant questions: Can eschatology ever be anything else than the exaggerated climax of an anthropocentric particularism? Is eschatology nothing but an immense exaggeration of the significance of planet Earth? Steven Weinberg and Jacques Monod are two of the thinkers whose readings of the world bring the challenge suggestively to the point. Weinberg's statement about the pointlessness of the universe at the end of *The First Three Minutes* (1988), and Monod's even more graphic remark in *Chance and Necessity* (1972) about humanity's solitude in an indifferent universe, stick with us. Although these two "anti-anthropocentric principles" are often interpreted as postscientific conjectures rather than results of their authors' scientific research, they usefully highlight the breathtaking audacity that goes along with many eschatological claims. Faced with a sense of the immensity of the universe and the bleak freeze-or-fry prospects of the cosmic future, is not eschatology an utterly presumptuous enterprise?

Nonetheless, even scientists have occasionally ventured into the realm of eschatology. Insofar as Pierre Teilhard de Chardin's speculative evolutionary account has engaged scientists, it has mostly spoken to biologists. Physicists who have shown interest in eschatological issues likely have made the acquaintance of Frank Tipler's work on the Omega Point theory, which of course reminds one of Teilhard's writings (Tipler 1988; 1994), and of Freeman Dyson's "Time without End" (1979), an article in *Reviews of Mod-*

ern Physics, and his more popular book *Infinite in All Directions* (1990). Both Tipler and Dyson think it reasonable to have eschatology become a part of the natural sciences. According to Tipler, the next step in the evolution of intelligent life will be machines processing information. That is a logically necessary consequence of eternal progress (Tipler 1994, 218). The core of this approach is Tipler's understanding of resurrection as "an exact replica of ourselves . . . being simulated in the computer minds of the far future" (1994, 227).

Unlike Tipler, Dyson does not talk about resurrection. He sees the most probable form of future life in interstellar cloudlike collections of dust particles, which, as carriers of positive and negative charges, organize themselves and indefinitely exchange information with each other. He wants to show that life and intelligence will be able to survive without limit and that transfer of information will continue, even though the distance between galaxies may increase forever. Crucial to his model is his understanding of the conscious. If, as both Dyson and Tipler presume, consciousness depends on the structure of molecules rather than on their substance, life can be realized in many ways, as for example in an interstellar black cloud or a sentient computer. Dyson argues that it is possible to imagine infinite transmission of information at finite expenses in terms of energy, which would be the perfect presupposition for life everlasting—understood as incessant information transfer. "I have found a universe growing without limit in richness and complexity," he says, "a universe of life surviving forever and making itself known to its neighbors across unimaginable gulfs of space and time" (Dyson 1979, 459). Thus, he concludes, science offers a solid ground for a philosophy of hope.

For intelligible reasons, these writings by Tipler and Dyson are usually considered of little relevance in scientific circles.¹ Generally speaking, the wider public seems to have paid more attention to them than the scientific community has, because writings on the borderline of science and science fiction are always attractive, especially if they deal with issues of such great existential interest as death and immortality. Although Wolfhart Pannenberg and Tipler have taken some mutual interest in the content of each other's thought, in general I consider these "scientific eschatologies" to be of formal rather than material interest for the theological community. As Pannenberg has noted, it is remarkable that Tipler is one of very few physicists who explicitly allows a theological concept to guide his scientific theorizing. Far more often, the opposite is the case in religion-and-science: Theologians allow scientific concepts to guide their theologizing.

Such methodology can lead to varying results, however. In order to be productive, careful hermeneutical analysis is required. Without this analysis, the risk of misrepresentation is imminent. Definitions and distinctions get blurred, and analogies are turned into identifications, as can be seen in Tipler's work. In the interest of such hermeneutical clarification, I

identify, in the following, four formal differences between eschatologies based on physics and theological eschatologies.

First, the task of theological eschatology is not restricted to the attempt to foresee and describe future events or states. Theological eschatology has never been descriptive only. It has always had an appellative character aimed at influencing human life and conduct by offering guidance and a sense of meaning. In this respect, it differs from theories of cosmology, which do not draw any moral conclusions from their description of potential and probable future scenarios. We may call this the difference between *is* and *ought*.

