

THEOLOGY OF CREATION AND NATURAL SCIENCE

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Half a century ago Karl Barth wrote in the preface to his treatment of creation in his *Church Dogmatics* (III/1, 1945), that there are “absolutely no scientific questions, objections or supports concerning what Scripture and the Christian Church understand to be God’s work of creation.” Such a restriction of the theology of creation to a “retelling” of what the Bible tells us about this subject, has its price and the price to be paid here was that it could no longer be made clear, in how far the biblical faith in creation means the same world that the human race now inhabits and that is described by modern science. The affirmation that the God of the Bible created the world degenerates into an empty formula, and the biblical God himself becomes a powerless phantom, if he can no longer be understood as the one who originates and completes the world as it is given to our experience. For this reason one should not agree with Barth, but rather with Karl Heim in his attempt to relate theological affirmations on creation and final consummation of the world to the respective conceptions of contemporary science (1953). In the context of English theology a theological appropriation of Darwin’s doctrine of evolution was developed as soon as 1889 in the famous volume *Lux Mundi*, edited by Charles Gorn, where the biblical conception of a history of salvation culminating in the event of incarnation was combined with the modern evolutionary perspective, and this view has been effective until the present day together with related ideas issuing from the work of Teilhard de Chardin.

In spite of all the difficulties of a theological interpretation of the natural

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world, Christian theology must not evade the task of interpreting the same world that is described by scientists to be in fact the creation of God. It is not enough to simply affirm the world to be God's creation, but such a theological affirmation has to be made plausible. This is not to suggest that theology should enter the discussions among scientists on their level of scientific description and theory. Theological interpretation of the world of nature in terms of creation cannot want to present itself as competing with physics or with any other natural science. Claims like that are excluded by the fact that theological arguments move on another methodological level than the hypotheses of natural law in the sciences and their examination by experiment do. From a theological perspective the reality of the world presents itself in the form of a unique and irreversible historical process which is the result and expression of divine action. Certainly, in the process of this history there emerge uniformities and structural types of sequences of natural events that correspond to the scientific concept of natural law. In the book of Genesis it said after the story on the flood: "While the earth remains, seedtime and harvest, cold and heat, summer and winter, day and night, shall not cease" (Gen. 8:22). Such regularities of natural processes, however, are themselves considered as products of a unique divine decision, not as evidence of a timeless order of nature. The theological focus on the historically unique and on the irreversible process of history is also related to the fact that theology does not conceive of space and time in the sense of homogeneous sequences of spatial and temporal units—sequences that can be geometrically constructed, counted, and measured. The mathematical form of representing and describing natural processes and the scientific concept of law belong together. The absence of mathematical descriptions in theology, on the other hand, does not only express the inability of theologians, but also corresponds to the peculiarity of the theological subject matter and its appropriate treatment.

Now the question arises, whether theology exemplifies a qualitative way of describing reality, such as has been so often reduced in the history of modern science to a quantitative and consequently mathematical way of description. The ideas of the biblical reports on creation about the sequence in the emergence of natural forms have been indeed replaced in modern science by conceptions which are based on quantitative descriptions of processes regulated by natural law. Should this tendency be generally valid concerning the relationship between theology and science? The American physicist Frank Tipler of New Orleans claims in his recent book, *The Physics of Immortality*, that theology finally has to be absorbed in physics. In his book, he tries to show that the history of the universe tends towards an omega point, which is characterized by peculiar properties of the traditional concept of God and does not only function as the result, but also as creative origin of the movement of the universe, and there is occasion for an identical repetition of all forms of intelligent life in the dimension of eternity. Professor Tipler accounts for these claims by a proposed theory of scientific cosmology. The educated layman cannot help being impressed, but he or she is also impressed by the multitude of different models of scientific cosmology produced over the last decades. Cosmology, to all appearance, is a highly speculative discipline. But how is theology to be expected to relate to the possibility of those arguments?

