

INTEGRITY OF CREATION: CULTURAL, SCIENTIFIC, AND RELIGIOUS PERSPECTIVES

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“Integrity of creation” has become a popular catch-phrase in environmental studies and advocacy. However, it has different strands of meaning in Filipino indigenous cultures, contemporary environmental sciences, and Christian theological tradition. The author describes integrity of creation from these different perspectives, and argues for the importance of dynamic interaction between them for more effective action on behalf of the environment.

On 5-12 March 1990, the World Council of Churches held an international convocation in Seoul, Korea on the theme “Justice, Peace and the Integrity of Creation”. The convocation proved historic as it popularized the phrase “integrity of creation” and forged its essential links with justice and peace. Thus the phrase has become current among various groups ranging from the faith-based to the scientific. These discourses about the environment employ integrity of creation to refer to the intricate relationships within nature.

This essay looks more closely at its status in relation to various advocacy groups and their discourses in the Philippine context. Among these groups are those working on behalf of indigenous peoples; others come from academic or scientific backgrounds; and still others from the Christian tradition. The three parts of this essay highlight some aspects of historical-cultural, modern scientific and traditional theological perspectives, and take into account their views on the integrity of creation. The first part explores what etymologies of Tagalog words for nature reveal about interrelationships within nature and how these relationships operate in the lives of indigenous peoples. The second section discusses how interrelationships within nature are conceived by modern science’s mechanistic view of nature and

how this conception has been modified through the concept of “ecosystem” in environmental studies. The third part uncovers how the hierarchical character and anthropocentric bias in the traditional theology of creation shapes current understanding of the integrity of creation.

Though these different perspectives are complementary in some respects and enrich the meaning of the integrity of creation, they have to be mindful of each other. Only with a nuanced and differentiated understanding of the integrity of nature creation can there be a more effective approach to environmental advocacy in the local context.

Historical-Cultural Perspectives

Integrity of creation is implied in the linguistic vocabulary for what is understood as “world” or “nature” in Tagalog—*kalikasan*, *sanlibutan*, *santinakpan*, *sansinukob*, and *sanlikha*. The most common word for nature, *kalikasan*, does not appear in early dictionaries published by Spanish missionaries. Florentino Hornedo’s study of Fr. Domingo de los Santos’ *Diccionario Tagalo* (1703), the well-known Noceda and Sanlucar’s *Vocabulario de la lengua tagala* (1754, 1860) and Pedro Serrano Laktaw’s *Diccionario Hispano-Tagalo* (1889) reveals that its root, *licas*, has five meanings: (a) long journeys especially when those involved carrying equipment and goods for sale, (b) the emergence of pure quality or true form as in the extraction of pure gold through fire or the appearance of one’s face after cleansing, (c) the winding of thread, (d) the transfer of something to another container, and (e) leaving marks or scent along a trail.¹ An earlier dictionary by Franciscan Francisco de San Antonio (ca. 1620)² mentions only the first two meanings.

Of the five different usages, it appears to be the second that might have led to its application to nature in general which, Hornedo

1. Florentino Hornedo, *The Favor of the Gods: Essays in Filipino Religious Thought and Behavior* (Manila: University of Santo Tomas Publishing House, 2001), 197-198.

2. Francisco de San Antonio, *Vocabulario Tagalo: Tagalog-Spanish Dictionary*, ed. Anton Poostma (Quezon City: Pulong: Sources for Philippine Studies, 2000).

suggests, is a 20th century development. This usage related to the emergence of pure gold or a clean face points to the manifestation of an innate characteristic. *Kalikasan* and its integrity then refer to the innate character of the world in itself and untouched, presumably, by humans.

Integrity takes on a different nuance in the other words prefixed with *san-* or *sang-*. Franciscan missionary Miguel Ruiz' 17th century Tagalog-Spanish lexicon equates the Spanish *mundo* with “*daigdigan, sanglibutan, sangtinacpan, sangbilabiran: todo es impropio, mas no hay otros* [all that exists, nothing more]” (ca. 1630).³ The prefix *san-* or *sang-* derived from *isa*, meaning “one”, refers to the unity and totality of all that exists.