Second, behind the biblical vision of new heavens and a new earth (2 Peter 3:12f.) glitters a cosmological vision, whereas the scientific perspective has a predominant interest in looking for possibilities that can be exploited technologically. Here again, we note a difference in categories: a cosmo-vision on the one hand versus technology on the other. We may also call this the difference between the perpetual effort toward *maximized opportunities* and the celebration of the *cosmic Sabbath*.

Third, there is a significant difference in regard to the eschatological goal. Biblical eschatology is concerned less with the end of the world than with the end of evil. The biblical account of revelation climaxes in a new complex society, using the metaphor of a city, the new Jerusalem, which emerges from heaven in beauty (Revelation 21:2). The scientific concepts reach their climax in a maximum of information processing. In one case the goal is a computer; in the other it is life in a community. I call this the difference between the *culmination of information* and the *consummation of communication*.

Fourth, there is a nonnegotiable difference in terms of the acting subject in the two types of eschatology. Scientific eschatology is by and large about human attempts to survive in eternity; even if on the way humans are replaced by sentient computers, "eternity" is translated into "everlastingness," and survival becomes synonymous with information exchange in interstellar dust clouds. Theological eschatology, on the contrary, speaks of a divine initiative. One is about *cybernetic immortality*; the other is about *new creation*.²

Ultimately, these four differences result from a fundamental difference in categories. Scientific eschatology is about *extrapolation*, while theological eschatology is about *promise*. On the basis of this observation, I now look at the shortcomings that stand out when these two types of eschatology are viewed in light of each other.

DEFICITS IN SCIENTIFIC AND THEOLOGICAL ESCHATOLOGIES

Measured by theological standards, scientific eschatologies are marked by three deficits. First, there is a theological deficit, in that they can say hardly

anything about God, and even less about Jesus Christ and the Trinity. It becomes virtually impossible to differentiate between God and the universe.

Second, there is an anthropological deficit, because life is reduced to an understanding in terms of the production and processing of information. A human person is defined exclusively in terms of rationality. In the end, reason will sway emotion, says Tipler (1994, 9). This is a reflection of a broader limitation: Cybernetic immortality neglects the fact that being a finite body is critical to human identity as we know it. Speaking with the Reformed tradition of the transformation of the world (*transformatio mundi*) rather than with the Lutheran orthodoxy of the annihilation of the world (*reductio in nihilum*) is one possible way to acknowledge the weight that matter and embodiment carry. New creation thus understood would be creation out of the old, *creatio ex vetere*.

Third, there is a temporal deficit: The openness of the future is sacrificed. John Polkinghorne has called the enterprise of scientific eschatologies “a kind of cosmic tower of Babel,” revealing the fundamental error of confounding creation with its creator, and “the ultimate *reductio ad absurdum* of a merely evolutionary optimism” (1994, 165). The factual ground of this verdict is the essential difference in category I have pointed out—that scientific eschatologies operate on the basis of extrapolation, whereas theological eschatology necessarily involves the category of promise; its point of reference is *extra nos* (outside of us), as theological language has it. It is the very nature of the scientific enterprise that these models can think only in terms of continuation of that which is, or extrapolation of the new out of the old. This restriction to extrapolation in turn is grounded in the character of the laws of nature as descriptive rather than prescriptive (see Stoeger 1993). Of course, this is not a deficit as such; it becomes a deficit only in comparison with theology.