I think that attempted transformations of theology into physics should be observed with curiosity on the one hand, but also with a certain degree of skepticism on the other. Curiosity and openness are appropriate, since even tentative constructions of this kind of work against the widespread prejudice that theological and scientific conceptions are unrelated—a prejudice the effect of which is usually that theology seems to be irrelevant concerning our understanding of the reality we inhabit. Skepticism, however, is appropriate because of the apparent incommensurability between the scientific conception of natural law and the theological approach to reality. Could indeed the conception of the world in terms of a unique and irreversible history of ever new and contingent events including the idea of God providing their origin, and of Christian eschatological hope, be dissolved without important remnant into a description of the world process on the basis of natural law? Even at this point I see no basis for theological anxieties. After all, there is the historical parallel of Aristotelian physics, the objects of which included the existence of God, though not of a future resurrection of the dead. A proper conception of God as creative origin of the natural universe, to be sure, had to describe the creation of the world by starting from God as origin of it rather than dealing with God as an exponent of the cosmic process. In Christian theology, such a comprehensive knowledge of creation that would comprise all the different aspects of created reality is not expected before the final consummation of the world in connection with the eschatological vision of the glorified ones. Until then it seems likely that human knowledge about the world will develop under conditions of human finitude and therefore in the form of conjectures only and by way of their examination and revision. In a reverse argument, Christian theology seeks to conceive of God as creator of the world on the basis of His revelation in Jesus Christ. But in doing this, theology is not in a position to explain in detail the processes in the natural world.

The aim of reaching an agreement between the theology of creation on the one hand and the scientific knowledge about the world of nature on the other, may be indicated, then, more properly by the term consonance between the two perspectives than by way of reducing one of them to the other. Consonance presupposes the absence of contradiction. But it requires more than that. Contradictions can be absent, simply because ideas stand unrelated, one beside the other. Consonance, however, implies the image of some harmony and consequently of a positive relationship. How can such a consonance be claimed with respect to affirmations that belong to quite different methodological levels? In such a case, it is necessary to look for a third level, which the two others are related to. In the case of the dialog between science and theology such a third level has indeed always existed. It is the level of philosophy.

Whenever scientists talk about the relevance of their findings and theoretical formulas in view of our understanding of reality, they move in the medium of philosophical reflection on procedures and results of their science, but no longer on the level of scientific argument in the strict sense. Reflections on the relationship between natural law and the contingency of events, between causality and freedom, matter and energy, the concepts of time and space or evolution take place inevitably in a medium that is impregnated with philosophical language and its history. Furthermore, in most cases

the key concepts of science have philosophical origins and underwent modifications in order to fit the requirements of their use in science. Recent investigations into the history of scientific concepts like space, time, mass, force, and field demonstrated connections between the philosophical meaning of these concepts and their scientific use. Therefore, together with familiarity with the philosophical discussions on these subjects, a degree of knowledge in the history of science and especially about the history of scientific terminology, is a presupposition of a productive dialog between theology and the sciences.

Christian theology, on the other hand, in the entire course of its history, developed in close connection with philosophy, though the relationship was not without its complications and strains. In the case of theology and in distinction from the sciences, the relationship to philosophy is not, in the first place, a matter of philosophical origins of a particular terminology, but rather the task of integrating into theology and into its explication of the relation of God the creator and redeemer of the world and of humanity the philosophical language about God, the world, and the place of human beings in it. Such integration of philosophical theses and conceptions into Christian theology always meant a more or less incisive transformation of the philosophical meaning, and the occasional tensions arising between theology and philosophy in the course of history often arose from such attempts at appropriation. Theology, however, is affirming the abiding truth of the biblical God and of His revelation as concerning every human being always depended and will depend on rational universality of philosophy and therefore had to assimilate to itself not only the philosophical doctrines on God, but also the philosophical affirmations on the world and human beings. At this point it finally becomes apparent in how far for Christian theology the relationship to the philosophical interpretation of the world becomes the basis of a dialog with the sciences: the inclusion of scientific considerations and results in a reflection on how to perceive of reality at large and of the situation of human beings in the world is not the first and only subject of a theological doctrine of creation, but belonged always to the philosophical interpretation of the world we encounter. In dealing with its task of critical appropriation and assimilation of a philosophical view of the world, theology implicitly dealt always with the knowledge of nature it contained, and on the other hand the theological transformation of philosophical concepts of the world has to be measured like philosophical hypotheses themselves by their ability to do justice to scientific views and results.

Unfortunately, the task of the philosophy of nature and of its integrative reflection of scientific descriptions of nature is now neglected by most philosophers. The resulting gap is often filled by natural scientists, who from the perspective of their respective discipline offer generalized philosophical reflections and conjectures concerning the world at large. In this connection, however, the horizon of philosophical problems connected with the respective subject matters and the history of those philosophical problems is not appropriately considered. In these cases it belongs to the task of theology in the dialog with scientists to remind them of the philosophical problems involved in the subject matters dealt with in such dialogs and to argue within such a framework for the specific theological concerns.