San Antonio's dictionary mentioned earlier explains the root-words of these words: (a) *libot* means movement as in a procession [*pp. Rodeamiento, como de procesion*]⁴, (b) *tacqip* anything that serves as cover [*pc. Cualquiera cosa, sea lo que fuere, con que se cubre otra, es: tacqip*]⁵, and (c) *sucob* any covering [*pc. Una manta, a manera de costal*]⁶. Therefore *sanlibotan, santinacpan* and *sansinukob* refer to all space where one can roam or that which is covered by the heavens. These words for nature then locate integrity in the oneness and totality of all that is.

Another word for nature found in San Antonio's dictionary adds a further basis to this unity and totality by using the root-word *lic-ha*. Its entry reads thus: *pc. Cualquier estatua, que se hace debulto. Lo mismo es que “larauan”, aunque aplican al idolo. Naglilicha: tener asi estatua* [any statue that is made. Also like “*larauan*” as applied to an idol. *Naglilicha*: to make a statue].⁷ To speak of nature then as *sangnilikha* is to say that it is created.

What we find in these early etymologies suggests an understanding of nature as a unified whole or a totality, expressed symbolically as everything that is “covered” or occupies space. Moreover, they also suggest that all that is “covered” is created as *sangnilicha*.

3. Miguel Ruiz, *Bocabolario Tagalo: Tagalog-Spanish Dictionary*, ed. Jose Mario C. Francisco (Quezon City: Pulong: Sources for Philippine Studies, 1997), 731.

4. San Antonio, 149.

5. *Ibid.*, 250.

6. *Ibid.*, 242.

7. *Ibid.*, 149.

Within this view of nature as a unified whole, our ancestors situated themselves. As described in many colonial documents, they felt intimately connected to it as a whole and to the many different entities within it. For example, Jesuit Francisco Alcina's four volume ethnography of 18th century Samar details names and descriptions of local flora and fauna as well as how natives regarded and used them in their daily life. William Henry Scott mentions that Alcina counted 78 varieties of taro (*Colocasia*) and notes how they are incorporated in their material culture and social discourse.⁸ Moreover, this symbiotic relation cannot be reduced to utility as it expressed a dynamic bond between plants, animals and landscape on the one hand, and humans on the other.

This dynamic relation of our ancestors to nature in its totality and particularity is still preserved among many indigenous communities. This is confirmed by those from these communities and those who have lived in, worked with and for, and studied them. To cite just one example, anthropologist Stuart Schlegel who spent years among the Teduray in Figel before their tragic massacre in the 1970's, writes of this dynamic relation to nature:

To Mo-Emet and Ideng-Emet, to Balaud and Mo-Baug—to all the Figel women and men—the forest was not just their “environment” or some “eco-zone.” It was their world, their home, the place where their lives took place. They knew it intimately, and they know from their old stores that they and been created to care for it. That notion was the context for—and fundamental part of—their spirituality, their understanding of what the world was like and how they ought to live in it.

They didn't own part of nature the way their Maguindanaon neighbors believed they owned their land: they were merely owner-users, *gefe*, of whatever part they needed for how long they needed it. They shared the wealth of existence, but they didn't possess it. Their lives were simple, but not poor, and life was a journey, not a battle. One of the women shamans

8. William Henry Scott, *Barangay: Nineteenth Century Philippine Culture and Society* (Quezon City: Ateneo de Manila Press, 1994), 39-40.

once told me that the Great Spirit was the real owner (in our sense) of the world, but most forest Teduray would not even have said that. Such proprietary rights and privileges were so foreign to Teduray ways that she had to use the Maguindanaon word for “owner.” Rather, they saw themselves as stewards, as caretakers of all that was...⁹

Schlegel rightly applies the word “spirituality” to this relationship which, in this context, refers to that which goes beyond what is seen. Thus the relation between humans and nature consists in this distinction and dynamic between the “visible” and “invisible” characteristic of Philippine and Indonesian mythology according to Charles Macdonald.¹⁰ The boundaries involved in this relation, further explained in his studies of many different ethnic communities, are not closed¹¹ The spiritual can readily make its presence felt through the visible, but those in the visible world can enter the spiritual only after some process of purification.

