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APPRECIATING THE BEAUTY OF EARTH

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[Categories used by contemporary environmental philosophers to explore esthetic appreciation for the beauty of the physical world have parallels in reflections by patristic and medieval theologians on the beauty of God's creation. A sampling of the theologians' notions yields a promising foundation for ecological ethics from a theistic perspective, especially when understood from their world view at the time the text was written, reformulated to reflect broad scientific findings about the world today, and worked creatively to identify norms for human behavior.]

ESTHETIC APPRECIATION for the beauty of the natural environment has been widely acknowledged in the secular literature as foundational for ecological ethics. Among the philosophers who have advanced this status is Gene Hargrove, editor and founder of the journal *Environmental Ethics,* who points to the emergence of thinking in Western culture that natural beauty is intrinsically valuable and should be protected.[1] Focusing on the nature of esthetic appreciation, Noël Carroll stresses the authenticity of appreciation that occurs when the individual is moved emotionally by natural phenomena.[2] Conversely, Allen Carlson dwells on the cognitive dimension of esthetic appreciation and finds it most appropriate when brought about by scientific knowledge and its "commonsense predeces-

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[1] Eugene C. Hargrove, *Foundations of Environmental Ethics* (Englewood Cliffs, N.J.: Prentice Hall, 1989) 179–92.

[2] Standing near or under a thundering waterfall and being moved by its grandeur is the example given by Noël Carroll in "On Being Moved by Nature: Between Religion and Natural History," *Landscape, Natural Beauty and the Arts,* ed. Salim Kemal and Ivan Gaskell (Cambridge: Cambridge University, 1993) 244–66. Characterized as the "arousal model," Carroll perceives this manner of experiencing nature as more visceral, less intellectual, and apart from any religious inferences.

sors."[3] Holmes Rolston fosters esthetic appreciation for "wild" biological systems and emphasizes the deeper appreciation that occurs when personal experience with natural places (the emotional-subjective dimension) combines with information about it (the cognitive dimension).[4] Stan Godlovitch argues that the only fitting esthetic regard is appreciation that comes from the mysteriousness or the incomprehensibility of the natural environment.[5]

While there are many nuances in the works of these and other philosophers who explore the various aspects of esthetic appreciation for the natural environment, analyzing their subtleties is not the primary focus of my article. What is significant for me is the framing of their discussions around the affective, cognitive, affective-cognitive, and mysterious dimensions of esthetic appreciation that I find helpful in advancing theological discourse on a parallel notion in the works of some eminent patristic and medieval Christian theologians, namely the beauty of creation. They expressed feelings and thoughts about the beauty of the physical world in ways that resemble modern philosophical thinking, but also added another way that has no parallel in today's secular literature. Their expressions of appreciation suggest promising foundations for ecological ethics from a theocentric perspective, especially when their notions are understood from the world views of their times and when they are reformulated to reflect our modern understanding of the world informed by scientific findings, and are creatively worked to identify norms for human behavior.[6]

[3] As an example, Carlson points to the grandeur of a blue whale that moves the informed individual to appreciate its size, force, and the amount of water it displaces. In his model, emotional arousal collapses into cognitive appreciation. Allen Carlson, "Nature, Aesthetic Appreciation, and Knowledge," *Journal of Aesthetics and Art Criticism* 53 (Fall 1995) 393–400.

[4] Holmes Rolston III's most recent efforts on esthetics in relation to environmental ethics include "Aesthetic Experience in Forests," *Journal of Aesthetics and Art Criticism* 56 (1998) 157–66. For his instructive perspective on deeper appreciation for the natural environment stimulated by a combination of subjective participation (the eye of the beholder) and objective knowledge (provided by the physical and biological sciences), see "Does Aesthetic Appreciation of Landscapes Need to be Science-Based?" *British Journal of Aesthetics* 33 (October 1995) 374–86.

[5] In this model, Godlovitch explains a sense of being outside of or removed from the subject that is appreciated. Thus, the natural environment is "the aloof, the distant, the unknowable, the Other" leaving mystery without any cognitive-scientific solution. Stan Godlovitch, "Icebreakers: Environmentalism and Natural Aesthetics," *Journal of Applied Philosophy* 11 (1994) 15–30, at 26.

[6] This article builds upon "Catholic Foundations for Environmental Ethics: A Critical-Creative Approach to Appropriating Promising Notions in the Tradition," a presentation given at the conference sponsored by the Environmental Justice Program of the United States Catholic Conference and the University of Portland in Portland, Oregon, May 14–16, 1999.

I demonstrate this "critical-creative" approach to appropriating and extending centuries-old notions about the beauty of creation in order to discern their fruitfulness for addressing today's ecological degradation. I begin by exploring a sampling of reflections by patristic and medieval theologians who conveyed their appreciation for the beauty of the world in five discernable ways. The world views from which these theologians wrote are distinguished subsequently from our present understanding of the world. I conclude with the theocentric ethics of esthetic appreciation that flows from reworking traditional thinking about God's beautiful creation. This exercise is offered as an initial effort to tap the Christian tradition and to retrieve notions that may facilitate thinking about and acting more responsibly toward our battered planet.

THE BEAUTY OF CREATION IN PATRISTIC AND MEDIEVAL TEXTS

Among the patristic and medieval theologians who describe the natural world as beautiful are: Athanasius of Alexandria (ca. 295–373), Basil of Caesarea (ca. 329–379), Augustine of Hippo (354–430), Hugh of St. Victor (1096–1144), an unnamed Cistercian (ca. 12th century), Bonaventure (1217–1274), Albert the Great (ca. 1200–1280), and Thomas Aquinas (1224/5–1274). Their exclamations about the beauty of the physical world span tiny insects to mountain valley vistas to celestial bodies to the entire order of the cosmos, and they always relate this beauty in one way or another to God. Their appreciation for the beauty God created is expressed in five prominent ways: (1) affective appreciation aroused by the beauty of creatures; (2) affective-cognitive appreciation triggered by the beauty discovered through in-depth study; (3) cognitive appreciation brought about when contemplating the harmonious functioning of creatures; (4) appreciation precipitated by our incomprehension of the beautiful but complex creation; and (5) reverential appreciation for the beautiful universe that mediates God's presence and character. Because my reflections are intended to highlight the usefulness of patristic and medieval notions in developing a response to ecological degradation, I do not address many details of these writers' rich and complex thinking on other matters. Nor do I retrieve all of the possible examples that appear in texts of this period.

Affective Appreciation for Creatures

Exclamations of delight in the beauty of species and vistas appear especially in the works of Basil of Caesarea. He depicts natural beauty variously

throughout his commentary on the story of creation recorded in Genesis.[7] In his second homily, Basil describes the world as august, magnificent, wondrous, marvelous, dazzling, pleasant, attractive, enjoyable, and excellent. He insists that our senses witness the abundance of beauty observable in animals, plants, landscapes, and the sky. He lauds "cornfields waving in the hollows, meadows verdant and abounding with varied flowers, woodland vales in bloom, and mountain peaks shaded over with forest trees."[8]

Basil expresses in a letter to his friend Gregory Nazianzus his visceral appreciation for a place to live that perfectly suits his tastes.[9] Attributing to God's providence his having found that place, Basil is delighted with the high mountains covered with variously colorful trees, the cool and transparent streams, the evenly sloping plain at the mountain's base, the two deep ravines, the river that glides gently between them, and the whirlpool that occurs when the river encounters rocks. He proclaims the site "most pleasant" and exclaims that even Homer's beloved Calypso Island is insignificant by comparison. The "exhalations from the land" and "the breezes from the river" elicit his praise, for they add to the overall tranquility he experiences at the site.

