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Chaos Theology: A New Creation
Theology and Its Applications

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CHAOS THEOLOGY: A NEW CREATION THEOLOGY AND ITS APPLICATIONS

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The problems inherent in creatio ex nihilo have led the author to the development of a new creation theology: chaos theology. Its main points are creation from an unexplained initial chaos, a remaining chaos element that is the source of physical and moral evil, and continuing creation toward fulfillment on the Last Day. Chaos theology can be reconciled with the scientific account of cosmic and biological evolution. Combining chaos theology with the physical theory of chaos helps in the understanding of God's action in the world. Jesus Christ is shown to be the cosmic Christ, who reconciles the entire cosmos, not only humanity. The problem of evil is readily solved in chaos theology as the effect of the remaining chaos element. From chaos theology and scientific insight in cancer, a theology of illness can be derived.

A. From creatio ex nihilo to chaos theology

How can creation be reconciled with evolution? What can be said about God after Auschwitz? What can be said about original sin and predestination? Is illness God's punishment for sin? These questions I shall consider in the light of a new creation theology, which I call chaos theology and with which I wish to replace the traditional doctrine of creation from nothing (creatio ex nihilo).

1. Origin of creatio ex nihilo

The two creation stories in Genesis 1 and 2 both pose an initial chaos: a lifeless desert in the older story (Gen 2:5-6), a formless void, darkness, waters in the later story (Gen 1:2). The Hebrew term is tohu wabohu, which is also used in Isaiah 34:10 and Jer 4:23 for chaos, waste and void. The early Fathers Justin (c. 150) and Clement of Alexandria (c. 200) retained this view. Clement points to a passage in the Wisdom of Solomon, “For your all-powerful hand, which created the world out of formless matter...” (Wis 11:17), and applied the Neoplatonist idea that the ultimate divine reality in creation overflows into the surrounding void. Creation from initial chaos is also the common view in non-biblical creation stories. In the few that use the term “nothing,” this only refers to the initial absence of structures and beings seen in the present world. The idea of an initial chaos might thus be considered a Jungian archetype.

When and how did this view come to be replaced by the idea of creation out of nothing (creatio ex nihilo)? This happened around 185 CE, when Theophilus of Antioch invented creatio ex nihilo in his battle against Marcion and the Christian Gnostics. Noticing the evil in the world, the latter taught that the universe was created by a demiurge, a lower imperfect god, using evil pre-existent and eternal matter. Theophilus (c. 185) rejected both, saying, “It would be nothing great if God had made the cosmos out of pre-existing matter.” Irenaeus (c. 190) agreed with Theophilus; he opposed the gnostic belief in a plurality of divine beings by upholding the one true God of the Hebrew and Christian Scriptures, and the idea of pre-existing and eternal matter by claiming that God took from the divine self the matter for creating all things. This matter meant, for Irenaeus, God’s will and power. Cosmological questions scarcely worried him:

As the Bible gives no information, it is not permissible to speculate about it as the Gnostics do.
Later, Augustine (c. 400) accepted the *creatio ex nihilo* idea, which was thereafter almost universally adopted by the Church. It was dogmatically formulated at the Fourth Lateran Council (1215), adopted by the reformers Luther and Calvin, and reaffirmed by the first Vatican Council (1870). Thus, *creatio ex nihilo* was universally accepted and never again rejected. However, true “nothing” poses several problems.

2. Problems with *creatio ex nihilo*

The concept of *creatio ex nihilo* presents four serious problems: conceptual, biblical, scientific, and theological.

**Conceptual.** No one can picture absolute nothingness, which may explain why many philosophers and theologians, among them Plato, Heidegger, Augustine, and Barth, employ the term *nihil* in a rather loose fashion. They consider it as a *nihil ontologicum*, an existing nothing, rather than a *nihil negativum*, absolute nothing. However, an existing *nihil* is not essentially different from an initial chaos. The same is true, if one says, with John Polkinghorne, that *creatio ex nihilo* is merely a “metaphysical” statement. Therefore, I shall adhere to a strict interpretation of *nihil* as the complete absence of matter, energy, physical laws, structure, and order.

**Biblical.** As I have said above, *creatio ex nihilo* conflicts with both of the creation accounts in Genesis. Claus Westermann writes in his authoritative commentary on Genesis 1-11:

> Such an abstract idea is foreign to both the language and thought of P [the unknown author of Gen 1]; it is clear that there can be here no question of a *creatio ex nihilo*; our query about the origin of matter is not answered; the idea of an initial chaos goes back to mythical and premythical thinking.

The four texts commonly cited in support of *creatio ex nihilo* are as follows:

- God stretches out Zaphon [or *the North*] over the void, and hangs the earth upon nothing. (Job 26:7)
- ...God...who...calls into existence the things that do not exist. (Rom 4:17)
- ...what is seen was made from things that are not visible. (Heb 11:3)
- ...look at the heaven and the earth and see everything that is in them, and recognize that God did not make them out of things that existed. (2 Macc 7:28)

These texts fit equally well with creation from initial chaos, and thus can hardly be seen as clear evidence for creation *ex nihilo*. The *ex nihilo* concept is foreign to the Bible, which conclusion is also reached by Scottish theologian David Fergusson.

**Scientific.** In an extensive study, *God, Creation and Contemporary Physics*, Australian theologian Mark Worthing concludes:

> Neither classical, quantum mechanical or relativistic physics can explain the origin of the universe from nothing. Any theory explaining how something has come from nothing must assume some preexisting laws or energy or quantum activity in order to have a credible theory. Nothing comes out of nothing.