In the context of this kind of affective and spiritual relationship with nature, the integrity of nature includes the place of humans in it and is the foundation of the communal and ethnic identity of these indigenous communities. However, this integrity of nature together with their identity and way of life are threatened by some forces of modernization as well as globalization. For instance, Early and Headland’s study of the Agta people in the San Ildefonso Peninsula of northeastern Luzon shows how logging and its accompanying demographic changes from the 1960’s have disrupted the Agta’s relation to nature:

The traditional Agta man was a hunter of game in the rain forest with bow and arrow. Although hunting was the point of pride for the Agta and formed an important part of male identity, gathering was also important, especially for the

9. Stuart A. Schlegel, *Wisdom from a Rainforest: The Spiritual Journey of an Anthropologist* (Georgia: University of Georgia Press, 1999), 98-99.

10. Charles Macdonald, “Earth and Sky in Philippine and Indonesian Mythology,” *Philippine Studies* 40, no. 2: 141-52.

11. Hornedo, 199-200.

women...In the new situation, the Agta do little hunting. Most gathering is for items that have commercial value in a market economy.¹²

As a result, many of the Agta have become agricultural or domestic workers.

This dis-integration of the traditional relation between nature and indigenous communities is a story repeatedly told throughout Philippine history. Albert Alejo's moving study of these communities on Mount Apo discusses how this continuing dis-integration began during American and Japanese occupations and how profound its effects have been as reflected in these native voices.

Datu Aragasi Manguda laments, "With no or limited trees left standing, we have no more place for rituals, no source for dye to color our dress, food, medicines, musical instruments and war weapons. In a nearby province, a young mother pleaded that her child be adopted. "Please take my baby. I can no longer look after her." The child was born three days before government bombs pounded the forests of Femagas, a village in Katipunan town, forcing hundreds of Subanen Lumad to flee.¹³

Such voices must be heeded, yet at the same time, advocacy for environmental integrity can no longer be a return to an idyllic Garden of Eden.

Modern Scientific Perspectives

The interrelationships within nature, that is, its integrity, have also been imaged by science in different ways throughout its history. According to David Lindberg, modern science emerged with "the rejection, by the "new scientists" of the seventeenth century (Galileo, Descartes, Gassendi, Boyle, Newton and others), of Aristotle's

12. John J. D. Early and Thomas N. Headland, *Population Dynamics of a Philippine Rain Forest People: The San Ildelfonso Agta* (Gainesville, FL: University Press of Florida, 1998), 50.

13. Albert Alejo, *Generating Energies in Mt. Apo: Cultural Politics in a Contested Environment* (Quezon City: Ateneo de Manila University Press, 2000), 41.

metaphysics of nature, form and matter, substance, actuality and potentiality, the four qualities, and the four causes, and the resuscitation and reformulation of the corpuscular philosophy of the ancient atomists”¹⁴

Though Lindberg rightly acknowledges significant continuities between Aristotelian and modern views, and therefore the important contributions of the Aristotelian to the modern, their contrasting views regarding the integrity of nature cannot be overstated: “In exchange for the purposeful, organized, and (in many ways) organic world of Aristotelian natural philosophy, the new metaphysics offered a mechanical world of lifeless matter, incessant local motion and random collision”.¹⁵ Thus the integrity of nature was no longer seen in terms of the relationships within an organic whole characterized by the purpose [*telos*] of each part. Modern science “offered the size, shape, and motion of invisible corpuscles—elevating local motion to a position of preeminence among the categories of change and reducing all causality to efficient and material causality.” Moreover, this “encouraged the application of mathematics to nature.”