Augustine of Hippo composed an entire treatise on the beauty of creation which regrettably is no longer extant,[10] but exclamations of awe, astonishment, delight and wonder about the world permeate his more mature works.[11] He extols in *The City of God*:

> The manifold diversity of beauty in sky and earth and sea; the abundance of light, and its miraculous loveliness, in sun and moon and stars; the dark shades of woods, the colour and fragrance of flowers; the multitudinous varieties of birds, with their songs and their bright plumage; the countless different species of living creatures of all shapes and sizes, amongst whom it is the smallest in bulk that moves our greatest

[7] Basil, *On the Hexaemeron,* trans. Sister Agnes Clare Way, *Exegetic Homilies* (Washington: Catholic University of America, 1963) 3–150 (PG 29.4a–206c), cited hereafter as *Hexaemeron.*

[8] Ibid. 2, 6–7 (PG 29.44c–45c). Reflecting on Genesis 1:3, Basil writes about the light that God created as having sent out "dazzling rays" that made the air "more pleasant," the "waters brighter," and "all things in general" even more "beautiful." He wonders how human beings could ever "conceive anything more delightfully enjoyable."

[9] Basil, Letter 14 "To Gregory, His Companion," *The Letters,* trans. Roy J. Deferrari, 1 (New York: Putnam, 1926) 46–48 (PG 32.276b–d).

[10] Augustine explains that he wrote two or three books on the beautiful and fitting, none of which is extant. *The Confessions of St. Augustine,* trans. John K. Ryan (New York: Doubleday, 1960) 4.13.20 (PL 32.701), cited hereafter as *Confessions.*

[11] Carol Harrison's examination of Augustine's thinking about the beauty of creation yields illuminating results in *Beauty and Revelation in the Thought of Saint Augustine* (Oxford: Clarendon, 1992).

wonder—for we are more astonished at the activities of the tiny ants and bees than at the immense bulk of whales. Then there is the mighty spectacle of the sea itself, putting on its changing colours like different garments, now green, with all the many varied shades, now purple, now blue. Moreover, what a delightful sight it is when stormy, giving added pleasure to the spectator because of the agreeable thought that he is not a sailor tossed and heaved about on it![12]

In his *Confessions,* Augustine finds wondrously beautiful the earth, ferocious animals, elements of weather, mountains, trees, cattle, and birds. He urges people in all stations of life to praise God for them: "That you must be praised all these show forth: from the earth, dragons, and all the deeps, fire, hail, snow, ice, stormy winds, which fulfill your word, mountains and all hills, fruitful trees and all cedars, beasts and all cattle, serpents and feathered fowls; kings of the earth and all people, princes and all judges of the earth, young men and maidens, the old with the younger; let them praise your name."[13]

Appreciation for the beauty of creation is also conveyed engagingly in the "Description of the Position and Site of the Abbey of Clairvaux" by an unidentified writer, most likely a Cistercian monk, in the 12th century.[14] Throughout this description, the author acclaims the beauty of site—"the sturdy oak which salutes the heavens with its lofty top" and the "graceful lime-tree which spreads its arms," the "harmonious concerts of birds of varied plumage," the "clear air" which enables everything to shine, the "delights of colors, of songs, and of odors," the "verdant bank of a pool filled with pure and running water," the "vast plain of meadows" that has "much charm," the "smiling countenance of the earth" that is "painted with varying colors," the "sweet scent" and "bright colors" of the flowers, the "high palisade" of "flexible osiers"[15] on the banks of the lake, the "fragrant

[12] Augustine, *Concerning the City of God Against the Pagans,* trans. Henry Battenson (London, England: Penguin, 1972; reprint Penguin Classics, 1984) 22.24 (PL 41.791–92), cited hereafter as *City of God.*

[13] Augustine, *Confessions* 7.13.19 (PL 32.743–44).

[14] Description of the Position and Site of the Abbey of Clairvaux," *Life and Works of Saint Bernard,* ed. Dom John Mabillon, trans. Samuel J. Eales, 2 (London: Burns & Oates, 1889) 460–67 (PL 185.569d–574b), hereafter cited as "Description." Mabillon attributes this work to Bernard without explanation. However, Pauline Matarasso, translator and editor of *The Cistercian World: Monastic Writings of the Twelfth Century* (New York: Penguin 1993) includes the "Description" as unattributed. The completed irrigation sluices, buildings, and productive activities of the monks described in this piece suggest that it was written by one of the Cistercians sometime after 1135 when the elders urged relocating the Abbey down the mountainside and closer to the Aube River where the monks could better provide for their temporal needs. On Bernard's initial resistance to the move, see Arnald of Bonneval's *Vita Prima* 2.2.29–31 as cited by Matarasso (285).

[15] Probably willows or dogwood whose pliable branches are used to make baskets.

air," and, above all, the "sweet fountain" whose waters have so often quenched his thirst. Altogether, the author is "charmed" by "the sweet influence of the beauty of the country."

The affective dimension of esthetic appreciation is operative in these expressions of delight, especially when sites are directly observed. The authors demonstrate the visceral delight that Carroll argues is most constitutive of authentic appreciation when the individual opens to the stimulus of natural phenomena. However, patristic and medieval theologians depart from his model insofar as their expressions of appreciation are always related to God to whom they give thanks and praise.

Affective-Cognitive Appreciation

Delight for the surficial beauty of the natural environment combines with the pleasure that is experienced when patristic and medieval theologians observe God's creation in greater detail. For example, in his *Hexaemeron,* Basil of Caesarea marvels at the sense perception of sheep and goats that enables them to avoid harmful plants, starlings whose physical makeup allows them to consume hemlock, the meadows deep with abundant grass, the fertile earth that produces a plethora of goods, the dense woods with their many types of trees, the thick and leafy bushes so distinctly different from one another, and the grapevines heavy with ripening fruit.[16] He observes the similarities and differences of land, winged and aquatic animals, and he expresses delight with what he finds. He studies the activities of bees in constructing honeycombs, the discipline of cranes in flight, the relationship between storks and crows, the monogynous turtledove, and many other creatures.[17] His astute observations seem to intensify his appreciation for them. He urges his listeners to pay attention to all the creatures, never to cease admiring them, and to give glory to God for them.[18]

Augustine admires the agility of a mosquito and the works of the smallest ants.[19] He urges the serious consideration of all natural beings and forces, from the more excellent and valuable human being to the "tiniest fly," for even the smallest of creatures would evoke praise to God, their

[16] Basial, *Hexaemeron* 5.3–8 (PG 29.100b–113c).

[17] Ibid. 8.1–6 (PG 29.164c–180b).

[18] Ibid. 5.9 (PG 29.113c–117a). Howard J. Van Till concludes that Basil's descriptions of God's creation has "the style of materials spoken to inspire praise of the Creator" ("Basil, Augustine, and the Doctrine of Creation's Functional Integrity," *Science & Christian Belief* 8.1 [1996] 21–38, at 26).

[19] Augustine, *The Literal Meaning of Genesis,* trans. John Hammond Taylor (New York: Newman, 1982) 3.14.22 (PL 34.288).

Creator.[20] He laments not having adequate time to describe in detail all the beauty he sees around him.[21]

The anonymous Cistercian, observing his Abbey and its surrounding environment, profoundly praises the Aube River as he perceptively reflects on its labors. In a move unique among patristic and medieval theologians, the author personifies the river, writing lovingly about its intentional meanderings to seek ways of serving the monks in their tasks. The river is also depicted as seeking ways to nourish the fish, to water the crops and trees, and to penetrate the earth in order to facilitate new growth in the springtime and to feed the lake. The Cistercian strives to list all the services provided by this "friendly," "faithful" and "kindly stream" with the aim of rendering any and all "thanks due to it."[22] Even beyond this praise for the river, however, is the author's deep appreciation for the natural fountain that has so often quenched his thirst. He reproaches himself for his ingratitude to the fountain when he mentions it at the end of his description of the site.

Hugh of St. Victor, in "The Three Days of Invisible Light,"[23] admires the characteristics of creatures that enable them to function in ways peculiar to their natures. He acclaims the crocodile's ability to chew without moving its lower jaw, the salamander's ability to remain in fire without being harmed, the hedgehog who spikes apples when rolling in them and who "squeaks like a wagon" when it moves, the ant who foresees the upcoming winter and fills its stores with grain, and the spider who weaves a web to capture prey. He is pleased by the consistency of the shape, ribs, and teeth of the leaves of a particular tree and the arrangement of the seeds of mulberries and strawberries.