Some physicists like to describe the cosmic origin as a “quantum fluctuation in a vacuum,” but this does not constitute an initial *nihil*. Here are the words of physicist-theologian John Polkinghorne on the subject:

> A quantum vacuum is a hive of activity, full of fluctuations, of random comings-to-be and fadings-away, certainly not something which without great abuse of language could be called “nothing.”

Arthur Peacocke appears to agree when he writes, “It was not just ‘nothing at all’ even if it was ‘no thing!’” The ironic fact is that if science could explain a beginning of the world from a *nihil*, then there would be no place left for a Creator.

**Theological.** Explaining a cosmic origin from true *nihil* causes theologians as much of a problem as it does scientists. Karl Barth tries to reconcile the initial chaos of Genesis 1:2 with “nothing” by assuming a *nihil privatium*, which he calls *das Nichtige*, a “nothing” of things already existing, but not real before they were created. Emil Brunner basically abandons *creatio ex nihilo* when stat-
ing. "There never was a 'nothing' alongside of God," and the meaning of the biblical words "create" and "creation" is that...

God alone creates the world with no other co-operating factor; this expresses something which is utterly beyond all human understanding. What we know as creation is never "creatio ex nihilo," it is always the shaping of some given material. 13

However, as I said above, an existing nihil is not essentially different from an initial chaos. Paul Tillich realizes this, when he states, "The nihil out of which God creates is...the undialectical negation of being." 14 Mark Worthing states that creation out of absolute nothingness is an impossibility. He also rejects a creation out of God's own "substance" as leading to a pantheistic deification of the physical world, but seems to come close to this in his final conclusion:

_Creatio ex nihilo_, therefore, signifies the theological recognition that God created a universe distinct from the divine being, not out of any preexisting matter or principle, but out of nothing other than the fullness of God's own being. 15

In his recent book, Oxford theologian Keith Ward 16 has a section entitled "creation out of nothing," in which he rightly distinguishes between "origin" in the cosmological sense and "creation" in the theological sense and argues the case for a created universe. But he does not discuss, much less explain, the _creatio ex nihilo_ concept.

Jürgen Moltmann has made a serious attempt to provide a theological explanation for a true _creatio ex nihilo_. The first problem to be solved, he notes, is where to locate an initial "nothingness." Initially, "it" must be inside God, so as not to limit God's omnipresence; but for creation, "it" must be externalized to avoid pantheistic deification of the created world. He tries to formulate this process by invoking zimsam and shekinah (both from the Jewish _kabbala_), _kenosis_ and God's self-humiliation, and concludes:

The initial self-limitation of God, which permits creation, assumes the glorious, unrestricted boundlessness in which the whole creation is transfigured. [...] The death of Christ overcomes the annihilating nothingness, which persists in sin and death. 17

I agree with David Fergusson, 18 who finds this "ultimately unconvincing." I would add that a nothingness that annihilates cannot be true "nothing," and then we are back to an initial chaos. Since that is the biblical concept, I prefer to start from there.

3. Principles of chaos theology

In both Genesis stories, God is first, not created. God is before the "beginning," is timeless. This is a marked difference from the Babylonian creation story, _Enuma elish_. 19 In Genesis 1 God pushes back chaos in three separations (vss 2-10) and orders chaos by creating heavenly bodies, plants, animals, and human beings. Numerous texts in the Hebrew Bible suggest that an element of chaos remains, frequently symbolized as "sea" (as desert people, the Israelites were afraid of the sea). God assigns boundaries to the primeval sea (Job 38:8-11; Ps 104:7-9; Prov 8:27-31; Jer 5:22), sets a guard over the sea (Job 7:12), orders the waters back (Ps 18:15; Ps 89:9), and stills the raging of the sea (Ps 65:7; Nah 1:4). A text in the New Testament book of Revelation implies that on the Last Day this element of chaos will be abolished:

Then I saw a new heaven and a new earth: ...and the sea was no more.

(Rev 21:1)
The remaining element of chaos finds a parallel in primitive religion in the widespread and prominent distinction between the sacred and the profane.20

The key of the chaos theology is that I assume that the remaining element of chaos expresses itself in the evil in the world, both physical evil (natural disasters and illness) and moral evil (committed by human beings).

The six days of creation, followed by a day of rest (Gen 2:2), suggest a continuation of the creation process (creatio continua) toward a transcendent goal, the destiny of creation.21 The creation of which humankind is a part is not yet complete. God continues to work in the creation, battling remaining chaos, bringing it to fulfillment (not to destruction and replacement) on the Last Day. In the repeated phrase, “God saw that it was good (e.g., Gen 1:10), the Hebrew word tov does not mean good in actuality, but good for the purpose. The incarnation of God’s creative Word in the earthly human Jesus of Nazareth, is the decisive event in God’s battle against chaos. Evil is not created (as required in creatio ex nihilo, resulting in the never-solved theodicy; see section C below), but it is the expression of remaining chaos. Thus, chaos theology provides a comprehensive creation theology that stretches from initial creation till the Last Day and includes the person and work of Jesus Christ.

Now I consider some critical questions that may be raised:

**Can one abandon the doctrine of creatio ex nihilo, which has been nearly universally held since the third century?** As an Anglican, I hold to the Anglican “tripos” of Bible, Tradition (as expressed in the ancient creeds) and Reason (with which to consider the first two). I have shown that creatio ex nihilo is not biblical, and it is not contained in the ancient creeds. It is, thus, part of the ongoing tradition of the Church, which is not unchangeable.