The rest of this paper is to exemplify what has been said so far in general terms on the dialog between theology and science in relation to a number of particular issues that appear to me as particularly important for such dialog, because they are important in the foundation of any interpretation of the world. In the first place, some reflections on the concept of law seem to be appropriate, and this in relation to the correlate of law in what is contingently given. The correlation of these two aspects in describing natural processes can be shown in the concept of natural law itself, but this also offers the opportunity for Christian theology to relate the specifically biblical understanding of reality to the description of nature by formulas of law. A second consideration shall focus on the ideas of space and time, which are not only basic in science, but also important in theological affirmations on God's relationship to the world. A third question will deal with the relationship of affirmations about God and about his activity to the movements of bodies, their development and decay—this is the classical theme of scientific descriptions of nature in the framework given by the ideas of space and time. A clarification of how the idea of God relates to space and time, therefore, may have consequences for an understanding of created existence and movement within space and time in their relationship to God. In this connection finally certain conclusions will arise in relation to the concept of evolution, but not only with respect to the evolution of organic life, but also to its setting in the history of the universe.

In 1970 I published an article on "Contingency and Natural Law" that has been the object of close discussion for a number of years in a circle of physicists and theologians and has undergone considerable modifications as a result of these discussions. The subject was interesting from the theological perspective, because the biblical reports on God's action in history emphasize the element of the new and unexpected in divine actions—an emphasis that also characterizes the action of God in the creation of the world. The history of God's action constitutes a unique and irreversible sequence of such contingent acts. The concept of contingency that is used to characterize the divine action in history has its philosophical origin in Aristotle and there it refers to what occurs by chance and to what is non-essential or possible by contrast with the necessary. In Aristotle, however, contingency was connected with the concept of matter, while medieval Christian Aristotelianism, especially since Duns Scot, connected it with God's freedom in his will and action. The concept of natural law, on the other hand, is logically related to conditions of its application that are contingent in relation to the formula of law as such, initial conditions and marginal conditions of the processes described by a formula of law. Those initial and marginal conditions can themselves result from processes that in their turn may be described by formulas of law. This does not change the basic fact, however, that each such description presupposes contingent conditions of its application, with the effect, that the laws of nature may be conceived as descriptions of certain uniformities in natural processes that occur in what basically is contingently given. This implies the assumption that all events are in the first place contingent, even when the sequence of events shows similarities or uniform structures. This consequence appeared to the natural scientists participating in the above mentioned discussions of the sixties as rather problematic,

although such an assumption is also suggested by the irreversibility of time. In the meantime, the contingency of events in distinction from contingency in a merely logical sense seems to be generally accepted in view of the fact that many natural processes take place in chaotic forms. Especially, contingency of events can be affirmed with relation to the indeterminacy of elementary events in quantum physics, provided that it is taken into account that the same events, because of the uniformities in their sequence, also become objects of descriptions in terms of natural law. The possibility of such description, on the other hand, does not eliminate the fundamental contingency of events; rather, the regularities that can be observed in contingent sequences of events and can be described by hypotheses of law, are themselves contingent facts. But, while theological affirmations concerning the reality of created existence and the action of God in his creation are primarily related to this aspect of contingency in natural processes, a scientific description of these processes is primarily concerned with the demonstration of regularities in those processes, although the dependence on something contingently given is a precondition in the applicability of the concept of law itself.

To those involved in the sixties in the discussions at Heidelberg a common basis for the dialog between theology and nature seemed to emerge from the clarification of the correlation between natural law and contingency, a common basis beyond vague analogies and metaphors transferred from one discipline to the other. Nevertheless, the agreement on the correlation of natural law and contingency did not yet open an access to a more concrete understanding of nature in theological perspective. In order to find the key to open up such an interpretation, a theological approach to fundamental concepts of physics, like energy or force and movement as well as to their presupposition in ideas about space and time, had to be developed.