Hugh expresses delight with the ability of the human senses to discern "very sweet and pleasant" aspects of the natural world. He urges frequent

[20] Augustine, *City of God* 22.24 (PL 41.788–89). See further *Confessions* 7.13.19; also *The Trinity,* trans. Stephen McKenna (Washington: Catholic University of America, 1963) 8.3–4.

[21] Augustine explains his amazement over and gratitude to God for the great variety of beings in the world: "If I decided to take them singly, to unwrap each one, as it were, and examine it, with all the detailed blessings contained within it, what a time it would take!" (*City of God* 22.24 [PL 41.792]). Thereafter, he compares these wondrous blessings in temporal life with the greater blessings anticipated in eternal life with God.

[22] "Description" 461–63 (PL 185.570c–572d).

[23] Hugh of St. Victor, "The Three Days of Invisible Light (*De tribus diebus invisibilis lucis*)," book 7, *Eruditionis didascalicae libri spectum,* trans. Roland J. Teske, 1996 (PL 176.811c–838d), cited hereafter as "The Three Days." Wanda Zemler-Cizewski provides an enlightening commentary on this text in "Reading the World as Scripture: Hugh of St Victor's *De tribus diebus,*" *Florilegium* 9 (1987) 65–88.

training of the human senses to facilitate investigation of creatures' characteristics according to their various dimensions—arrangement (composition and ordering of parts to one another), motion (local, natural, animal and rational activities), appearance (color, shape and other aspects discernable to the human eye), and quality (perceivable through the other senses such as a melody heard, sweetness tasted, fragrance smelled and softness touched).[24]

Exploration of these characteristics from "educated" senses leads Hugh to praise God for having designed creatures to act in ways peculiar to their natures: "We cry out in awe and amazement with the psalmist: 'How great are your works, O Lord! You have made them all in wisdom'." Hugh rejoices that he is not among the foolish or stupid persons who fail to attribute the beauty of creation to God's wisdom: "You have given me delight in what you have made, and I shall exult over the works of your hands. How great are your works, O Lord! Your thoughts are exceeding deep. A foolish person will not know them, and a stupid person will not understand them."[25]

Thomas Aquinas continues his predecessors' appreciation for the beauty of God's creation, albeit in less affective tones. He describes the diverse animals, plants, and minerals as good and beautiful. They can give great delight to the observant person, he explains, and their delightfulness should incite human beings to love God for having created all the different types of beings that constitute the universe.[26] In unusually poetical terms, Aquinas describes natural decay and defective forces in the world analogously as silent pauses contributing to a hymn.[27]

Albert the Great, Aquinas's renowned teacher, also conveys appreciation for God's creation that is prompted by knowledge about the world is also conveyed in other works of the medieval period. He stresses the importance of observation and experimentation in field and laboratory studies of animals, plants, metals, and inorganic elements.[28] His scholarly efforts legitimized the study of the natural world as a science within the

[24] Hugh, "The Three Days" 1 (PL 176.811c–813a).

[25] Ibid. 4 (PL 176.814a–816a). From Hugh's theocentric view of the world, human gifts should always be used with an eye to one's relationship with God—the ultimate focus of human endeavor.

[26] Thomas Aquinas, *Summa contra Gentiles: Creation,* trans. James F. Anderson (Notre Dame: University of Notre Dame, 1956) 2.2 (*Opera Omnia,* Leonine edition with commentary by Francisco de Sylvestris Ferrariensis, 13 [Rome: Fratrum Praedictorum, 1882] 275–76.

[27] Thomas Aquinas, *Summa contra Gentiles: Providence,* trans. Vernon Bourke (Notre Dame: University of Notre Dame 1956) 3.71.

[28] As an example of his insistence on consistent observations, see Albert the Great's research on golden eagles that required his being lowered down a cliff in a wicker basket to observe nesting activities over a six-year period. Albertus Magnus,

Christian tradition.[29] He perceives his scientific endeavors as exercises of his God-given human intellectual power to investigate the "natural" causes of things created by God. His efforts serve as a way of praising God "who is the source of wisdom, the creator, establisher, and ruler of nature."[30]

In these and other works, theologians convey their appreciation for the bodily characteristics and activities of creatures which they observe in detail. Visceral and cognitive dimensions seem to interplay, demonstrating a version of the esthetic appreciation that Rolston finds meaningful for environmental ethics. Studying God's creation is portrayed by patristic and medieval theologians as a rational way in which human beings give glory to God, a way demonstrated especially by Albert the Great in his field studies as well as by some of the most renowned scientists who precipitated the 17th-century scientific revolution.[31] Their faith and confidence in God fueled their quests for information about the beautiful world God created and sustains in existence.[32]

Cognitive Appreciation

Patristic and medieval theologians indicate a deep appreciation for the harmonious functioning of all creatures that seems to have been prompted primarily by their thinking abstractly about it. While each natural being possesses beauty in itself, each is also understood as essential to the greater beauty of the whole universe. For these theologians, God designed all the inanimate and animate beings in the universe to function in specific ways, and their appreciation for the relationship of all beings resounds throughout their works.

On Animals: A Medieval Summa Zoologica, trans. Kenneth F. Kitchell, Jr. and Irven Michael Resnick (Baltimore: Johns Hopkins University, 1996) 6.6.50. Contemporary assessments of his efforts as a scientist are found in *Albertus Magnus and the Sciences: Commemorative Essays,* ed. James A. Weisheipl (Toronto: Pontifical Institute of Mediaeval Studies, 1980).

[29] In 1941, Pope Pius XII declared Albert the Great the patron saint of all who cultivate the natural sciences.

[30] Albert the Great, *Physica,* ed. Paul Hossfeld (Münster: Aschendorff, 1987) 1. See further *On Animals* 21.9.52 where he indicates that his scientific studies were perfected with God's help.

[31] For example, see Francis Bacon's *Novum Organum* which is dedicated to the glory of God, Johannes Kepler's dedication of the first edition of *Mysterium Cosmographicum* in which he perceives his work as a way of giving glory to God, Galileo's *Siderius Nuncius* in which he indicates he was inspired by God, and his "Letter to the Grand Duchess Christina" in which his ability to investigate and reason about the cosmos is described as a gift from God to be used.

[32] John F. Haught begins to explore this way of relating theology and the natural sciences under the rubric of a "confirmation" model. See his *Science and Religion: From Conflict to Conversation* (New York: Paulist, 1995) 21–25.

The harmony of the diverse beings that comprise the universe prompts Basil's deep regard. From his understanding of the world, he teaches that God intentionally designed the universe so that all creatures constitute "an unbroken bond of attraction into one fellowship and harmony."[33] The world is described as a "mighty" and "elaborate system" brought to "perfection" through powers established by God at the beginning of creation.[34] From his perspective, God empowered all things with innate capabilities to function in relation to one another in orderly ways until the end of time.[35]

Augustine describes the world as "a work of such wonder and grandeur as to astound the mind that seriously considers it."[36] Though he deems the human being the most valuable of all creatures, he insists that each type of creature has a position in the "splendor" of the "providential order" of creation. Each has a special beauty that contributes to "the whole material scheme" established from the beginning of time and whose continuing existence is sustained by God.[37] Even the decay and death of irrational creatures play vital roles in bringing the beauty of the universe "to perfection" through the succession of new life and the passage of seasons. All beings—rational and irrational, animate and inanimate, decayable and immortal—"fit together to make a scheme of ordered beauty" that is attributable to none other than God.[38] James Alfred Martin describes Augustine's exclamations about the beauty of the orderly universe as "a 'mo-

[33] Basil, *Hexaemeron* 2.2 (PG 28.33b). All diverse animate and inanimate beings created by God have an affinity, a sympathy, for one another that unites them. Tarsicius van Bavel explores this notion with precision in "The Creator and the Integrity of Creation in the Fathers of the Church, especially in Saint Augustine," *Augustinian Studies* 21 (1990) 1–33.