**Does creation from initial chaos re-introduce gnostic dualism?** Acceptance of the biblical idea of creation from chaos does not reintroduce gnostic dualism, as long as one does not invoke a demiurge but maintains with Genesis 1 the absolute sovereignty of God who creates by his authoritative Word. The dualism between order and chaos is, like that between good and evil, light and dark, belief and unbelief, particle and wave, simply the recognition of a property of the universe in which we exist.

**Does the idea of God battling remaining chaos diminish God’s omnipotence?** Bearing in mind that omnipotence is a vague speculative concept, I feel that a God who is battling remaining chaos till the final victory on the Last Day is more powerful than a Creator who allows the initial creation to be spoiled by wayward humans, as Origen and Augustine claimed.

**Who created initial chaos, if not God?** This is the type of question not to ask, because here one encounters the initial mystery. I shall come back to this in the next section. I am reminded of the story about Thomas Aquinas, who supposedly replied to the question of what God did before the Creation: “That is when God created hell for people who ask such questions.”

**How can evil come from chaos?** Although I suggest that remaining chaos expresses itself in the evil in the world, I consider chaos itself as morally neutral. However, both human beings and nature are under its influence; and this may lead to moral and physical evil, e.g., “chaotic thinking” may lead humans to evil behavior. Paul seems to express this in Romans 7:15:

> I do not understand my own actions.
> For I do not do what I would, but I do the very thing that I hate.

A relationship between chaos and evil is expressed by the claim of psychotherapist-theologian Eugen Drewermann22 that various types of psychiatric disease are caused by the fear of being thrown back into primordial chaos, of which he sees a remaining element in our world. And also below in section C-5, I claim that cancer is due to the reversal of cellular order into primordial chaos. On the other hand, chaos also has the potency for good. In God’s freedom and creativity, God creates by ordering chaos. Likewise, human beings can
to some extent order chaos through the use of their God-given freedom and creativity.

4. Chaos theology and the scientific worldview

In this section, I present some illustrations of the way in which chaos theology can contribute to the dialogue between the two worldviews of science and theology. The aim of such a dialogue is to determine to what extent the descriptions of the reality of the cosmos by each worldview in its own thought categories can be reconciled and integrated. In this way, a deeper understanding of this reality may be achieved, a faith to live by in these times.

The current scientific worldview is formed by Big-Bang cosmic evolution and biological evolution.

Initial mystery. In both worldviews, one faces an initial mystery: Genesis does not explain the initial chaos, lifeless desert (Gen 2:5-6), or watery void (Gen1:2). It does not say how it came about or what it consists of. Cosmological theory allows us to calculate back from the present state of the universe to a point $10^{-43}$ see after time zero, the supposed moment of the Big Bang, but cannot say anything about conditions and origin of the initial state at time zero or before.

Separation. The three separations in Genesis 1 (light from dark; water from heaven; earth from sea) are paralleled by the three separations in cosmology: of time and space; of the four fundamental forces (gravity, strong and weak nuclear forces, electromagnetic force), and of the elementary particles (electrons, quarks and gluons, the latter two turning into protons and neutrons).

Ordering. In Genesis 1, the heavenly bodies are created early, corresponding to galaxies, stars and planets in the view of modern cosmology. After that, in both views, the plants, animals, and human beings—in that order—appear on planet Earth. Ignorance of photosynthesis made the author of Genesis 1 err only in having the sun appear after the plants.

Chaos and entropy. The second law of thermodynamics tells us that every closed system left to itself will in the course of time increase its entropy, a measure of disorder. Production of galaxies, stars, planets, and living organisms brings order, which means decreasing entropy. Is there a conflict? No: they are open systems, exchanging energy and matter with their surroundings. Every animal on Earth receives energy from the sun, takes up material as food from its surroundings, and excretes waste products into it. So its entropy decreases, while that of the surroundings increases. Reversal of this process means death of the animal. This is the scientific way of expressing that creation is an ordering from initial chaos by pushing back chaos.

Information theory provides an equation for the relation between information content and entropy of the cosmos. It shows that entropy is infinite and information content zero at time zero, representing initial chaos at the moment of the Big Bang. Thereafter, information content approaches infinity and entropy goes to zero, representing the end of evolution—or in theological terms, the establishment of the New Kingdom. An approaching end to human evolution is supported by the ever-decreasing evolutionary rate in the sequence: mouse, dog, monkey, ape, human being. For human beings, it should eventually become zero, due to the elimination of natural selection for them, through medicine and technology.

Other analogies. The conclusion that time began with the Big Bang finds an analogy also in Augustine's statement that the universe was created "with" rather than "in" time. The cosmological insight that the universe has no center has a counterpart in the theological insight that God is everywhere and is not limited to one location. The fact that the entire cosmos was required to enable the emergence of human beings on planet Earth is reflected in the unique place assigned to humans in Genesis 1.

Notwithstanding these analogies between the creation story and the scientific account of cosmic and biological evolution, they should not be equated. The former answers why-questions about the relation between God, world, and humankind; the latter an-
answers how-questions about the mechanisms. But the former can give a meaning and purpose to the process of cosmic and biological evolution, which science by its nature cannot provide and which is neglected in the "nothing but" and "chance only" ideology of some non-believing scientists. The presence of evil in the created world, for which science cannot give a satisfactory explanation, can be explained as the result of the operation of the remaining element of chaos in creation.

**B. God's Action in the World**

How does God act in the world? The answer to this question has been largely determined by the dominant scientific worldview of the time. The discovery of the laws of gravity and motion by Isaac Newton (1642-1727) led to a mechanistic worldview: once created, the universe would run a predictable course according to fixed laws. This led to a deistic view of the Creator, who after one act of creation left the world to develop by itself according to unalterable laws. In the early twentieth century, quantum theory with Heisenberg's uncertainty principle made Newtonian

cal systems and, thus, operate at the macrolevel of our daily life.