These differences between the earlier traditional and the modern scientific did not consist only in methodology but, as Gibson Winter points out, “in a radically different imagery of the world”.¹⁶ In the former, “traditional peoples, and most of the older, higher civilizations, operate with some variant of a biological or organicist imagery of life and cosmos. They live in a world of more-than-human powers, ordered according to the rhythms of biological or organic growth”.¹⁷ For the latter, nature became increasingly imaged as a machine made up of composite parts subject to governing forces, processes and laws. Integrity between these different entities or parts of entities was understood in terms of mechanics, and if these did not behave as predicted, then it was a matter of discovering conditions underlying such behavior.

14. David Lindberg, *The Beginning of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, 600 B.C. to A.D. 1450* (Chicago and London: University of Chicago Press, 1992), 361.

15. *Ibid.*, 362.

16. Gibson Winter, *Liberating Creation: Foundations of Religious Social Ethics* (New York, NY: Crossroads, 1981), 2.

17. *Ibid.*

This seemingly crude image of nature and the relations of parts within it paved the way to much of what we now understand about our world and ourselves and to even the very practical usages which this knowledge has produced by way of technology. Different parts as well as processes operating in the “big machine” called nature were, in a manner of speaking, taken apart and put together by different fields of the natural sciences especially chemistry and physics. Furthermore, with the increasing accuracy of new instrumentation, the refinement of experimentation, and the sophistication of mathematical language, there occurred greater progress in scientific knowledge and application. This resulted in further division of scientific fields and therefore of labor among scientists. For instance, the relatively new field of chemical physics differentiated itself from the earlier field of physical chemistry.

This view of and approach to the integrity of nature was similarly applied to the study of the living. The growth of plants was described in terms of photosynthesis. The physiology of animal organisms including humans was shown to be related to chemical compounds and their reactions to other compounds within the component parts of their body. Much of what we take for granted in modern medicine and even more recent biological studies such as genetic analysis are based on this view of the integrity of living bodies.

Since the beginning of the 20th century, however, this mechanistic view of nature has undergone significant modifications on empirical and theoretical grounds. The work of Einstein and Heisenberg among others suggested more probabilistic rather than deterministic correlations between certain processes. Correlations that appear to be operative on the macro level do not obtain on the quantum level.

Put in another way, certain problems involving some parts of the “living machine” could not be solved without reference to other parts; hence the need for a systems approach to the study of nature. These limitations of a rigid mechanistic view of nature became most evident in the study of living entities especially as they interact with their habitat. The emergence of the field of environmental science attests to this as it expresses the necessity not only of a systems approach but also of a multidisciplinary perspective.

This is perhaps best illustrated in the use of the concept of ecosystem as a central tool in environmental studies. In search of a

unifying concept to describe and analyze a particular environment, pioneer Arthur Tansley in 1935 provided all subsequent ecologists with what he first called a ‘circle of affinity’, and later the *ecosystem*... The central idea of the ecosystem was that it should be comprehensive, including all the physical, chemical, or biological processes which could possibly affect all the organisms being studied.¹⁸

An ecosystem then consists of an ecological community, that is, “an assemblage of interacting population of different species in a particular area or habitat,” and “the abiotic environment with which it interacts in a dynamic and complex way”.¹⁹

Thus the integrity of an ecosystem, also referred to as health or equilibrium, is measured “in terms of four major characteristics applicable to any complex system: *sustainability*, which is a function of *activity*, *organization*, and *resilience*” (Constanza *et al*, 1992, p.9).²⁰ Ecosystems then possess self-correcting control mechanisms to maintain equilibrium when there are stressors, whether internal, such as decimation of a particular species due to sickness, or external like destructive human intrusion.²¹ And when the stress on an ecosystem is too great, restoring ecological integrity requires “reestablishment of an ecosystem that is capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of a natural habitat of the region”.²²