[34] Basil, *Hexaemeron* 5.6:69 (PG 29.105b–109a).

[35] That Basil followed a well-established Hellenistic-Jewish-Christian tradition that the created world had a "relative autonomy" is explained by Christopher B. Kaiser in *Creational Theology and the History of Physical Science: The Creationist Tradition from Basil to Bohr* (New York: Brill, 1997) 32–33. Howard J. Van Till examines Basil's thinking about the functional integrity of creation that precludes any need for God to perform additional acts of special creation in the natural world now or into the future; see "Basil, Augustine, and the Doctrine of Creation's Functional Integrity," *Science and Christian Belief* 8 (1996) 21–38, at 29. Thomas F. Torrance concludes from Basil's commentary on God's majestic fiat in Genesis 1, "Let there be," that "the voice of God in creation gave rise to laws of nature . . . [that] are to be regarded as dependent on the word of God as their source and ground" (*The Christian Frame of Mind* [Colorado Springs: Helmers & Howard, 1989] 4).

[36] Augustine, *City of God* 22.24 (PL 41.789). See further *Confessions* 7.13.19: 172–73.

[37] Augustine, *City of God* 11.22 (PL 41.335).

[38] Ibid. 12.4 (PL 41.352).

ment' of aesthetic judgment" that occasions a distinctive type of pleasure, a pleasure that comes from thinking deeply about the harmony of all things that make up the universe.[39]

The Cistercian who describes the Abbey site at Clairvaux also graphically demonstrates the kind of appreciation that occurs when studying the interrelationship of creatures.[40] He singles out the cooperative interactivity of the monks, the streams of the Aube River, the fertile land, the trees, and other natural beings of the site are exuberantly applauded. However, the greatest praise is given for the river because it unifies all activities.[41]

Aquinas saves his superlatives for the harmonious integrity of all creatures. The highest kind of created beauty arises from the unification of all types of creatures—perishable and imperishable, animate and inanimate.[42] This master of systematic thinking perceives everything in the cosmos as united by the interactivity of the living on the nonliving through innate abilities created, designed, and empowered by God.[43] Altogether, they constitute a chain of beings that cooperate with one another according to their capabilities as planned by God.[44] When functioning as God intends, the many diverse beings constitute a marvelous connection of things,[45] the

[39] That Augustine affirms a distinctive kind of pleasure occasioned by an experience of harmony that entails detachment from practical ends is the conclusion reached by James Alfred Martin in *Beauty and Holiness: The Dialogue between Aesthetics and Religion* (Princeton: Princeton University, 1990) 20.

[40] "Description" 460–67 (PL 185.569d–574b).

[41] Ibid. 461–63 (PL 185.570c–573a). Clarence J. Glacken considers this work one of the few writings in the medieval period known to him that combines "a strong religious view of nature with an appreciation of natural beauty and with a frank, exultant admiration for the way the monks, through their skill, their techniques, their water mills, can complete what nature has given them" (*Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* [Berkeley: University of California, 1967] 213–14).

[42] Umberto Eco characterizes Aquinas's understanding as a sense of the cosmos' "organic wholeness" in *The Aesthetics of Thomas Aquinas,* trans. Hugh Bredin (Cambridge: Harvard University, 1988) 87.

[43] Aquinas, *Summa contra gentiles* 3, chap. 69. See further *Quaestiones disputatae de potentia Dei* 3.7; also *Summa theologiae* 1, q. 48, a. 1, ad 5.

[44] On the hierarchical order of conservation that has the effect of linking all corporeal creatures to assure their sustenance, see, for example, *Summa contra gentiles* 3, chap. 22. See further his thinking about the order and composition of parts to constitute the whole universe in *Summa contra gentiles* 3, chap. 94; on the need for all types to make up a functionable whole *Summa contra gentiles* 1, chap. 85; and on creatures as co-operators with God (*Dei cooperatores*) by functioning in the universe as God intends *Summa contra gentiles* 3, chap. 21. See further *Summa theologiae* 1, q. 47, a. 2, and q. 103, a. 7.

[45] Aquinas, *Summa contra gentiles* 2, chap. 68.

most beautiful order,[46] the highest beauty,[47] the greatest perfection, and the most beautiful characteristic of the world.[48] The beauty, excellence, and perfection of the universe are found in the harmony of its parts ordered to one another by God to assure its self-sustaining integrity. John Wright characterizes Aquinas's depiction of the universe in its entirety as "God's masterpiece."[49]

Thus, patristic and medieval appreciation reaches its height when theologians think about the harmonious relationship of all creatures. Though they attribute this harmony to God's detailed design of the static world with its myriad fixed species, these theologians share Carlson's emphasis on appreciation that comes from knowing and thinking about the functioning of the world. They also point to thinking theocentrically about the human being as a cooperative contributor to the functioning of the world, a way that I explore later in my section on ethics.[50]

The Incomprehensible Universe

Augustine stresses his appreciation for the beautiful universe that eludes human comprehension. Human beings may be gifted by God with great intellectual abilities, he explains in *The City of God,*[51] but we can not fully comprehend the totality of all things that comprise the universe. Our entrenchment in a part of it and our condition as mortal beings prevent us from intellectually grasping the universe in its entirely. God alone who transcends the universe and time possess this ability.

[46] Aquinas, *Summa theologiae* 1, q. 25, a. 6, ad 3.
[47] Aquinas, *Summa contra gentiles* 3, chap. 71.
[48] Aquinas, *Compendium of Theology* 102.
[49] For Aquinas, the functioning of the whole is better than the functioning of any part as explained, for example, in *Summa contra gentiles* 2, chap. 43–44. This notion is explored by John H. Wright, *The Order of the Universe in the Theology of St. Thomas Aquinas* (Rome: Gregorian University, 1957) 87.
[50] Patristic and medieval theologians demonstrate a version of the classical "design" argument articulated centuries later in various ways by scientists at the threshold of the scientific revolution and even through the present day. For primary sources on the argument to God from design perceived in the universe, see *Science and Religious Belief 1600–1900,* ed. David C. Goodman (Dorchester: Open Univeristy, 1973). Ian Barbour provides an overview of "design" and "natural theology" in *Religion and Science: Historical and Contemporary Issues* (San Francisco: Harper, 1997) 19–23, 98–100. An illuminating exploration of contemporary natural theology is provided by W. Norris Clarke, S.J., "Is a Natural Theology Still Possible Today?" in *Physics, Philosophy, Theology: A Common Quest for Understanding,* ed. Robert John Russell, William R. Stoeger, S.J., and George V. Coyne, S.J. (Vatican City: Vatican Observatory, 1997) 103–23.
[51] Augustine, *City of God* 12.4 (PL 41.352).

Furthermore, our narrow-mindedness leads us to judge some natural beings and forces negatively. We are "often displeased" by the natural state or behavior of things when we experience discomfort from them. We think only about how we are affected by them personally. Instead of succumbing to our narrow-mindedness and egocentricity, Augustine writes, we should consider the natures of things in themselves "without regard to our convenience or inconvenience." We should praise God for all created beings. However inconvenienced, however unpleasantly or adversely affected we are by them, we must never "in the rashness of human folly allow ourselves to find fault" in any way with the work of the "great Artificer." We must have confidence in God's overall design, God's continuing care, God's purpose for all things that comprise the beautiful universe.[52]

Human words of praise for God seem inadequate from Augustine's perspective when he contemplates the beautiful world. In allusions to Psalm 148, he calls upon the heavens, the angels, the sun, the moon, the stars, and the waters above the heavens to praise God's name.[53] In his commentary on Psalm 103, the beauty of creation becomes indescribable and his praise for its Creator inexpressible: "What then are we to say? Our words are wanting, but not our feeling. Let us remember the Psalm lately treated of: we cannot express our feeling; let us shout for joy. . . . *Jubilate unto the God of our salvation. Jubilate unto God, every land.* What meaneth, *Jubilate*? Utter the ineffable accents of your joy, and let your joy, and let your delight burst forth before Him."[54] Carol Harrison describes these exclamations by Augustine as a "voice of love" rather than "a rational consideration of the beauty of creation."[55]

The esthetic dimensions of Augustine's thinking about the incomprehensible universe is more fully displayed when he writes about the world that God created, explains human limitations in understanding it, calls upon the various "voices" to praise God according to their natures, and shouts with jubilation in the absence of any other way to express his feelings. This theocentric response seems to come close to paralleling the incomprehensibility or mysteriousness of the world that, from a secular perspective, Godlovitch concludes is the most authentic kind of esthetic appreciation.