1. **Chaos events**

In complexity theory, it is recognized that all living beings, and many other systems, are so-called non-linear systems. In the course of time, such systems meet a fork in the road. The system may then take either one of two directions. There is no energy difference between these, so they are equally likely. However, one cannot predict which direction the system will take: a chaos event occurs. As time proceeds, more forks are met. Eventually, the system becomes fully unpredictable. An example is the solar system. It has been calculated that in 93 million years from now the present uncertainty of 1 kilometer in the 150 million km distance between Sun and Earth will have increased to 150 million km. In other words, at this time one cannot predict whether they will then collide or will be at double their present distance—or somewhere in between.

In such chaos events the most minute influence can nudge the system in one rather than in the other direction. This means that God can, when so choosing, intervene through the Spirit without violating any physical laws. And even prayer can exert influence; it reaches God through the Holy Spirit, and God can answer in a chaos event. Thus, in the current scientific worldview the universe is open and spontaneous, in which the theologian may see God's immanent and providential activity operating in chaos events.

2. **Contingency in theology and science**

Contingency is a state of being dependent, endangered, accidental. Theologians have always recognized the contingency of the universe. Since it comes into being through the creative Word of God, this means that if God

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uncertainty turn into quantum mechanical probability and Heisenbergian uncertainty, with waves behaving like particles and vice versa. However, quantum events operate only at the microlevel of atoms and cannot be amplified to the macrolevel of our daily life. Since the 1970s, another kind of unpredictability has been discovered in the chaos events that occur in many physical, chemical, and biological systems and, thus, operate at the macrolevel of our daily life.

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should withdraw the Word, the universe would lapse into “non-being,” as Paul Tillich said, who held to creatio ex nihilo. However, the physical law of conservation of mass/energy makes this impossible. In chaos theology, Tillich’s “non-being” can be replaced by “chaos,” a state of complete disorder. This fits with the conservation law, as well as with the second law of thermodynamics. It is also in agreement with the aforementioned statement by Eugen Drewermann that various types of psychiatric disease are caused by the fear of being thrown back into primordial chaos. All this indicates that the occurrence of contingency can be better explained by chaos theology than by creatio ex nihilo.

Science has begun to recognize contingency. In cosmology it is realized that the universe is extremely “accidental,” Gribbin and Rees speak of two cosmic coincidences:

- The universe appears to be “flat,” meaning that the universe would be in the unlikely situation in which the expanding force of the initial explosion is exactly balanced by the gravitational force. The precision of this balance would have to be better than one part in $10^{40}$, corresponding to the accuracy required to hit an inch-wide target at the other side of the observable universe. Recent findings from the Boomerang balloon seem to confirm the flat universe.

- The universe is “tailor-made” for human-kind, meaning that the 25 fundamental constants have just the right values to have led to Earth and to the development of life and eventually human life on it. Were the force of gravity only slightly weaker than it actually is, stars would have been too cool for nuclear fusion and the formation of heavier elements, so no Earth and no life would have formed. Were it just slightly stronger, the universe would have collapsed before life could have developed. Similar contingencies exist for the other 24 constants. Just the right set of values for these constants exists, which is an extremely unlikely situation. Physics cannot explain this. The “anthropic principles” of Barrow and Tipler and the multi-world hypotheses of Gott are unscientific explanations (being untestable). To me, it seems more reasonable to believe in a purposeful Creator than in anthropic principles or multiworld hypotheses.

In biological evolution there was the fortuitous change in the oxygen content of the earth’s atmosphere. The initial oxygen-free atmosphere had the double advantage of allowing formation of biomolecules through the action of solar ultraviolet radiation (in the absence of an ozone layer), and protecting them from oxidation. When the first living cells had been formed, probably around hydrothermal vents in the ocean floor, algae developed and acquired a photosynthetic system. These algae converted carbon dioxide to oxygen, which led in 1.5 billion years to the present oxygen-rich atmosphere with an ozone layer. This allowed development of plants and animals that could go ashore. Other examples of contingency include: the earth’s strong magnetic field (800 times that of Mars) that diverts cosmic particle radiation; a massive planet at Jupiter’s position that diverts asteroids; the extinction of dinosaurs 65 million years ago by an asteroid impact, which allowed mammals to develop; the Rift Valley tectonic event that led to bipedalism and hominid development.

3. God transcendent and immanent

In the Newtonian era there was need only for a deistic God who set things in motion on a pre-ordained course, then withdrew from the world. The current scientific worldview requires a God who remains active in the evolving universe. But how? A god who merrily suspends the physical laws that were instituted in the beginning would be a disaster. The physical theory of chaos events appears to offer a solution, as I have explained above in the “Chaos events” section (B-1).

Continuing creation rather than conservation. A faulty translation of Genesis 1:1-2 and a misunderstanding of the Hebrew word tov led to the idea of an initially perfect creation, later spoiled by Adam’s fall. For the opening verses of Genesis, the King James Version has:
In the beginning God created the heaven and the earth. And the earth was without form, and void....

In the New Revised Standard Version this is translated:

In the beginning when God created the heavens and the earth, the earth was a formless void...

which places the chaos at the beginning. In the repeated phrase, “God saw that it was good” (e.g., Gen 1:10), the Hebrew word tov does not mean good in actuality, but good for the purpose God had in mind. Theophilus of Antioch had already described God’s action in the world after the initial creation as “conservation,” as keeping together a creation spoiled by human beings. This idea has persisted through the centuries, particularly in Calvinism. Conservation would imply that God keeps the damaged vehicle running until at the Last Day he must replace it by a new one. This underrates the Creator’s power and overrates the human. It does not explain physical evil that was present before the arrival of humankind, and it does not take into account the process of cosmic and biological evolution that has been going on for 15 billion years. In light of all this, I prefer to hold onto the idea of a continuing creation after an initial creation that was good for the ultimate purpose of the Creator, to be fulfilled through the continuing creation.