18. J. R. Lloyd, *Man and the Ecosystem* (London: Macmillan Education , 1980), 5.

19. Ian F. Spellerberg, *Monitoring Ecological Change* (Cambridge: Cambridge University Press, 1991), 69.

20. Robert Costanza, Bryan G. Norton and Benjamin D. Haskell, “Introduction: What is Ecosystem Health and Why should We Worry about it?” in Robert Costanza, Bryan G. Norton and Benjamin D. Haskell (eds.), *Ecosystem Health: New Goals for Environmental Management* (Washington, D.C. and Covelo, California: Island Press, 1992), 9.

21. Daniel D. E. Willard and John J. Klarquist, “Mitigation Banks: A Strategy for Sustainable Ecosystem Function,” in *Rehabilitating Damaged Ecosystems*, 2nd edition, ed. John Cairns, Jr. (Boca Raton, Florida: Lewis Publications, 1995), 111.

22. Louis A. Toth, “Principles and Guidelines for Restoration of River Flood Plain Ecosystems—Kissimmee River, Florida,” in *Rehabilitating Damaged Ecosystems*, 2nd edition, ed. John Cairns, Jr. (Boca Raton, FL: Lewis Publications, 1995), 49-73.

As employed in environmental studies then, the concept of ecosystem provides a useful descriptive and analytical tool. It relates each organism with others and links each and all of them with physical and chemical processes in their habitat. Moreover, the state of these interrelationships helps diagnose whether the integrity of the ecosystem is damaged and needs rehabilitation.

This implies that the use of ecosystems in environmental science is both empirical and heuristic, as suggested by Tansley himself who regarded ecosystems not simply as natural units but as “mental isolates”. The scope of and functions within an ecosystem are discovered and verified through scientific observation and testing. At the same time, an ecosystem provides a framework for such empirical investigation. Thus central to the ecosystem concept is the assumption that living organisms interact with every other element in their local environment.

Given this, the identification and delineation of ecosystems are neither innate nor unchanging and therefore, subject to political forces and process. This was exemplified during the preparation, ratification and aftermath of the Convention on Biological Diversity (CBD) in which 192 countries committed to “the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings”. Care then must be exercised in delineating or classifying ecosystems, especially with regard to the role of the observer/analyst.

This concept of “ecosystem” then operationalizes how integrity of nature is seen from a modern scientific perspective. This integrity is empirical in nature, and its scope is defined by how interrelationships in nature can be empirically discovered and verified.

Traditional Theological Perspectives

Though the phrase “integrity of creation” became widely used only recently, the Christian doctrine of creation necessarily alludes to the status of nature and the interrelationships within it. The traditional articulation of this doctrine forged during the patristic and medieval periods remains classic and popular today. It considered nature as God’s second book as Scripture is first, and just as one finds God’s word in the Bible, so too can one analogously read God’s word in nature.

From this perspective, the most fundamental theological assertion about nature consists in its status as God's creation. This is expressed in the most common traditional formula, "creation out of nothing" [*creatio ex nihilo*]. Its biblical basis in passages such as 2 Maccabees 7:23 or Romans 4:17 is not focused on the metaphysical meaning of "nothing" but on the relation of salvation to God's creative activity. As Neil Ormerod states:

Christian faith resists any attempt to separate the two functions, as found in the Marcionite heresy, which set the God of the Old Testament (the creator) in opposition to the God of the New Testament (the redeemer) The work of salvation, of bringing good out of the evil of sin, is truly an act of creation *ex nihilo*, a fundamentally creative act.²³

But when Christianity encountered both mythological and philosophical world-views, the early Fathers "eventually forged the idea of creation from nothing" to break out of Hellenistic beliefs regarding the world as eternal or as fashioned by the dualistic principles of good and evil".²⁴ Scholastic theology would further develop this idea into its fullest metaphysical elaboration summarized by Zachary Hayes as follows:

Nothing, therefore, is simply non-existence in its most absolute sense of the word. For the great Scholastics like Aquinas and Bonaventure and their contemporaries, creation is not [to] be understood as a physical change. If we can use the word change at all, it must be understood at the metaphysical level to refer to the fact of existence from non-existence...Scholastic theology would become even more specific in its language to say that *ex nihilo sui et subjecti*. The word *sui* refers to the particular being under consideration. The word *subjecti* refers to any material substrate whatever. Neither the created being itself, nor any part of it, pre-exists the divine act of creation.²⁵

23. Neil Ormerod, *Creation, Grace and Redemption*, (Maryknoll, NY: Orbis Books, 2007), 4.

24. Zachary Hayes, *The Gift of Being: A Theology of Creation* (Collegeville, MN: Liturgical Press, 2001), 42.

25. *Ibid.*, 46-47.

This understanding of *creatio ex nihilo* provides the basis for the theological meaning of the integrity of creation. In its first sense, this integrity means that all of nature is one in being all created by God and in manifesting the divine as God's second book. Bonaventure, for instance, writes: "There is a multiplicity of beings coming from a single principle because, in fact, there is a first principle, and that principle is one... That which is simply first is, for that reason, totally immense. Because of its immensity, it is infinite. And because of the manifestation of its immensity, it shows many of its treasures".²⁶ As a result, "the cosmos is not just a profusion of isolated beings that, in their individuality, speak of God. In its totality, it speaks of the same God".²⁷

Moreover, this integrity of all creation in its totality as well as of each creature is based on their being created as good. Hence their relationship to one another is seen in relation to their innate goodness. As James Schaefer puts it,

Patristic and medieval reflections on the integrity of creation build upon the goodness concept by recognizing the instrumental interactions among animate and inanimate creatures that unify them. According to the theologians of these periods, God equipped, empowered, and continuously sustains the universe with the capability of functioning to sustain itself internally.²⁸

Moreover, "alluding occasionally to the orderly composition of the world, as indicated in the Genesis 1 story of creation and in Psalm 103, they reflected on how God intends creatures to function in relation to one another in order to constitute an orderly cosmos".²⁹ For Basil of Caesarea, "they [different creatures] constitute 'an unbroken bond of attraction into one fellowship and harmony'. The world is a 'mighty' and 'elaborate system' that was brought to

26. Ibid, 48-49.

27. Ibid., 49.

28. James Schaefer, *Theological Foundations for Environmental Ethics: Reconstructing Artistic and Medieval Concepts* (Washington, D.C.:Georgetown University Press, 2008), 121.

29. Ibid.

‘perfection’ through powers established in the world by God at the beginning of creation”.³⁰ Augustine of Hippo, on the other hand, uses the word “commonwealth” to describe relations between creatures:

The will of God is the first and the highest cause of all the forms and movements of the corporeal being. For nothing happens in a visible and sensible manner, throughout the most immense and boundless commonwealth of all creation, that is not commanded or permitted by that inner, invisible, and spiritual court of the supreme ruler, in accordance with the ineffable justice of His rewards and punishments, and of His graces and retributions.³¹

Implicit in these images of Basil, Augustine and other early Fathers is the presence of hierarchy within the integrity of creation. They differentiated levels in the goodness of creatures based on a hierarchical view of nature from primary to complex, from inanimate to humans. This hierarchical dimension becomes fully developed in the theology of Aquinas who “recognized the distinctiveness of natural entities from nonliving elements to the living vegetation, sensible / irrational creatures, and rational creatures that God created”.³²

Furthermore, Aquinas “attributed their differences to God’s having communicated various grades of goodness to establish a perfect universe and he praised God’s wisdom in ordering them to act in relation to one another to achieve the universe’s common good—its functioning to maintain itself internally while God sustains the existence of *the* universe”.³³ He even posited four types of interactivity among creatures and four distinct but related types of cooperation. In this sense, they become a “community of creatures,” in the words of John Wright or as “one organism” composed of “essential, integral or functional parts” according to Thomas.³⁴