[52] Ibid.

[53] Ibid. Also see Augustine's *Confessions* 13.32.47 where he sums up his praise to God for the entire creation.

[54] Augustine, *Expositions on the Book of Psalms,* vol. 5 (Oxford: John Henry Parker, 1853) 44–45 (PL 37.1323).

[55] Harrison, *Beauty and Revelation* 133.

The Sacramental Quality of the Physical World

Many patristic and medieval theologians think that the beautiful world mediates God's presence and character to us.[56] They often explicitly refer to Romans 1:19–20 and Wisdom 13:1–5 as they exude their confidence in God's presence in and through the beauty in their midst. They read the visible natural world in a way complementary to their reading of Scripture. They consider both readings as means by which God is self-revealing. Through the beauty of the natural world, they discover God's wisdom, power, goodness, and other divine attributes.[57] Their explorations demonstrate a world view that was profoundly sacramental.[58]

For Athanasius, God intends to be known through the beautiful world. Citing Romans 1:20 and Acts 14:15–17, Athanasius teaches that many witnesses in nature point to God: rain sent from heaven, fruit in season, order among the stars, the sun rising by day and the moon shining by night, and the entire arrangement of the cosmos. They should lead us to conclude to one governor, one leader, one king of all creation who moves and illuminates the universe.[59]

Basil of Caesarea's sacramental perception of the physical world permeates his *Hexaemeron.* He ends his first homily with this exhortation:

> Let us glorify the Master Craftsman for all that has been done wisely and skillfully; and from the beauty of the visible things let us form an idea of Him who is more than beautiful; and from the greatness of these perceptible and circumscribed bodies let us conceive of Him who is infinite and immense and who surpasses all understanding in the plentitude of His power. For, even if we are ignorant of things made, yet, at least, that which in general comes under our observation is so wonderful that even the most acute mind is shown to be at a loss as regards the least of the things in the world, either in the ability to explain it worthily or to render due praise to the Creator, to whom be all glory, and honor, and power forever. Amen.[60]

[56] For example, see Augustine's *City of God* 12.4 (PL 41.352); also his *Confessions* 7.17.23 and 9.10.24.

[57] Glacken provides an overview of explicit and implicit patristic to medieval thinking about the natural world as a book to be read in *Traces on the Rhodian Shore* 205–6. Also see 237–40 where he discusses the "exemplarism" of Bonaventure and Raymond Sebond but does not mention Hugh of St. Victor's even more detailed treatment of the sacramental qualities of the world.

[58] Following Paul in Romans 1:19–23 that alludes to Wisdom 13:1–9, patristic and medieval theologians exude confidence that the omnipotence and character of God are intended by God to be perceptible through the physical world so only the foolish would worship creatures instead of their Creator.

[59] Athanasius, *Contra Gentes* 35–37, trans. and ed. Robert W. Thomson (Oxford: Clarendon, 1971) 95–103 (PG 25.70a–75a).

[60] Basil, *Hexaemeron* 1.11:19 (PG 29.28a–b).

Augustine's sacramental perception of the world achieves its fullest expression in *On the Trinity* where he finds traces of the Trinity in natural entities and a likeness of the Trinity in human intellectual capabilities. Through God's creation, rational beings are led to knowledge of God as wise, always present, creative, and sustaining, however faint that knowledge may be.[61] The beautiful world bears "a silent testimony to the fact of its creation, and proclaims that its maker could have been none other than God, the ineffably and invisibly great, the ineffably and invisibly beautiful."[62] Thus, the beauty of creation leads to Beauty itself. As Hans Urs von Balthasar contends, Augustine looks at the natural world in an esthetic way that does not fragment the distinction between the world and God.[63] The beauty of the world mediates its ultimate source.

The Cistercian's appreciative utterances about the natural environment as revelatory of God are specific to the Abbey site. Most prominent in this text is his understanding that God's goodness, generosity, and wisdom are revealed through the abundant beauty of the site and the usefulness of its various components to the monks. God's goodness is manifested by the trees which provide shade, the air which shines and brings a sense of serenity, the fruitfulness of the earth which conveys a sense of well-being, "the delights of colors, of songs, and of odors"[64] which serve as therapeutic remedies for sick and recuperating monks, and the "brightly-colored surface of the meadow."[65] God's goodness is also shown in the way the Aube River and its streams work cooperatively with the land, trees, and other plants to provide for their needs and to achieve altogether the harmonious functioning of all animate and inanimate contributors to the site. God's wisdom is manifested by the overall design of the site "painted" by God's "hand."[66] Extending his thinking about the sacramentality of the site, the Cistercian delights when "reflecting on the mysteries that are hidden beneath" the beauty of the countryside. The beauty of each plant, animal, mountain, and stream is never limited to the entity in itself because the beauty of all things manifests God in one way or another.

An unusually detailed characterization of the sacramentality of God's beautiful creation is found in Hugh of St. Victor's "The Three Days of Invisible Light" which concludes his *Didascalicon.* Alluding to the Romans

[61] Augustine, *City of God* 11.28 (PL 41.342). See also *Literal Interpretation of Genesis* 5.18.36.

[62] Augustine, *City of God* 11.4 (PL 41.319).

[63] Hans Urs von Balthasar, *The Glory of the Lord: A Theological Aesthetics* 2: *Studies in Theological Style: Clerical Styles,* trans. Andrew Louth et al. (San Francisco: Ignatius, 1984) 95–143, at 123.

[64] "Description" 461 (PL 185.570d).

[65] Ibid. 466 (PL 185.573a).

[66] Ibid.

1:20 and its conviction that invisible attributes of God are discernable from the visible things God has created, Hugh teaches that God's wisdom can be discerned from the beauty of creation.[67] Anyone able to investigate the arrangement, motion, appearance, and quality of creatures should recognize "the marvelous light of the wisdom of God." Hugh is "delighted" with the ability of the human senses, and he urges their honing so they become more aware of the hidden wisdom of God. He rejoices that he is not among the foolish or stupid persons who fail to attribute the beauty of creation to God's wisdom.[68]

Bonaventure also appropriates the biblical notion that only fools do not perceive God through the beauty that God created. In *The Soul's Journey into God,* he exclaims: "Whoever is not enlightened by such splendor of created things is blind; whoever is not awakened by such outcries is deaf; whoever does not praise God because of all these effects is dumb; whoever does not discover the First Principle from such clear signs is a fool. Therefore, open your eyes, alert the ears of your spirit, open your lips and apply your heart so that in all creatures you may see, hear, praise, love and worship, glorify and honor your God."[69] Citing Wisdom 13:5, Bonaventure teaches that God can be seen and known from the greatness and beauty of created things. The bodily senses actually assist the intellect when it "investigates rationally, believes faithfully" and recognizes that "the beauty of things in the variety of light, shape and color in simple, mixed and even organic bodies . . . clearly proclaims" the power, wisdom, and goodness of God.[70]

That the beautiful universe is revelatory of God is also integral to Aquinas's thinking. Each creature manifests God in some way, but the best manifestation of God is the beautifully ordered universe of all creatures

[67] Two attributes of God that Hugh of St. Victor perceived through the visible world are God's power from the size and multitude of created beings, and God's goodness perceived from their usefulness to human beings who should be guided by the virtue of temperance.