Now, let us turn around and look at the deficits of theological eschatology when measured by scientific standards. First, there is a cognitive deficit in regard to the nature of the physical world. The biblical sources, limited by the worldview of antiquity, gloss over the differences between world and universe, earth and cosmos. On the one hand, we cannot separate human destiny from cosmic destiny. On the other hand, we need to be aware of the enormous gulf between the two. The differences between our individual finitude, the finitude of our solar system, the destiny of our galaxy, and the destiny of the whole universe amount to more than differences in degree. They are differences between scales that are out of imaginable proportion. I think that the significance of a proper understanding of time quantitatively as well as qualitatively is often underestimated. It was only in the nineteenth century that humans began to understand something of the true scale of geological time. Knowledge about the history of species and the time scales of cosmology is even more recent. The huge gap between the shortness of a human life span and the immensity of cosmic

time remains difficult, even impossible, to grasp. This probably plays a role in people's resistance against some scientific theories, such as the theory of evolution—the impossibility of understanding time leads to a rejection of the processes described by the theory.³

These considerations touch on the central questions of what it means to be human and what the role of humanity may be, not only *sub specie aeternitatis* (from the perspective of eternity), as classical theological eschatology has usually framed the issue, but also *sub specie universi* (from the perspective of the universe), namely, as an evolving species amid myriad other evolving species on a tiny planet in the vastness of a universe about whose final destiny cosmologists so far do not agree. Einstein deserves credit for pointing out that science may help theology to grapple with some of these cognitive deficits. Science, he said, “purifies the religious impulse of the dross of its anthropomorphism” (1950, 29). Perhaps, however, anthropomorphism is not quite the right word. As long as we are *anthropoi*, humans, we will be bound to describe things according to anthropomorphic structures and will always be looking for anthropomorphic patterns. Our epistemology is and remains anthropomorphically entrenched. Nevertheless, this is not the same as vindicating a relentless anthropocentrism. Doing eschatology with an eye on cosmology indeed helps purify theology from uncritical anthropocentrism. Thinking *sub specie universi* reveals things that thinking *sub specie aeternitatis* alone has not been able to address adequately.

Second, theological eschatology suffers from a communication deficit in regard to secular thought. The scientific perspective opens our eyes to two monumental decenterings. One is the decentering of the present, because there is no universal now, and therefore no universal future, in the world of crisscrossing lightcones. The other is the decentering of humanity. Copernicus's *De Revolutionibus* (1543) was followed roughly three hundred years later by Charles Darwin's *Origin of Species* (1859), which was in turn followed roughly one hundred fifty years later by the Human Genome Project, documenting even more powerfully human interconnectedness with the rest of nature. These perspectives require Christian eschatology to consider a number of questions: What about new creation, if the end of the universe is freeze or fry? What about salvation of humans if the future is self-annihilation of the human species, the evolution of posthuman species, or the dissolution of the human in the techno-bliss of cyberfication? What if we discover extraterrestrial life or other civilizations? Trustworthy responses to these questions need to transcend anthropocentric and geocentric language.

Third, to a large extent theological eschatology shares with scientific eschatologies a temporal deficit, yet of a different kind. In much of the theological landscape, pre-Einsteinian concepts of time prevail undisputedly, as for example in a debate about so-called open theism that has been going

on for a while among North American evangelical theologians (Sanders 1998; Boyd 2000; Pinnock 2001).

From this brief analysis I conclude that the most significant overlap between science and theology in regard to eschatology results from the temporal deficits.⁴ Hence, we are forced back to the theological drawing board for a more thorough analysis of time and eternity in the light of relativistic physics. A Christian eschatology cannot do without an adequate understanding of the relation between time and eternity.

TIME AND ETERNITY IN LIGHT OF RELATIVISTIC PHYSICS

Eschatology needs to be based on an appropriate understanding of time and eternity. Opting for a relativistic eschatology as defined at the beginning of this essay, the most interesting theological question is not “What is time, and what is eternity?” but “What is the relation of time and eternity? How do they differ from each other, and how do they relate?” In this endeavor, I classify eternity, deliberately loosely, as “the other” of time. As I see it, theology has developed three main models for describing the difference and the relation between time and eternity. I call these the ontological, the quantitative, and the eschatological differences (Jackelén 2005, 86–97).