God’s transcendent and immanent activity. The distinction between initial and continuing creation leads me to the view that God is acting in two ways: transcendent and predictable; immanent and unpredictable (for human beings). God works predictably through natural laws, which are the human formulation of the orderliness of natural events as ordained by God in the initial Creation. In accordance with these laws, God creates and assures a reliable existence for all creatures. Here God is seen outside and above creation, as transcendent. In continuing creation, God works in complete creative freedom with action unpredictable to human beings, and the result is observed by them as “chance” and “chaos events,” through which creation is guided through many contingencies to the destiny determined by God in the beginning. Within the ordered structure described by natural laws, God retains divine freedom in the creative use of “chaos events.” Here God is seen as active within creation, battling the remaining chaos element. This I see as God’s immanent activity, which is invisible to human beings except in hindsight, in the course of evolution and in the course of individual lives. God’s immanent activity in chaos events implies that petitionary and intercessory prayers are meaningful: God can decide to honor them by influencing a chaos event.

4. Jesus Christ and reconciliation

Recently Dutch Calvinist theologian Cees den Heyer caused a stir in his church with his book about reconciliation.39 After an extensive review of New Testament teaching on reconciliation, he admits in the last few pages that he can no longer accept traditional Calvinist teaching about reconciliation. He objects to the idea that God could be so entrapped in God’s own justice as to require that the Son be killed to bring reconciliation. Unfortunately, den Heyer does not offer an alternative. I claim that three errors were made by Origen (200) and Augustine (400) with their ransom theory, by Anselm (1100) with his satisfaction theory, by Luther with his substitution theory, and by Calvin with his penal theory: 1) biblical metaphors were literalized; 2) crucifixion was isolated from incarnation and resurrection; and 3) continuing creation was neglected. On the matter of literalizing metaphors: a sign with the symbol for “exit,” as found in European railway stations, is not itself the exit, but points to it; those who think that it is the actual exit will bump their heads.

A more satisfactory answer can be provided by chaos theology. In continuing creation, God has been involved in an ongoing battle with remaining chaos for 15 billion years already. Homo sapiens has existed only during the last 40,000 years. So this is not only a human predicament, but a cosmic drama. Paul senses this when he says:

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We know that the whole creation has been groaning in travail together until now.  
(Rom 8:22)

So in this ongoing battle, God is not redeeming merely humans, but the entire cosmos. Again, Paul glimpses this when he says,

God was in Christ reconciling the world [Greek, kosmos] to himself. 
(2 Cor 5:19)

Our present understanding of the cosmic evolution can explain the idea of the cosmic Christ. The lightest chemical element, hydrogen, was formed in the Big Bang; in the nuclear fusion process in the stars, the heavier elements, such as carbon, nitrogen, and oxygen, were formed from hydrogen. When these stars exploded as supernovae, the chemical elements were ejected as cosmic dust, from which Earth and the other planets were formed. Living cells were formed from the elements of Earth, and so, eventually, were human beings. Jesus Christ, in adopting the human body, thus takes part in the entire universe: he becomes the cosmic Christ. God’s “top” creatures, b fears of the divine image, have succumbed to the remaining chaos element and become sinners. Then chaos, in what one might anthropomorphically call “a last desperate effort,” leads human beings to kill Jesus in the crucifixion, a judicial murder. However, God turns this apparent defeat around, against chaos and into a victory by the resurrection of Christ. This is an initial victory, which will become definitive at the Last Day, when God will forever banish the chaos element. It is the total action of Christ, rather than only his death, that brings reconciliation to the cosmos.

This theology of reconciliation avoids literalizing the biblical metaphors, integrates the crucifixion with incarnation and resurrection, gives reconciliation a cosmic dimension, and places it in God’s continuing creation, leading to the fulfillment on the Last Day. God is not pictured as a captive of God’s own justice. Crucial is our acceptance, in and through faith, of the reconciliation achieved in Jesus Christ; only then can we become inhabitants of the New Kingdom, which is creation filled. Putting it very succinctly: Jesus died not for our sins, but because of our sins; salvation comes not from his death, but from his resurrection.

C. The Problem of Evil

Evil is a much discussed topic in our day. Through the modern means of mass communication the problem of evil looms larger than ever. There is the moral evil of horrible atrocities, captured under names like Auschwitz, Rwanda, Bosnia, Kosovo, Sierra Leone. Nearer home, unprovoked violence is seen in our streets, schools, and homes, as well as fraud and corruption by public figures. There is the physical evil of natural disasters in the form of earthquakes, volcanic eruptions, hurricanes, and floods, by which thousands of innocent people are killed, injured, or made homeless. Another form of physical evil human beings face is illness in themselves and in their loved ones. Even those who have distanced themselves from a belief in a personal God still blame God for the existence of evil. It seems to be their final thought about the God who is disappearing from their view. They repeat the questions of Epicurus (300 BCE):

If God created the world, why is there evil? If God cannot do anything about it, why is God called omnipotent? If God is omnipotent and does not intervene, why is God called good?*

Introducing Satan as the agent of evil, does not help. If Satan is not controlled by God, then the evil demiurge of Gnosticism presents itself again. If Satan is controlled by God, as suggested in the book of Job, then God is ultimately responsible. Theodicy, the problem of evil in a world created by a good and almighty God has never been solved by the theologians. Even Pope John Paul II seems to admit this in his encyclical, Fides et Ratio.†

I submit that this is the inevitable consequence of the doctrine of creatio ex nihilo, creation from nothing.