[68] Hugh of St. Victor, "The Three Days" 4 (PL 176.814a–816a).

[69] Bonaventure, *The Soul's Journey into God,* trans. Ewert Cousins (New York: Paulist, 1978) 1.15; cited hereafter as *The Soul's Journey* (*Itinerarii mentis in Deum* in *Opera Omnia,* ed. A. C. Peltier, vol. 12 [Paris: L. Vives, 1865] 6). Cousins notes in his "Introduction" at 23 that Bonaventure does not hold in other works that knowledge of God has to be derived from sense data through a reasoning process insofar as knowledge of God is innate in the soul. However, that Bonaventure begins in *The Soul's Journey* to contemplate God from sense data is not surprising to Cousins, since Bonaventure belonged to the religious community founded by Francis of Assisi who expressed great joy in God's creation.

[70] Ibid. 1.9–14. The organic bodies he mentions include heavenly bodies, minerals (e.g., stones and metals), plants and animals.

functioning in relation to one another as God intended.[71] The relationship among creatures envisioned by Aquinas is primarily a hierarchical chain of diverse beings with each type of creature finding its purpose in another. When all creatures function in relation to one another according to their natures as intended by God, they give glory to God.[72]

For Aquinas, meditating on God's works of creation plays a pivotal role for the faithful. Believers can increase their admiration for God's wisdom for having created all the wondrous works that constitute the universe. They can grow in reverence for God's sublime power more mighty than all the works God has created. They can love God's goodness for having provided the plethora of good, beautiful, and delightful creatures. They can attain a greater likeness to God who contemplates all things in their entirety. And, contemplating the beautiful universe should enable the faithful to correct erroneous thinking about the divinity of stars and forces of nature.[73] Thus, when viewed from Aquinas's perspective, the sacramentality of creation takes on an instructive dimension.

Patristic and medieval reflections on the sacramentality of God's beautiful creation indicate a way of perceiving the natural world that evokes a special kind of appreciation—reverential appreciation. It has no parallel in contemporary secular philosophy. In this unique kind of esthetic appreciation, reverence is given not to natural beings but to God whose active presence and character is mediated by them. That God's presence could be felt and God's character discerned, at least dimly, through what God created was indisputable to theologians of these eras. Also indisputable, either explicitly or implicitly, is their conviction that our senses should be trained to seek God in and through the beautiful world. To fail to do so was considered foolish, for only fools use the gifts of sight, touch, smell, hearing, and taste apart from the ultimate quest for God.

COMPARATIVE WORLD VIEWS

Because theologians in the patristic and medieval periods write from world views informed by the "sciences" of their times, it is important to

[71] For example, see Aquinas's *Summa theologiae* 1, q. 47, a. 1.

[72] Ibid. 1, q. 65, a. 2.

[73] Aquinas, *Summa contra gentiles* 2, chaps. 1–3. John Navone, S.J., finds in Aquinas's reflections an understanding that the "utmost happiness' a human being can experience in this life "takes the form of contemplation" enabled by the Holy Spirit wherein "the loving gaze" beholds "the Beloved in all things (*Enjoying God's Beauty* [Collegeville: Liturgical, 1999] x). Nevertheless, Aquinas's teachings about the sacramentality of creation did not take shape as the conscious and systematic theory exhibited by Hugh of St. Victor and Bonaventure, both of whom seem to have been influenced by Augustine's trinitarian thinking.

recognize their assumptions about the world when approaching their notions pertaining to the beauty of creation. Knowing how they view the physical world enables identifying and appropriating ideas that appear promising for ecological ethics—the "critical" dimension of this exercise. Knowing their world views also facilitates the extension of their thinking when informed by our scientific understanding of the world—the "creative" aspect of this effort to appropriate selectively and work creatively in response to ecological degradation.

Patristic and Medieval

Basil, Augustine, Hugh of St. Victor, Albert, Aquinas, and Bonaventure write from the faith perspective that God designed the beautiful universe, determined the exact characteristics of all species, and assured the sustainable functioning of all creatures through their God-given capabilities. They are aware of various Greek natural philosophies and they argue against appropriating them apart from Christian theology.[74] What was known or theorized about the world is reworked from their faith perspective that God purposefully created the world and sustains its existence. By the end of the medieval period, largely through the efforts of Aquinas, a Christianized Ptolemaic-Aristotelian understanding of the cosmos was the dominant world view.[75]

For theologians of those times, the cosmos is a divinely designed, static, and geocentric organism with fixed species, all of which had God-given purposes in relation to one another. They viewed the world as hierarchically structured, with human beings at the top of the chain of material beings with God outside the created order yet actively present to it. Descriptions of the natural world were primarily qualitative rather than quantitative. And, a profound sacramental perception of the world reigned.[76]

[74] An overview of Basil's and Augustine's use of natural philosophy is provided by David C. Lindberg, "Science and the Early Church," in *God and Nature: Historical Essays on the Encounter between Christianity and Science,* ed. David C. Lindberg and Ronald L. Numbers (Berkeley: University of California, 1986) 19–48. Training in natural philosophy that preceded the advanced study of theology at the university level is discussed by M.-D. Chenu, O.P., *Toward Understanding Saint Thomas,* trans. A.-M. Landry and D. Hughes (Chicago: Henry Regnery, 1964) 20–21.

[75] N. Max Wildiers stresses the need to recognize the world views from which medieval theologians wrote when attempting to discern the meaning intended (*The Theologian and His Universe: Theology and Cosmology from the Middle Ages to the Present* [New York: Seabury, 1982]).

[76] For example, see Barbour, *Religion and Science* 281–84.

Modern World View

Our modern world view contrasts dramatically with that of these patristic and medieval predecessors. When informed by current scientific findings, we depart from their thinking about the world as having been determined by God down to the exact characteristics of any species, ecosystem, planet, or galaxy. The world is beyond heliocentricism to billions of galaxies in an expanding universe that has no center. Its functioning is understood as evolutionary, dynamic, historically emergent, relational, and ecological. An interplay of chance and law seems to be operative with an openness to a future that cannot be predicted with accuracy. Though human beings have capacities not yet found elsewhere, we are products of evolution, radically related to and interconnected with everything living and nonliving in the universe, and especially on our planet. Our species is also radically dependent for our health and well-being upon other species and abiota—the air, land, and water.

Theologians who want their discourse to be responsive to the ecological crisis are becoming informed by at least broad scientific findings so they can reflect more meaningfully about God's relationship to the world, the human relation to the more-than-human-others that constitute our planet, and the human responsibility to God to function in ways that are compatible with the health and well-being of the Earth community.[77] Particularly crucial to plausible theological discourse are scientific findings about the human connectedness with other beings cosmologically, biologically, and ecologically. Also crucial for working out a system of ethics from a religious faith perspective is awareness of the plethora of local world-wide ecological problems and the adverse effects on human beings, other species, and biological systems when the natural environment is degraded.[78]

[77] A dynamic scholarly effort to explore plausible theological discourse informed by more in-depth scientific findings is the series of conferences and initiated in 1987 by the Vatican Observatory and organized subsequently with the Center for Theology and the Natural Sciences. See *Physics, Philosophy, and Theology: Chaos and Complexity,* ed. Robert John Russell, Nancey Murphy, and Arthur R. Peacocke (Vatican City: Vatican Observatory, 1995); *Quantum Cosmology and the Laws of Nature,* ed. Robert John Russell, Nancey Murphy, and C. J. Isham (Vatican City: Vatican Observatory, 1996); *Evolutionary and Molecular Biology,* ed. Robert John Russell, William R. Stoeger, S.J., and Francisco J. Ayala (Vatican City: Vatican Observatory, 1998); and, *Neuroscience and the Person,* ed. Robert John Russell, Nancey Murphy, Theo C. Meyering, and Michael A. Arbib (Vatican City: Vatican Observatory, 1999).