The infinite qualitative differences between time and eternity posited by Søren Kierkegaard and the young Karl Barth are examples of the ontological distinction. We find its classical expression in Augustine, particularly in the eleventh book of his *Confessions*. One of Augustine’s central points is that time and eternity are essentially different from each other. Eternity is perfect stability and total simultaneity; time, however, is unstable. What has passed is no longer, what is coming is not yet, and what is, is time only insofar as it becomes past. A stable, lasting present would be eternity. Thus, time tends to nonexistence (*tendit non esse*, *Confessions* XI 14.17). Time exists only as the present of the past, the present of the present, the present of the future. This means that time exists in the soul as memory (*memoria*), observation or attention (*contuitus*), and expectation (*expectatio*) (XI 28.37). Accordingly, time is *distentio animi*, an extension of the mind itself (XI 26.33). On the one hand, this *distentio* is understood in a neutral way. Its character of extension gives time some status of reality and allows time to be measured. On the other hand, *distentio* is not just duration; it rather indicates the restlessness of the disquieted mind, of being scattered and fragmented. Compared to eternity, time is characterized by serious deficiency. There is no temporal remedy to the flaws in time. Time can never improve by itself, which means that there is little if any space for optimism concerning progress. All times stay at the same awful distance from eternity. Only in the exceptionally blessed moments of a rare vision (*rara visio*) is it possible to catch a fragmentary glimpse of eternity (XII 29.40). Augustine has to rely on the language of mystics

to express this dialectic before God: "The storms of incoherent events tear to pieces my thoughts, the inmost entrails of my soul, until the day when, purified and molten by the fire of your love, I flow together to merge into you" (XI 29.39).

The strength of this concept is its clarity. Time is created, whereas eternity is not. Time can never become "everything"; it always carries a longing for eternity with it. But the rigid distinction between time and eternity makes it difficult to motivate people to struggle for better times. If the only possible relation to eternity is a very rare experience of the *soul*, it might be extremely hard to spell out what the consequences of this relation to eternity mean for the *body*, for the social life of a person, for the relationship between human beings and the entire creation or the whole of physical reality.⁵ If detemporalization is the goal of life, questions regarding the concrete shaping of life in time lose their urgency.

The drawback of the ontological distinction may be the strength of its counterpart, the quantitative difference between time and eternity. Swiss theologian Oscar Cullmann advocated this model in his book *Christ and Time* ([1946] 1962). His basic hypothesis was that time is linear and nothing but linear. In his view (though to my mind it is mistaken) cyclical time is a less developed concept and contrary to biblical thought. To him, arguing for qualitative differences between time and eternity constitutes a Platonic imperializing of Judaic and Christian thinking. Instead, time should be understood as a line that moves slightly upward. Eternity is nothing but endlessly extended time; any finite period of time is just a limited piece of God's infinite time. There is no God above time.

The advantage of this model is that it avoids dualism between time and eternity. Within this framework, it is easy to motivate work for better times and a better world in order to build the reign of God. Furthermore, this model gets rid of the problem of how a timeless God can relate to time and act within time. However, difficulties start as soon as it comes to the notion of eternity. In fact, eternity has lost its character of otherness in regard to time; it is dissolved into time; it is nothing but endless time. Indeed, this model has a substantial amount of nothing-butery in it; it is reductionist. In the end, eternal God is nothing but a God in time who differs from creation merely in terms of an enlarged Feuerbachian projection. What Cullmann thinks is a result of biblical exegesis is actually Newtonian absolute time laced with a stiff dose of belief in progress. In Cullmann's defense, it must be said that his attempt to rescue history from its captivity in an existential reduction to the moment of decision (Rudolf Bultmann) was timely! Nevertheless, it is neither biblical nor in good relation to the best scientific understanding of the nature of time.