1. Evil in the context of creatio ex nihilo

Several authors have reviewed the explanations that have been advanced for the problem of evil in creatio ex nihilo context. In Evil and the God of Love, John Hick‡ distinguishes...
guishes the Augustinian and Irenaean models. The key points of the Augustinian model are as follows:

- the created world was perfect, so evil does not stem from God. (This is obviously wrong and a misinterpretation of the Hebrew word tov.)
- evil is the absence of good (privatio boni). (This does no justice to the reality of Auschwitz and similar large-scale horrors.)
- evil comes from human sin, the misuse of our freedom. (However, the doctrine of predestination still makes God responsible.)
- physical evil came because Adam’s sin corrupted nature. (But natural disasters and disease preceded the appearance of humans.

resounding in theodicy indicates an awareness in humans of the “possible good”; and the entire human activity of religion, art, science, and technology stems from this quest for the good. These conclusions, right as they may be, do not offer a satisfactory explanation of theodicy. However, I do agree with his vigorous denunciation, based on a study of the story of Job, of the idea that the evil in the world is God’s punishment for human sins. Roman Catholic theologian Edward Schillebeeckx\textsuperscript{47} denounces creatio ex nihilo as “clumsy words and images for expressing that God’s work transcends our thinking.” He relates evil to the finitude of all that is created, in the sense that the latter provides the possibility for evil to arise. In a private discussion with me,\textsuperscript{48} he admitted that he has no explanation for evil.

Surprisingly, few contemporary theologians show any awareness of the evolutionary nature of creation. An exception is radical Calvinist theologian H. M. Kuitert, who in his book, \textit{I Have My Doubts}, applies evolution in his discussion of theodicy, but concludes, “evolution is an unpredictable process: it has no purpose.”\textsuperscript{49} So he does not integrate it in his further discussion of “the riddle of the good creation.” Since he still interprets “good” (tov) as indicating the quality of the present, unfinished creation, he encounters more problems and rejects more traditional explanations than he offers solutions for. His conclusions that “evil is part of life and we have to put up with it,” and that “God can turn to good what human beings had thought to be evil,” can hardly be considered to constitute a satisfactory solution of theodicy.

Mark Worthing considers theodicy in the context of contemporary physics.\textsuperscript{50} He distinguishes a dysteleological model (evil lacks a purpose, and leads only to further disorder), and a teleological model (evil is part of

In continuing creation, God has been involved in an ongoing battle with remaining chaos for 15 billion years already. Human beings have existed only during the last 10,000 years. So this is not only a human predicament, but a cosmic drama.

Dinosaurs already suffered from arthritis, as shown by study of their fossil remains.

The Irenaean model posits that evil ultimately exists within God’s good purpose. God could have created differently, but knew that early humans were too immature to receive, contain, and retain perfection. My objection to this is that it upholds God’s goodness, but compromises omnipotence. Schleiermacher goes even further by saying, “sin has been ordained by God, for otherwise, redemption itself could not have been ordained.”\textsuperscript{43} My objection is that this amounts to causing a shipwreck in order to allow the staging of a rescue operation. Neither of the two models offers much insight in physical evil.

Anton Houtepen,\textsuperscript{44} a Dutch Roman Catholic theologian, reviews the positions of Greek philosophers, and of Augustine, Thomas Aquinas, Luther, Leibnitz, and Kant. In the end he reaches two conclusions: the question of

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It seems to fit, in many respects, with the reasoning of Rabbi Kushner in his best-selling book, *When Bad Things Happen to Good People*. He sees creation as God’s ordering of initial chaos and recognizes a remaining element of chaos, symbolized by the sea monster Leviathan in Job 41. However, he lacks the evolutionary view of creation, so to the question, “Why does God not intervene?” he can only reply that God cannot do everything and is suffering with us. I find this an unsatisfactory view of God’s action; God does intervene—not in instantly curing each person’s ills, but in the ongoing battle with remaining chaos. To me it seems clear that the key elements in explaining theodicy are chaos theology and the evolutionary view of creation (continuing creation). Evil is not attributed to God or to the effects of the sin of a mythical proto-human Adam. However, borrowing the slogan of the Dutch Tax Service, “We cannot make it more pleasant, but we can make it easier for you,” I can say, evil does remain just that, but chaos theology makes it more understandable.

4. Original sin and predestination

The doctrine of original sin was first proposed by Irenaeus (c. 190) in his struggle against gnostic dualism. Since he was one of the first to adopt the *creatio ex nihilo* idea to combat dualism, he had to find an origin outside of God for sin. This he found in Paul’s words:

> As sin came into the world through one man [i.e., Adam], ...many died through the one man’s sin.

*(Rom 5:12-21)*

Irenaeus interpreted these words to mean that evil came into the world through the sin of Adam. Didymus of Alexandria (c. 350) taught that Adam’s sin was transmitted by natural propagation, and Chrysostom (390) and Augustine (400) attributed this to sexual lust. The latter idea was rejected by Thomas Aquinas and the Roman Catholic Church, but retained by Luther and Calvin.