In the early eighteenth century a philosophical dispute on the concept of space took place, where theological implications played a decisive role. Even today, the correspondence between Leibniz and Samuel Clarke on Newton's description of space as *sensorium Dei* in his *Optics* 1706, has more than merely historical interest. Certainly, Newton's concept of absolute space has become obsolete to Einstein's theory of relativity, but Newton's thought about space and on God's relation to space was very complex. It is worthwhile to take a closer look to find out just how much of these ideas has become obsolete and what hasn't. The conceptions of absolute direction in space and of absolute dimensions of objects in space are certainly no longer valid. But Newton's and Clarke's ideas about God's relation to space contain another insight that is still important. Clarke defended Newton's attribution of the concept of space to the idea of God against Leibniz' objection that God in such a case would be divisible and composed of parts. Clarke's main argument was that all division in space already presupposes space, because division can only take place within space. The space that is presupposed in all spatial division is infinite and undivided, and this space—not geometrical space that is composed of parts—be identical with the divine immensity that enables God to be present to each of his creatures at their own place. This argument was still reproduced by Kant in his critique of pure reason in 1781—according to Kant the intuition of space as an infinite whole is presupposed in any conception of

determinate spaces (A 24f). Kant did no longer explore the theological implications of this idea, because he conceived of space as a merely subjective form of human intuition. As soon as somebody wonders about this subjectivism, however—as it occurred in this century to Samuel Alexander—the theological implications of the priority of infinite and undivided space in relation to every determinate concept of spaces reemerges before one's eyes. The point of this argument is that the infinite space that is presupposed in each division of spaces is necessarily undivided, by contrast to all geometrical conceptions of space. Geometrical concepts of space are constructed on the basis of units of measurement—each geometrical unit of measurement is itself a unit of space the concept of which presupposes the undivided whole of infinite space. That, however, is an infinity that is not to be conceived like it happens in geometry by indefinite addition of units of measurement, but an infinity that is prior to all division and therefore also prior to all forms of measurement. The mistake of Spinoza in his conception of space as an attribute of divine substance consists in the fact that he did not distinguish infinite geometrical space from the infinite and undivided space of the divine immensity that is already presupposed in every geometry. If one considers this distinction, then no pantheistic consequences result from such a close connection between God and space, consequences that Leibniz seems to have suspected in Newton. The transition from the undivided space of divine immensity to the space of our experience that has parts and places can be considered then a consequence of the occurrence of finite objects and their relations to each other. In such a way one can also do justice to the relativity of spatial relations with regard to the masses moving in space. Each type of space that consists of parts presupposes, as Kant emphasized, some undivided whole of space, because divisions and parts are only possible within some space that is already there and therefore prior to geometrical conceptions of space. The ideas about divine immensity and omnipresence with God's creatures can be referred to this presupposition of undivided space, like Newton and Clarke did, without violating the divine transcendence over the world, in contrast to the conception of Spinoza that Einstein felt sympathetic with, which however, did not distinguish between the undivided infinite space of divine omnipresence and the space of geometry.

The relationship between God's eternity and time is largely analogous to that between his immensity and space. Kant's treatment of time in his transcendental aesthetics corresponded closely to this treatment of the idea of space—in both cases an infinite and undivided whole is considered the precondition of all division and of all conceptions of parts. With reference to time this means—"Different times are but parts of one and the same time" (A31). The undivided whole of time or rather the whole of life that appears divided in the sequence of time, has been termed eternity in the philosophical and theological tradition since Plotinus' treatise on time in his *Enneads*. Eternity, Plotinus says, is ultimate completion without parts or division (III, 7, 11) of what occurs in divided form in the sequence of time. Boethius, who transmitted this definition to later generations, called eternity the simultaneous and complete presence of unlimited life (*interminabilis vitae tota simul et perfecta possessio*, *De Cons. phil.* V, 6, 4). Eternity, then, is not atemporal in the sense that eternity and

time were completely foreign to each other. Rather, according to Plotinus, time is constituted by eternity, because the transition from one temporal moment to the next is understandable only if we presuppose some presence of the whole that is separated in the sequence of temporal moments even within that separation, in other words, a presence of eternity in the course of time itself. The same idea is expressed in Kant's sentence, different times are just parts of one and the same time. But Kant did no longer see time as constituted by the presence of eternity, but in analogy to his conception of space he thought time constituted on the subject of experience, more precisely on the "standing and persisting" human ego (A 123) which, as persisting through time, according to Kant, forms the basis of the unity of all human experience. In view of the temporality of the ego itself, however, that we are aware of in our self-consciousness, Kant's attempt of accounting for the unity of time on the basis of the unity of the subject may seem to be considerably more problematic than Plotinus' foundation of time on the concept of eternity.