A third way of describing the relation of time to its other is by means of the eschatological difference between old time and new time (Dalferth 1994). The eschatological model is not interested in static and compre-

hensive systems, but its main focus is on dynamics: What happens to time when it is related to its other, to eternity? Furthermore, this concept does not work with an extrapolation of the existing, as the idea of progress does. In contrast to the quantitative difference, the eschatological distinction does not presuppose infinite continuity; it builds on daunting discontinuity instead. It conceives of time as a manifold phenomenon and wants to know: What is it that turns time into old time? What allows new time to intervene and to interact with times past? How can it be that theology speaks of “already” and at the same time of “not yet”? On the one hand, we have already been buried with Christ in order to walk in newness of life (Romans 6:4). On the other hand, it has not yet been revealed what we will be (1 John 3:2). In faith we already take part in eternal life (John 5:24), yet we all face death as the inevitable end of our lives.⁶

THE ARGUMENT FOR THE ESCHATOLOGICAL MODEL

In the eschatological model, time and eternity appear to be intertwined yet separated. It seems to me that this model is the most appropriate one to deal with a multiplicity of times. And that is exactly what we need to do, both in the Einsteinian sense of time depending on the system of reference and in the sense of different events having their own indwelling times,⁷ and, as Michael Welker (1998) has pointed out, the possibility of different times being different even to God. Time is no longer regarded as a totality, as in the Newtonian worldview, but as a multilayered phenomenon. This fits better with both the scriptures (Jackelén 2005, 64–81) and relativistic physics.

The three models I have described differ in their ways of relating to the three modes of time—present, past, and future. The focus of the ontological model is on the present—the present of the present, the present of the past (memory) and the present of the future (expectation), as Augustine has it. The present is normally considered as the category of the real. The quantitative model is aligned with the category of the past, grounding itself on the necessity of continuity; and the category of necessity is the category of the past. The eschatological distinction finally, by bouncing back and forth between the already and the not yet, gives priority to the mode of potentiality, which is the future. Whereas the preferred mode of the ontological model is reality, the preferred mode for the eschatological model is the category of possibility. This does not deprive the present and the past of their significance. Rather, in analogy to Augustine’s view, we may say that according to the eschatological model and its preference for potentiality we can imagine time as the future of the past, the future of the present, and the future of the future. We can think of what already is in the light of what is not yet but is promised to come. Thus the eschatological distinction satisfies the condition that a relativistically adequate theology of time must do justice to the decentering of the present. It also allows

for a deeper understanding of future by distinguishing between future as *futurum* (extrapolation from the present) and future as *adventus* (that which comes). It can account theologically for a future that is shaped by both extrapolation and promise, and thus is always accompanied by a dimension of inaccessibility. I call that which escapes every attempt of verbalized prediction an apophatic surplus. All that can be expressly said about the eschatological distinction of time and eternity is accompanied by such an apophatic surplus.

While the quantitative model favors continuity, the eschatological distinction focuses much more on irregularities, disturbances, and discontinuities. In this it parallels developments in both philosophy and science. Whereas the philosophy of earlier modernity has been interested in continuity and linearity, expressed in the temporal sense in terms of a continuum of progress as the ideal and in the spatial sense in colonization of the rest of the world, the philosophy of later modernity has turned its attention to ruptures and diversity instead. Metaphorically expressed, where earlier modernity hoped to gain knowledge from a reality perceived as seamless, later modernity hopes to learn from scrutinizing the seams of reality. While classical physics, enchanted by the discovery of the universality of natural law, celebrated the continuity of absolute time and space, twentieth-century science has turned much of its interest to discontinuities—the role of disturbances in the formation of galaxies, the part of bifurcation points in chaotic systems, processes of emergence in complex systems, the significance of quantum leaps. The eschatological distinction is in consonance with these critical tendencies in science, philosophy, and culture more than either of the other two models.

Maybe the most promising trait of the eschatological model is that it does not force upon us an either-or choice—either universality or just plurality or fragmentation. Instead, it focuses on the interplay of the two. This trait makes it superior to the other two models. The ontological model with its separation between time and eternity tends to restrict our relation to God to an inner sphere that is kept separate from the “real world,” from the public and political area. The quantitative model lays everything under the rule of time. There is nothing left for the different and other. By depriving time of its relation to its other, this model intensifies the experience of lack of time, which seems to be a common psychological problem these days. Its merciless demand for speedy efficacy contributes to a devastating incapacity to meet the strange and unknown. In the long run, both of these models render God superfluous for how life should be lived.