My critique of this doctrine is that:

- it provides a fatalistic and pessimistic view of life in portraying human sinfulness

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*a purposeful process and thus confined to certain established limits.* He connects evil, both physical and moral evil, with the concept of entropy, the measure of disorder in a physical system. He bases this idea, in part, on Robert Russell, who notes that entropy and evil are both “dependent on being and lack independent existence.” Without order, disorder has no meaning or existence; similarly, without good, evil has no independent existence. Worthing sees here an analogy with the Irenaeus idea that the good depends on the existence of a certain amount of evil in the world, which thus becomes a suitable place for soul-making. This idea he borrows from the poet John Keats, who wrote that we should not call this world a “vale of tears,” but rather a “vale of soul-making,” where we grow spiritually through enduring the vicissitudes of life. However, it seems a travesty to claim that God permits evil in order to force or encourage spiritual growth. In the end, Worthing supports Philip Hefner’s conclusion:

> Chaos is the womb of creativity. Creation and chaos belong together by nature.

While this goes in the direction that I shall pursue in the next section, I conclude that *creatio ex nihilo* does not permit a satisfactory explanation for the problem of evil.

3. Evil in chaos theology

Chaos theology can provide a solution for the problem of evil. The remaining element of chaos expresses itself in the evil in the world, both physical (natural disasters and illness) and moral (human evil). While physical evil is simply the consequence of the presence of the chaos element in the created world, human beings remain responsible for moral evil, since they know the difference between good and evil and have freedom to choose between them. This explanation of theodicy seems to me to be more satisfactory than Augustine’s *privatio boni*, Barth’s *das Nicht-Ige*, and Moltmann’s “annihilating nothingness that persists in sin and death,” or any of the other explanations outlined in the previous section.
as a kind of inherited disease (German, Erbsünde);

- Paul made a wordplay with “one for many,” and only wanted to illustrate the superiority of grace over the power of sin;
- the author of Genesis 3 tried to explain the universal human inclination to sin by composing the powerful myth of the Fall, but it is not permissible to turn the myth around and claim that all subsequent human sin was derived, inherited, from Adam;
- evolution theory teaches that new species originate in hundreds of individuals, so there cannot have been a single first human pair;
- human beings developed gradually over a period of 6 million years from Australopithecus via Homo habilis and Homo erectus to Homo sapiens; and along with this biological evolution, there appears to have been a religious and moral evolution.  

So, I feel that we can discard this somber doctrine and ascribe the universal human inclination to sin to the operation of the remaining chaos element.

The doctrine of predestination was invented by Augustine in reaction to the Irish monk Pelagius (400), who taught that a person takes the initial and decisive step towards salvation by one’s own efforts, apart from the assistance of divine grace. Basing himself on the words of Paul, “those whom he foreknew he also predestined” (8:28-30), Augustine claimed that this means that God decrees the election and non-election of individuals. Calvin made predestination a cornerstone of his theological system, rejecting the universal saving will of God and maintaining that Christ’s atoning death was offered only for the elect. To this, Reformed theologian Emil Brunner exclaims, “How terrible and paralyzing is all talk of predestination.”  

My critique is that this doctrine neglects human free will and the other words of Paul:

Therefore, work out your own salvation with fear and trembling: for it is God who is at work in you, enabling you both to will and to work for God’s good pleasure. (Phil 2:12-13)

Out of love for God’s creatures, God may take the initiative, but leaving human beings the freedom to accept or reject God’s offer. Chaos theology with the theory of chaos events suggests that God leaves to the evolving creation and creatures a large degree of freedom, intervening only in order to keep creation going towards the goal God set for it.

5. A theology of illness

Remarkably, neither dogmatic theologians nor scientist-theologians have given much attention to this topic, which is of such importance in human life, both physically and spiritually. Many people still attribute disease to sin or to divine punishment for sin, leading to misplaced guilt feelings in many seriously ill people. Even Dame Cicely Saunders, founder of the hospice movement, believes this. It was the predominant view in the Hebrew scriptures; but Jesus vigorously rejects the idea that disease is God’s punishment, either for one’s personal sins or for those of one’s parents (Jn. 9:3). He sees a person as a unity of body and mind, and illness as the result of evil producing an imbalance in the body-mind unity. So, in his healing acts, he pays close attention to the mind of the sick, often linking healing with the forgiving of sins (e.g., Mk. 2:2-11).

Modern understanding of disease. I take cancer as a model, because it is a prevalent and serious disease, and we know so much about its biological mechanism. A single random mutation of one gene in one normal body cell makes it turn its neighbor cell into a malignant cell. This cell loses control of division through the blocking of two defense systems against unlimited division (apoptosis and telomere shortening), resulting in excessive multiplication. When the tumor has reached a diameter of 1.6 mm, it begins to suffer oxygen deficiency. This activates a gene, which produces a protein that effects blood vessel formation. The tumor can then continue to grow. The next step is metastasis: the cancer cell activates a quiescent enzyme that is secreted and “drills” a hole in a blood vessel wall. Through this hole the cancer cell enters the blood stream. It is carried along until it is
stopped in a capillary bed. There it forms a secondary tumor. This process can be repeated with other cancer cells, leading to the formation of many secondary tumors. When a primary or secondary tumor disrupts essential body functions, the patient dies.

Theological interpretation. The initial mutation is a chaos event. The resulting cancer process is the derailment of a very complex, orderly, coordinated functioning of many genes, enzymes, hormones, and messengers that exists in body cells under normal conditions. This order has been established by the Creator in the course of evolutionary creation and is established anew in each individual, owing to the genetic system present in its cells. A chaos event, the random mutation of one gene in one cell, causes this order to degenerate to chaos on the cellular level. The same can be said for all diseases in which a normal physiological mechanism is derailed.

Thus, chaos theology leads to the insight that cancer and other diseases are caused by the remaining chaos element disturbing the order established by the Creator in the evolutionary creation process. This theological interpretation agrees with the message of Jesus that disease is a manifestation of evil, a disturbance of divine order, but not a punishment for sins of sick persons or of their parents. Guilt (but not divine punishment) can be spoken of only when the disease is due to human negligence, e.g., liver cirrhosis through alcohol abuse, or AIDS infection through unprotected, promiscuous sex.