From a theological perspective of nature, then, God's eternity is present in time, more specifically as origin and completion of time and of all temporal reality—origin in the sense of conditioning the continuity of what occurs separately in the sequence of time, completion, however, because all temporal reality according to Plotinus tends toward the future in order to realize the whole of its being. It is through the future that eternity enters into time.

With relation to time as well as to space, the result is that these ideas cannot be successfully defined on the basis of measurement by clocks or by spatial units of measurement. This may be a very important point in the dialog between theology and science, because the scientific interest in time, as well as in spatial dimensions, is so closely connected with the possibility of measurement. The ideas of space and time, however, claim priority with relation to all techniques of measurement. If this priority is neglected, contradictions are the inevitable consequence. This is so because all units of measurement are themselves already parts of time and space, that have to be delimited within time and space from other such parts and therefore already presuppose time and space as such.

Much more difficult than the question of the relationship of space and time to God's immensity and eternity is a clarification of God's relation to the forces working in the movements of nature. And yet this is a decisive question for every biblically-based doctrine on creation, because at this point the possibility of an action of God in His creation is at stake, an action not only in the beginning, but also in the entire process of the history of His creation. It was at this point that in the seventeenth and eighteenth centuries the alienation between Christian theology and the scientific description of nature began. The starting point of this alienation was the mechanistic interpretation of natural processes that Descartes already had inaugurated and that against Newton's intentions triumphed in the eighteenth century, when all natural force was reduced to bodies and to their effects upon each other. This conception necessarily excluded God from the understanding of natural processes. If there was a point, where modern philosophical theology was in unanimous agreement with the earlier scholastic teaching about God, it was the affirmation that God cannot be a

body. Consequently any idea of an exercise of power issuing from God and consequently any assumption of divine action in the course of nature was apriori excluded, if all natural force resides in bodies. Thus God was respectfully urged out of the natural world.

When the far-reaching consequences of the reduction of the forces of natural movements to conceptions of bodies and masses toward producing an atheistic picture of nature are duly considered, one also can imagine the potential significance of the introduction of field concepts into the description of natural processes since Faraday in favor of a theological interpretation of natural processes. This statement does not mean that the demonstration of the efficacy of electric and magnetic fields could immediately be used as a model to conceive of God's efficacy in nature. But although field effects usually have their correlate in masses, Faraday already entertained a vision of finally interpreting all bodily phenomena as manifestations of fields. A vision like that was close to that of Newton that the forces of natural movement are finally not material, they do not issue from bodies. Rather, Newton conceived of God's efficacy in the universe in analogy to how our spirit moves the parts of our body.

An introduction of the field concept into theology is not, however, primarily suggested by the question of how to understand God's activity in nature, but it is suggested first by internal problems in the doctrine of God. The designation of the divine being as "spirit" in the Gospel of John (John 4:24) has been interpreted since Origen in the sense that God is *Nus*, a bodiless spiritual intellect, but this platonizing interpretation does not correspond to the original meaning of this biblical word *pneuma* nor to the corresponding Hebrew word *ruach*. In both cases the root meaning is moved air, breath, even wind. In Greek thought the word *pneuma*, which is usually translated by "spirit," was used in the sense of air in movement like in breath or wind. This applies to the presocratic philosophers, especially to Anaximenes, but also and particularly to the Stoics. According to Stoic doctrine, air as the most subtle element penetrates everything and keeps together the entire cosmos through its particular "tension" (*tónos*). The early Christian theologians before the third century understood the New Testament identification of God as *pneuma* in similar ways. Now one of the most renowned historians of science in our century, Max Jammer, who investigated the history of a number of key concepts of physics, considers the *pneuma* concepts of classical antiquity as predecessors of the field concepts of modern physics. Indeed, the intuitive idea of a field of power comes to paradigmatic expression in a state of tension in the air. Modern field concepts, however, differ in an important point from the conceptions of *pneuma* in classical antiquity—field effects do not require, although in the nineteenth century this was still assumed, a material medium like air or "ether." They can pervade space without such a medium. The materialism of the Stoic doctrine of *pneuma* as air, however, in the sense of a most subtle element that penetrates everything else, formed the main reason of Origen's rejection of this conception in interpreting the Johannine characterizing of God as spirit. The absurdities of a conception of God as body—divisible and composed of parts—formed the negative reason for interpreting *pneuma* in terms of *Nus*, and thus for conceiving of God in the

image of a bodiless intellect. Now it is evident that this conception does not correspond to the root meaning of *pneuma*. At this point the field concept that replaces the *pneuma* doctrines of classical antiquity can become helpful in theology, because it allows to distinguish the root meaning of *pneuma* from the conception of a material basis or medium. If the divine reality is conceived in terms of a field that manifests itself in the three “persons” of Father, Son, and Holy Spirit, then one can do justice to Origen’s objections against any conception of God as body and yet preserve the genuine meaning of *pneuma*.