30. Ibid., 122.

31. Ibid., 123.

32. Schaefer, 124.

33. Ibid., 124-25.

34. Ibid., 125.

This understanding of the integrity of creation in functional and hierarchical terms has led many contemporary theologians to label traditional theology as anthropocentric, that is, as putting the human “created in the image and likeness of God” as the pinnacle of creation isolated from the rest of creation. As a result, “this anthropocentric bias can be construed as noncontributory or harmful to theological discourse in our age of ecological degradation”.³⁵

Complementarity and Re-Vision of Creation

This discussion of the integrity of creation focusing on some aspects from historical cultural, modern scientific and traditional theological perspectives points to the complementarity among them. There is a clear affirmation in each about the wholeness in all the world and consequently in the relations between all within it. Because this integrity is viewed from the different perspectives, each perspective contributes a specific nuance to its meaning.

Philippine traditional cultures express the integrity of creation in its linguistic vocabulary for nature. The etymology of the most common word for nature, *kalikasan*, suggests the integral quality characteristic of nature. Other words such as *santinakpan*, *sanlibutan*, *sansinukob*, and *sangnilikha* with their prefix *sang-*, the shortened form of *isang*, point to oneness or unity in nature. This integrity or oneness is affirmed in the cultures of local indigenous peoples who experience a symbiotic relationship to everything around them, a relationship that transcends the functional and assumes a properly spiritual posture toward nature.

This spiritual basis of the integrity of creation is undoubtedly central to the perspective of the traditional theology of creation. For Christianity, the fundamental basis for nature’s integrity lies in all being God’s creatures, destined for saving union with God. As a consequence of Christianity’s encounter with subsequent historical developments, the relations of creatures to each other within this all-encompassing reality of creaturehood are linked to their metaphysical status within the chain of being and to their contribution to the end intended by the Creator-God.

35. Ibid., 9.

This spiritual nuance in the meaning of the integrity of creation, found in both local native cultures and traditional Christian theology, needs to be complemented by modern science's empirical understanding of nature's integrity. Though modern science initially conceived a mechanistic image of nature in which bodies or parts of bodies operate in relation to each other, environmental studies today employs a systems approach, best illustrated by the concept of ecosystems. With this development, the meaning of the integrity of nature is operationalized in terms of the dynamic interaction between living species and their environment. This interaction is empirically discovered and verified through observation and experimentation.

Here the complementarity of the three different perspectives becomes apparent. On the one hand, without modern science, native cultural views and traditional theology run the risk of fostering a sentimental attitude toward nature that results in an absolute rejection of any form of human activity, be it benign or abusive. At its most extreme form, they could unwittingly foster idolatry of nature. On the other, without recognizing cultural and theological perspectives, modern science may be pulled toward a purely functional picture of interrelationships within nature and hence ignore questions of non-quantifiable value in its conduct towards nature.

Through the complementarity between these different perspectives, advocacy for the environment could become more effective in minimizing, if not, eradicating, destruction of the environment. However, this very complementarity uncovers the need for a re-visioning of creation as changing and open-ended, in other words, as evolutionary.

Indigenous native cultures, modern science and traditional theology all affirm within their proper discourses the integrity of creation in terms of the dynamic interrelationships within nature, that is, between individual parts and the totality of nature as well as between the living and the non-living. Though changes within these interrelationships are recognized, behind this understanding lurks an implicit assumption, that nature is basically finished.