Curing or healing. The standard medical treatment for cancer is to remove or destroy the tumor by surgery (if there is no metastasis), radiation, chemotherapy, or a combination of these. This can, in many cases, greatly increase life expectancy with an acceptable quality of life. However, the problem is that total removal or destruction of every cancer cell in a patient is very difficult to achieve, if not impossible; so a true cure is still rare. Moreover, curing falls short of the healing of the body-mind unity that was an essential aspect of Jesus’ healing acts.

The mechanism for the interaction between mind and body is beginning to be understood scientifically. From the brain cortex, the seat of the mind, nerves run to the hypothalamus, which secretes activating substances to the nearby pituitary gland, making it secrete hormones that affect various body systems, including the immune system. Thus, one’s mental state can influence immune function positively or negatively. There is evidence that transformation of a normal body cell into a cancer cell through random mutation occurs fairly frequently, but that the immune system will normally recognize such a cell and destroy it before it can form a tumor. When the immune system is impaired through mental problems (e.g., stress, conflict, guilt feelings) or physical conditions (e.g., by immuno-suppressive medication after a transplantation), the chance of developing cancer is considerably increased.

Conversely, statistical studies show the importance of religious commitment (measured as attendance and participation) for combating cancer and other diseases. Institutes now exist that offer programs to stimulate the patient’s self-healing capacity, to supplement (not replace) conventional medical treatment. The patients are helped to liberate themselves from wrong ideas about guilt, sin, and punishment, and to express their feelings of anger and anxiety, allowing them to reintegrate body and mind. In some studies, an enhancement of the immune function in such patients has been observed. Although
such institutes operate on a non-religious basis, their approach resembles Jesus' practice of healing with forgiveness offered.

The practice in the early Church of the laying on of hands with prayer for healing has been revived in recent years in Anglican churches. Even if this does not lead to a cure, it may provide healing in the sense of receiving peace of mind and the assurance that God will guide us through the final stage of earthly life toward eternal life, the ultimate life for which we are created and destined. In my opinion, the sacrament of healing deserves a place in the Sunday Eucharist after the distribution of the consecrated elements, in the midst of the congregation. A form which shows a proper balance between curing and healing is provided in the 1970 Book of Common Prayer of the Episcopal Church in the United States.61

D. Conclusions

A critical study of the origin of the doctrine of creatio ex nihilo and the problems inherent in it have led me to the development of a new creation theology: chaos theology. It is based on the Genesis creation stories. The main points are: creation from an unexplained initial chaos, a remaining chaos element which is the source of physical and moral evil, and a continuing creation towards fulfilment on the Last Day. This chaos theology can be reconciled with the scientific account of cosmic and biological evolution, with the latter providing the mechanisms.

Combining chaos theology with the physical theory of chaos events provides an understanding of God's action in the world. God acts transcendentally mainly in the initial creation, and immanently in continuing creation by influencing chaos events so as to keep it going toward its intended fulfilment.

Jesus Christ, God's creative Word incarnate in the human Jesus of Nazareth, is the cosmic Christ, who reconciles the entire cosmos, not only humankind. Chaos theology can correct the traditional theories of reconciliation.

The problem of evil, which has remained unsolved in creatio ex nihilo, can be readily solved in chaos theology as the effect of the remaining chaos element. Human beings remain responsible for moral evil because of their knowledge of good and evil and the freedom of will given them. The doctrines of original sin and predestination can be abandoned. From chaos theology and our scientific knowledge of the biochemical mechanisms of cancer, a theology of illness can be derived.

Works cited:


Endnotes:


2. May.

3. Theophilus.

4. Irenaeus.

5. Barth, *Church Dogmatics* III. 2, pp. 154ff.


14. Tillich, *Systematic Theology*, vol. 1, p. 188.

15. Worthing, p. 75.


18. Fergusson, p. 27.


20. Long.


22. Drewermann, p. 27.


28. See Rial.


33. Seife, p. 595.

34. Moreland, pp. 141-172, Table 4.4.

35. Barrow and Tipler.

36. Gott.


40. Houtepen, p. 97.
The Reverend Dr. Sjoerd L. Bonting was born in 1924 in Amsterdam. After earning his Ph.D. in biochemistry at the University of Amsterdam, he came to the U.S. in 1952 as a National Institutes of Health Postdoctoral Fellow. From 1952-1960, he worked at the University of Iowa, the University of Minnesota, and the University of Illinois; and the years from 1960-1965 he spent at the National Institutes of Health (Bethesda, Md.). He returned to the Netherlands in 1965 as professor and chairman of the Department of Biochemistry at the University of Nijmegen. He returned to the U.S. once more in 1985, as a scientific consultant at NASA Ames Research Center (Mountain View, Cal.), for preparation of biological research on the International Space Station (1985-93).

After studying theology, he was ordained priest in the Episcopal Church in 1964 and is a member of the Society of Ordained Scientists, a dispersed preaching order of the Anglican Church. In the Netherlands, he served as Anglican chaplain for English-speaking persons, founding four congregations (Nijmegen, Eindhoven, Arnhem, Twente) between 1965 and 1985. In California, he was served two parishes. Since his return to the Netherlands in 1993, he has been active again as chaplain and in writing and speaking on science and theology. He is the author of three books in Dutch: Creation and Evolution (1996); Humanity, Chaos, Reconciliation (1998); and Between Belief and Unbelief, Christ and Secularization (2000).

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