Is such a theological use of the field concept a mere metaphor? At the first moment it may look like that. But one should not overlook that the fundamental requirement for the application of the concept of field is met in theology. That is the relationship to time and space, though in the sense of what has been said about the undivided infinite space of divine immensity, presupposed in all geometrical description of space, and about the undivided unity of time in God’s eternity as condition of all temporal sequence. The interpretation of the pneumatic particularity of God’s being as field, can be accounted for by relating it to the undivided wholeness of time and space prior to all geometrical description. By the same reason it is distinguished from the field concepts of physics, but would function as a condition of those in analogy to what had to be said concerning space and time. The field of divine omnipotence, then, does not compete with concrete physical fields, but its activity works through all the natural forces without being exhausted by them. Like God’s omnipresence is copresent to all things without falling prey to the relativistic paradoxes of simultaneity, since God’s omnipresence is not dependent on the velocity of light, in a similar way the field effects the divine omnipresence are not in need of being transmitted by waves. The concept of waves, though important in the field notions of classical physics and especially as a basis of quantitative description of field effects may not be constitutive of the field concept as such, while that concept would be empty with being related to time and space. If the concept of field in the strict sense can be conceived of without the idea of expanding through waves, then also types of non-local, instantaneous communication between physical phenomena can be conceived of in terms of field effects.

In the framework of this paper it is no longer possible to apply what has been said so far upon a theological interpretation of the world of creatures according to the sequence of their emergence in the history of the universe. A sketch of such an interpretation has been published in the context of my treatment of the doctrine of creation in the second volume of my *Systematic Theology*. In the dialog between theology and science, however, it is still more important to reach agreement about the foundations of interpretations of such a type. Only this much may be said here—the key for perceiving the interconnection of eternity and time lies with the relevance of the future in understanding everything existing in time. It is through the future that eternity enters into time. Ever new contingent events proceed from the future, and on the other hand everything existing in time can expect from the future only the possible wholeness of its life. All things proceed towards the kingdom of God, but God’s sovereignty is already at work by entering from His future into the presence of His crea-

tures. From the point of view of the creatures this relationship gets reverted. The future becomes the direction of extrapolations from the present and from whatever we know from the past. That is also true in the history of the universe. Mythical interpretation of the world looks at the order of the universe as founded in its beginning. Even the biblical report on creation, though no longer a myth in its literal form, exemplifies this way of looking at the world. The image of the foundation of all creaturely forms, in a first week of seven days, is in a certain tension, however, to the perspective otherwise characteristic for the biblical understanding of reality, the perspective of ever new actions of God in the history toward the future completion of His creation. The idea of an order of creation, complete in the beginning and not significantly changed in subsequent time made an agreement between theologians and scientists difficult for a long period, especially during the struggle about the doctrine of evolution. Much more important, however, in view of a possible consonance between a theology of creation and natural science, is that the evolution of life occurs within an irreversible process, where again and again contingencies occur. It is similar with the history of the universe. With regard to the origin and evolution of life as well as in the field of cosmology the ideological barriers between the scientific description of the world and the interpretation of the same world in Christian theology broke down. One would ask too much, if scientific cosmology were expected to produce right away a demonstration of the existence of God, as Pope Pius XII believed at the time of the first enthusiasm about the present standard model of the expanding universe. It is sufficient that theological interpretation of the history of the universe in terms of creation can be developed in consonance with scientific data and procedures. To this end it is necessary that the theological doctrine of creation remains able to learn, not in the sense of adapting itself apologetically to every change of the scientific description of nature, but in the sense that theology remains vigorous enough to develop from its own resources ever new interpretations that try to do justice to a changing state of experiential knowledge of our world, in order to integrate it into the Christian understanding of the world as being created by the God of the Bible.