Karl Schmitz-Moorman links this assumption with "the fixation on the origin as the decisive act of creation [which] is based on the old and obsolete idea that identifies the fullness of reality with the

beginnings”.³⁶ Moreover, this assumption behind traditional theology of creation was “made in a time when the world was static, when nothing new under the sun was thought possible, and God was imagined as the supreme and unchanging being resting in the divine self (Gen. 2:3)”.³⁷

Because of this fixation, God is often referred to the “Unmoved Mover” or “First Cause”, and *creatio ex nihilo* and *creatio continua* become sharply distinguished as Copan and Craig point out:

Creation is distinct from conservation in that creation does not presuppose a patient entity but involves God’s bringing something into being; conservation does presuppose a patient entity and involves God’s acting on it to preserve it from one moment to another.³⁸

Given this distinction, *creatio continua* is reduced to the conservation of an already existing creation and changes in and within nature to the accidental or functional. However, “this separation of the act of creation is no longer applicable to the evolving universe”.³⁹

In order to take into better account the reality of our evolving universe, Whitney Bauman identifies three major hindrances from traditional theology of creation—its inability to incorporate the phenomenon of emergence, its valorization of “the given” as foundation, and its view of the future as already disclosed from the past.⁴⁰ She then reconstructs the meaning of *creatio continua* in order to re-vision nature as evolving. Her re-construction draws from theological as well as scientific resources and utilizes “the understanding of creation as ‘gift’ (Primavesi), the understanding of non-equilibrium ecology and emergence, and Bloch’s understanding of the open

36. Karl K. Schmitz-Moorman and James F. Salmon, *Theology of Creation in an Evolutionary World* (Cleveland, OH: Pilgrim Press, 1997), 120.

37. *Ibid.*, 47.

38. Paul P. Copan and William Lane Craig, *Creation Out of Nothing: A Biblical, Philosophical and Scientific Exploration* (Grand Rapids, MI: Appolos and Baker Academic, 2004), 165.

39. Schmitz-Moorman, 119.

40. Whitney Bauman, *Theology, Creation, and Environmental Ethics* (New York and London: Routledge, 2009), 155.

future”..⁴¹ Her view of “nature” consists in its being “open to evolution, change, newness *on its own terms* as is ‘cultural evolution’”⁴², and this “nature” is “the gift of creation “presented us as humans (for better or worse) with responsibility”⁴³. In other words, “creation, here, refers to the continuous process of planetary evolution, and how our thought-actions both affect and are affected by the ‘more than human world’”⁴⁴, and “will be viewed as an open-ended ‘Not-Yet-Becoming’ and ‘Not-Yet-Conscious’ process (Ernst Bloch)”⁴⁵.

This view of evolving nature as God’s gift of creation does not only correct a static view of nature but also avoids the hierarchical character and anthropocentric tendency of the traditional theology of creation. It provides humankind with a definite place within the evolutionary process—as mobile and perceptual animals, vertebrates with a backbone, warm-blooded and life-bearing mammals, erect and bipedal hominids; in other words, a specific species.⁴⁶ At the same time, humans are recognized as bio-historical beings shaped by both biological evolution and cultural developments which have enabled them to express themselves symbolically and linguistically, to reflect on self and the world, and to form beliefs about supra-empirical realities.⁴⁷ As van Huyssteen says, evolution then is a “cognition-gaining” as well as “belief-gaining” process.⁴⁸

Within this context, the theological notion of “being created in God’s image and likeness” could be seen as emerging from nature itself. This does not deny the gratuity of God’s creation of humans or reduce the spiritual to the material but considers God’s creative activity within the processes of nature God created.

41. Ibid., 185.

42. Ibid., 162.

43. Ibid., 163.

44. Ibid., 133.

45. Ibid., 156.

46. J. Wentzel Van Huyssteen, *Alone in the World? Human Uniqueness in Science and Theology* (Grand Rapids, MI: William B. Eerdmans Publishing Company, 2006), 278.

47. Ibid., 278-92.

48. Ibid., 312.

This re-visioning of nature as evolving and as God's gift enriches the meaning of the integrity of creation. The relations of all creatures with each other and in totality, is, yes, empirical and functional, but also continually evolving in partnership with our Creator God: "the whole process, being the continued attempt to answer God's creative and creating call, is the ongoing creation".⁴⁹

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49. Schmitz-Moorman, 121.