[78] The United Nations Environmental Program launched and supported the Environmental Sabbath movement in the 1980s which facilitated the availability of materials useful for worship services focusing on the ecological crisis during the first weekend in June. A more recent and extensive endeavor to engage the world's

When focusing on the beauty of creation informed by contemporary scientific findings, theological discourse yields an understanding of God who provides the possibility for the emergence of all the beauty that exists, who endows matter with the capability to create itself, who gives freedom for all beauty through random occurrences to become constrained by physical laws enabled and upheld by God,[79] who continuously empowers the self-organization of the cosmos, galaxies, planets, diverse species, and ecological systems of Earth, and who calls forth the further unfolding of beauty including intelligent beings with the capacity to appreciate it.[80]

Traditionally perceived attributes of God gain plausible meaning when informed by the contemporary sciences. God's power is perceivable as voluntarily self-limited and manifested by the apparent freedom given to the universe to self-organize and emerge in all its beauty at its own pace in expanding place and extending time.[81] God's goodness is manifested in the seemingly endless potentialities for beauty with which God has endowed matter to create itself.[82] God's wisdom is manifested in the design of basic laws of physics within which the universe is allowed to become itself in its increasing diversity and emergent complexity, life, and consciousness.[83]

Informed by today's sciences, we are also prompted to think about God's continuing generosity, humility, patience, and companionship throughout the billions of years that our universe has been developing. Our reflections lead us to acknowledge God as always giving, always allowing, always waiting, always present, and always urging forward the beautiful Earth and the incredibly beautiful universe. Our reflections should also lead us to be

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religions in addressing ecological concerns was a series of twelve 'Religions of the World and Ecology' conferences hosted by the Harvard University Center for the Study of World Religions from Spring 1996 to Fall 1998. Information about the forthcoming series of publications can be found at ⟨*http://divweb.harvard.edu/cswr/ecology/*⟩.

[79] Ian Barbour provides a succinct overview on ways of talking about God informed by contemporary scientific findings in "Five Models of God and Evolution" in *Evolutionary and Molecular Biology* 419–42.

[80] Karl Schmitz-Moorman in collaboration with James Salmon proffers *creatio appellata* as an appropriate way of thinking about God's calling forth the unfolding of the universe (*Theology of Creation in an Evolutionary World* [Cleveland: Pilgrim, 1997]).

[81] Biologist Arthur Peacocke uses the metaphor of a choreographer who leaves much of the dance to the dancers in *Theology for a Scientific Age* (Minneapolis: Fortress, 1993).

[82] Mathematical physicist Paul Davies develops theological discourse along this line of thinking in *The Cosmic Blueprint* (New York: Simon & Schuster, 1988) and *The Mind of God* (New York: Simon & Schuster, 1992).

[83] Schmitz-Moormann, *Theology of Creation in an Evolutionary World.*

open to that beauty, to appreciate the beautiful others in our midst, and to act ethically toward them in ways that show our appreciation ultimately out of gratitude to God.

Theological discourse about God's relation to the world can be common sense based on a broad grasp of scientific findings readily available to us. Or we can "drink deeply of the well of scientific knowledge," as urged by physicist Robert John Russell,[84] and work out tentative ways of talking about God's attributes and active presence informed by these scientific findings and mediated by philosophical principles underlying our theological discourse. Our faith in God precedes our discourse and is never in conflict with scientific findings as we work out plausible ways of expressing that faith. Throughout our efforts, we recognize that our talk about God is inadequate because our language is incapable of expressing the unfathomable Beauty who makes the beautiful universe possible.

THEOLOGICAL ETHICS OF ESTHETIC APPRECIATION

The current ecological crisis demands that theologians explore the Christian tradition in search of notions helpful for responding to persistent ecological degradation in general and to particular problems. That we do so is especially crucial for Christians who live in regions that bear the scars of ecological abuse and who seek plausible ways to respond from their faith perspective.

When patristic and medieval expressions of appreciation for the beauty of creation are understood from the world views of their times, they suggest promising ways of thinking about the air, land, water, and diverse species that constitute our planet. By reformulating their notions to reflect our contemporary understanding of the world and by working creatively with them, the following norms for human functioning within the more-than-human world are suggested: (1) we should be open to the beauty of the natural environment; (2) we should be attentive to the details of natural beauty and to the ugliness of its degradation; (3) we should strive to understand and protect the harmonious functioning of biota and abiota that comprise ecosystems; (4) we should be humble in scientific and theological endeavors before the mysteriousness of the world; and, (5) we should show reverence to God by preserving the sacramental quality of the natural environment so it can visibly mediate God's active presence and character into the future. All five dimensions of appreciation are available from patristic and medieval theologians for us to emulate. Each provides a part of the total perspective that is essential when addressing the ongoing degradation of the natural environment.

[84] Russell, "Introduction" to *Evolutionary and Molecular Biology* ii.

Opening to Earth's Beauty

In order to be emotionally moved by the natural beauty around us, we need to be open and receptive to it. Carroll claims that opportunities to experience and respond appreciatively to natural phenomena are "quite frequent and even sought out."[85] However, an impediment to being appreciative of the beauty of other species and vistas may be our egocentricity as individuals or as a species that posits human beings as superior to or apart from others.[86] As William C. French contends, the dominance of person-centered theology to the exclusion of the human being's relation to other species and natural systems has facilitated this myopic thinking.[87] Overwhelming evidence provided by cosmologists, evolutionary biologists, molecular biologists, and ecologists should correct our species-centeredness and enable us to recognize how radically interrelated and interdependent we are with everything living and nonliving on Earth and in the universe.[88] To do otherwise means "living a lie," as Sallie McFague has poignantly characterized in her exemplary efforts to work out a relevant theological anthropology for Christians today.[89]

Patristic and medieval theologians may have perceived the human being as the apex of all creatures, but they also demonstrated their appreciation for the beauty of diverse creatures that make up the cosmos. Moreover, they urged their readers to be open to the beautiful natural world God created. Their messages speak across the centuries and convey meaning for theists today.

Caressing Details of Natural Beauty

Paying attention to details is synonymous with being a natural scientist today as it was for Albert the Great during the medieval period. Rolston explains that contemporary science cultivates the habit of looking closely and for long periods of time.[90] As Bruce Stutz editorialized recently,

[85] Carroll, "On Being Moved by Nature" 245.

[86] On "egocentric" thinking to the exclusion of other biota and abiota, see, for example, W. J. Christie, M. Becker, J. W. Cowden, and J. R. Vallentyne, "Managing the Great Lakes as a Home," *Journal of Great Lakes Research* 12 (1986) 2–17.

[87] William C. French, "Subject-Centered and Creation-Centered Paradigms in Recent Catholic Thought," *Journal of Religion* 70 (1990) 48–72.

[88] Jeffrey G. Sobosan demonstrates a way to stimulate one's transcendence of myopic self-concerns in *Romancing the Universe: Theology, Science and Cosmology* (Grand Rapids: Eerdmans, 1999).

[89] Sallie McFague writes movingly about our "living a lie" in relation to other human beings, to other animals, and to the Earth in *The Body of God: An Ecological Theology* (Minneapolis: Fortress, 1993) 107, 116–17, 118–24, and 124–29.

[90] Rolston, "Does Aesthetic Appreciation of Landscapes Need to be Science-Based?" 376–77.

appreciation for the subjects of observation is enhanced by the detailed knowledge discovered about them.[91] Lepidopterist Vladimir Nabokov encouraged his students to "caress the details" with a sense of appreciative wonderment about them that could lead to important scientific diseoveries.[92] Exclamations by astronauts who observe Earth from the Moon or elsewhere in "space" express their deep appreciation for our planet in comparison with other phenomena they study. Feminist theologians celebrate the appreciation that comes when the "loving eye" attends to the differences of individuals and of species.[93]

How can attention to details of biota and abiota factor into an ethics of esthetic appreciation needed in our ecological age? By studying details of species, we open to recognizing their "interests" in flourishing, their needs in order to flourish, and the kind of human behavior that will most likely avoid interference with their needs being met.[94] Our appreciation for them should ignite our desire to act in ways that respect their interests and needs.