The eschatological model is also the most convincing one theologically. It is less neat than the ontological distinction, but its fuzziness appears as the price to be paid for an understanding of time that is open, dynamic, and relational. Speaking of the “already” and “not yet” as the eschatologi-

cal disruption of linear chronology relates well to relativistic physics. This model may even be interesting for the debate over the block universe. The eschatological model certainly does not take the side of the block universe, but neither does it advocate an uncritical acceptance of flowing time. With its claim that temporality is real, yet “different,” it may provide a thought model that can contribute to lessening the gap between proponents and opponents of the block-universe theory.

To summarize, I argue that the eschatological model should be favored for at least seven reasons, based on both theology and science: It is in consonance with biblical sources; it honors the decentering of the present—the eschatological disruption of linear chronology relates well to relativistic physics; it is open, dynamic, relational; it allows time to be conceived as multilayered; it provides a differentiated account of future and potentiality, without eliminating what I have called the apophatic surplus; it is in line with the interest of science and philosophy in irregularities and discontinuities; and it may possibly add a new aspect to the debate over the block universe.

CONCLUSION: EINSTEIN, SCIENCE, AND ESCHATOLOGY

As we have seen, neither the infinite qualitative difference between time and eternity in the ontological model nor the annulment of the difference between time and eternity in the quantitative model is the final word of theology. The eschatological distinction with its imprecision seems to be the best option. Einstein perhaps would not like this. Maybe he would again write, as he once did to the Borns, that he would rather be a cobbler or casino worker than give up on strict determinacy (Einstein, Born and Born [1969] 1971, [118] 82; letter from 29 April 1924). Yet, it appears that we all need to be gamblers once in a while. Revision of our favorite dogmas is after all not the worst thing that can happen to us. It is a key to wisdom. Persons of faith today are very much challenged to show that religion “can expand the mind, and in secularly relevant ways, rather than always narrowing it, as secularists routinely fear” (Glassman 1996, 164). Sadly, many Christians in our age do not seem to be doing an excellent job at such expansion of the mind. Einstein, who regarded a religion of fear as primitive, would certainly be disappointed to see how much of a role fear-driven theology plays at influential levels in the home country of his later years.

Theology brings to the table a long history of reflection on the experience of immanence and transcendence, of finitude and eternity. Eschatological thought expresses the recognition of the predicament of human life as being in the tension between the already and the not yet. It insists that the seemingly ultimate is at best never more than the penultimate. This does not in any way diminish the qualities of any knowledge, and certainly

not of scientific knowledge, but it puts such knowledge in its right proportions. In other words, modern physics and cosmology are indispensable for a relativistically correct eschatology. There is more to Christian eschatology than that, however. From a scientific point of view it may suffice to discuss flowing time versus the block universe, but from a theological point of view the physical world matters in additional ways. Christian eschatology must also include the physical world of a Salvadoran woman who receives 29 cents for making a shirt that a well-known company sells for \$45 to the National Basketball Association in the United States (as documented in Sobrino 2004, 60). The relativity of space—between the space of the woman and the space of those who share the remaining \$44.71 of the shirt's retail price—is as crucial to eschatology as the relativity of time. It is the eschatological space-time continuum, if you will. To put it somewhat bluntly: In terms of physics, special relativity is the limit case for how we think and speak about time. In terms of eschatology, both God as the source of time and eternity and the woman are limit cases. Theologically, the question of how God can act in a world governed by the laws of physics cannot be isolated from the question of what God can do through you and me for the 29-cent woman and her sisters and brothers.

Thus, eschatology raises the question of hope in face of cultures that mask their inherent despair with systems of security and consumer happiness that inevitably fail when taken to be ultimate. Consequently, eschatology has traveled a long way from being preoccupied with a schedule for the end times and guesses about the *parousia* (second coming) of Christ or speculations about a rapture and Armageddon. A pie-in-the-sky eschatology as well as a roast-in-hell eschatology would both be betrayals of divine and human dignity alike. Rather, driven by the question "What may we hope for?" eschatology must be dedicated to the reshaping of modern cultures that are in danger of losing life-affirming and life-sustaining traditions and practices.

Eschatology is about gazing through the disguises that mask our cries for security and compel us to consume away our anxiety. Eschatology is the radical questioning of every system; it has dedicated itself to the incalculable. In this, it is radically different from science. Science is and must be dedicated to the calculable and to the construction of systems. Eschatology is the permanent crisis of all systems. It makes a position like *Roma locuta, causa finita* (Rome has spoken; the matter is closed) impossible. Instead it leaves us with an open door toward what theologians call eschatological verification—a source of speculation as well as frustration. What Karl Barth said of theology in general is valid for eschatology in particular: "*As theologians we ought to speak of God. We are human, however, and so cannot speak of God. We ought therefore to recognize both our obligation and our inability and by that very recognition give God the glory.*" This is our

perplexity [*Bedrängnis*]. Compared to this, everything else is child's play" (Barth 1929, 158, ET 186, adapted by the author).

Life with the risks of freedom, with pain and tragedy yet trusting an even greater promise, has its terrifying connotations. We have to learn to be anxious in the right way, to say it with Kierkegaard. I believe this attitude to be a realistic option as long as we understand eschatology as giving priority to possibility and promise over impossibility and imprecation.

Finally, back to the two famous scholars, one of whom believed that there was nothing to say about eschatology and the other who referred to a certain book chapter: Taken together, they are exactly right. Yes, we need to talk about eschatology, because, as I have argued, eschatological outlooks informed by different views of time and eternity have a critical impact on individual and collective agendas. Concepts of eschatology influence such diverse things as how individuals choose to live their lives, how decision makers value the natural environment, and how nations understand their role in the world. Yet, caution is equally justified; it is never all there. The God who comes is a God of surprise. Eschatology remains the great exercise in the school of penultimacy, requiring us to acknowledge the primacy of potentiality and promise.

NOTES

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1. Tipler's work on physics, cosmology, and the Omega Point theory is extensively discussed in Albright and Haugen 1997, 147–247, with contributions by Robert J. Russell and Willem B. Drees. Especially Russell expresses his appreciation of Dyson and Tipler's work: "Beginning with the groundbreaking work of Freeman J. Dyson and continuing with the speculation of Tipler and others, there now seems to be a way forward towards a possible reconciliation of eschatology and cosmology" (p. 197). However, in regard to Tipler's *The Physics of Immortality* (1994) both Drees and Russell have expressed serious disagreement (p. 154 and elsewhere). For a discussion of Dyson and Tipler see also Drees 1990, 117–54, and Worthing 1996, 159–98.

2. This results in part from the fact that I here have considered only scientific eschatologies based on physics and cosmology. A focus on biology might lead to different outcomes in this respect.

3. This point is also made by Verlyn Klinkenborg (2005).

4. Other points of departure are possible. For example, Russell (2002) has based his understanding of eschatology on the resurrection of Jesus Christ. While I do not negate the centrality of the latter for Christian theology, I do think that concepts of time and eternity provide a broader and more inclusive basis for a discussion of eschatology in the framework of religion-and-science dialogue. The simplest reason is the closeness in categories: While theological notions of time and eternity are categories that can be made operative in the neighborhood of physical theories of time, bringing the resurrection of Jesus together with relativistic physics seems like quite a leap in terms of categories.

5. I do not say that this necessarily is the case with Augustine's theology; the central place of *caritas* in his thinking and the social theology in his *City of God* seem to prove the opposite. However, this way of differentiating can easily lead to escapist consequences.

6. Also the promise itself is expressed dialectically. On the one hand, there is continuity: "My salvation will be forever, and my deliverance will never be ended" (Isaiah 51:6 NRSV). On

the other hand, there is discontinuity: "Time will be no more" (Revelation 10:6 in literal translation) and "See, I am making all things new" (Revelation 21:5 NRSV).

7. See for instance the list of times in Ecclesiastes 3:1–15 NRSV: "For everything there is a season, and a time for every matter under heaven. . . ."

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