Attentiveness to details should also alert us to the ongoing suffering, decay, and death of individuals within species and between species in the dramatic web of life.[95] That we share the struggle to survive and flourish with all species during our joint journey of biological emergence should be obvious. Because suffering is inherent in the freedom God has given for all species to emerge, the beauty we experience becomes a realistic beauty devoid of mere romanticism that provides little toward a workable ethic of esthetic appreciation.

So, too, should our in-depth findings make us aware of the ugliness of genetic damage caused to species by toxic substances emitted into the air, spread on the land, and flushed into waterways. We will lament the ugliness of a double-beaked cormorant, a defoliated stand of maple trees, a yellow

[91] Bruce Stutz, "Divine Details," *Natural History* 108 (July-August 1999) 6.

[92] John Updike included this recollection of one of Nabokov's students in his introduction to the Nabokov's *Lectures on Literature,* ed. Fredson Bowers (New York: Harcourt Brace Jovanovich, 1980). Also see Brian Boyd and Kurt Johnson, "Nabokov, Scientist," *Natural History* 108 (July-August 1999) 46–50.

[93] Marilyn Frye, "In and Out of Harm's Way: Arrogance and Love," in *The Politics of Reality* (Trumansburg, N.Y.: Crossing, 1983) 66–72. Annie Dillard demonstrates close attention to embodied differences in *Pilgrim at Tinker Creek* (New York: Harper's Magazine, 1974). Sallie McFague explores the "attention epistemology" of feminist theologians in *The Body of God* 49–55.

[94] Philosopher Lawrence E. Johnson makes the "interests" of other-than-human-beings the basis for moral significance in *A Morally Deep World: An Essay on Moral Significance and Environmental Ethics* (New York: Cambridge University, 1991).

[95] Drawing on the theology of Hans Urs von Balthasar, Neil Vaney finds the beauty of creation that mirrors God's beauty as a basis for moral obligation to preserve all other living species: "Biodiversity and Beauty," *Pacifica* 8 (1995) 335–45.

stream of sulfur emissions across the horizon, the absence of another species in a tropical rainforest. We will denounce insensitive, thoughtless, and ill-informed human activities that have caused unnatural ugliness. Informed by the causes of defaced beauty and repulsed by the encountered ugliness, we will be spurred to take ameliorative action and to prevent recurrence. Precautionary measures will be taken when an activity threatens human health and the environment, as endorsed by the United Nations, even if conclusive scientific evidence has not definitively established the cause and effect relationship.[96]

Where does attending to details have relevance for ecological ethics from a theocentric perspective? For people who believe in God as the ultimate source and sustaining ground for the emergence of beauty in the universe, striving to know about the beauty of nature, appreciating it, and interacting constructively with it constitutes a way of giving glory to God. In our striving, we use the intellectual abilities—made possible by God's generosity—to learn about other biota and abiota and to identify how each contributes to the well-being of ecological systems and the greater biosphere. In our appreciating, we use the sensitive faculties made possible by God to be open to natural beauty and transcend ourselves in recognizing the beautiful other in our midst. When acting constructively toward the diverse beauties of our planet, we respond to God's generosity by planning our actions so they do not interfere with other species' innate quests to survive, to flourish, and to make their unique contributions to ecosystems and the biosphere.

Appreciation precipitated by the interplay of knowledge about the physical world and emotional arousal to its beauty could be transforming for Christians and other believers who attribute natural beauty ultimately to God. Paying attention to details is key.

Protecting the Functioning of Ecological Systems

Understanding how the air, land, water, and biota interact to constitute distinct ecosystems is a highly intellectual endeavor that requires intense study and reflection. Ecologist Eugene Odum demonstrated how ecosystems should be studied when producing the first text organized around the ecosystem concept.[97] Forest manager Aldo Leopold showed how signifi-

[96] The "precautionary principle" established in Agenda 21 of the Rio Declaration at the 1992 United Nations Conference on Environment and Development is binding on the United States, though little work has been done to implement the principle. See the essays in *Protecting Public Health and the Environment: Implementing the Precautionary Principle,* ed. Carolyn Raffensperger and Joel Tickner (Washington: Island, 1999).

[97] Eugene C. Odum wrote the first textbook organized around the ecosystem

cant appreciation can come from understanding ecosystem functioning. He urged that we act on that understanding as responsible members and citizens of the land community.[98] Each question about land use should be examined in terms of what is "ethically and aesthetically right," he wrote and proffered his celebrated "land ethic." "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."[99]

Odum's launching the academic study of ecosystems and Leopold's thinking about the integrity, stability, and beauty of the land community resonates somewhat with patristic and medieval theocentric thinking about the harmonious design of all creatures in relation to one another. Especially helpful are the Cistercian monk's descriptions of the cooperative biotic and abiotic counterparts at his Abbey site and Aquinas's thinking about all natural causes as God's hierarchically linked cooperators. Though they and other theologians of their times did not anticipate that human beings could disrupt the physical order that God created and sustains, they did perceive a disordering of the harmonious design of beings to one another when human behavior does not conform to its ultimate end in God.

Today we know that human activities have disrupted the functioning of terrestrial and aquatic ecosystems. Some have been entirely destroyed. The integrity of the biosphere is in jeopardy as indicated by holes observed in the ozone layer of the stratosphere. We have the scientific tools with which to think anew the need to order our activities in ways that do not disrupt or destroy ecosystems and the greater biosphere. We may choose to do so out of a desire to cooperate with other biota and abiota in sustaining ecosystems of which we are integral and dependent parts. We may also choose to cooperate as informed and responsible members of ecosystems out of a desire ultimately to cooperate with God who empowers the development of systems in which the air, land, water, and biota organize themselves to become distinguishably beautiful ecosystems.

How can we cooperate with others out of a desire to cooperate with God's enabling creative activity? We study how particular ecosystems func-

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concept that transformed it into an idea with vast theoretical and applied significance; *Fundamentals of Ecology* (Philadelphia: Saunders, 1953). Also see his "Historical Review of the Concepts of Energy Flow in Ecosystems," *American Zoology* 8 (1968) 11–18; "The Strategy of Ecosystem Development," *Science* 164, 18 April 1969, 262–70; *Systems Ecology: An Introduction* (New York: John Wiley & Sons, 1983). Frank B. Golley provides an overview of the ecosystem concept's rist to prominence in *A History of the Ecosystem Concept in Ecology* (Princeton: Princeton University, 1994).

[98] Aldo Leopold, *A Sand County Almanac: With Essays on Conservation from Round River* (New York: Ballantine, 1966) 240.

[99] Ibid. 262.

tion, observing the energy flow, the nutrient cycling, and the relationship between abioto and bioto. We discern the food chain, its primary producers, its primary and secondary consumers, and its decomposers that facilitate the decay of organic matter for biotic use. We ascertain the balance of these cooperators that is essential to maintain the ecosystem. We recognize and delight in the beauty of biotic and abiotic interactions within ecosystems. We are inspired to prevent human activities that interfere with the maintenance of the natural balance achieved at this stage of the ecosystem's evolution. We deliberately and joyfully avoid activities that threaten the integrity, stability and beauty of the ecosystem.

Cooperation with other components of ecological systems demonstrates that human beings can be responsible members of the "biotic team" described by Leopold,[100] implied by the Cistercian monk, and made explicit by Aquinas. Thus, a workable basis for ecological ethics emerges when we are inspired by patristic and medieval expressions of appreciation for the harmonious functioning of the physical world and when we are informed by contemporary ecology. Carlson's cognitive category for appreciating the natural environment is advanced constructively by a theocentric perspective.

Acting Humbly before the Incomprehensible Universe

How can esthetic appreciation, prompted by the mysteriousness of the natural world, contribute to ecological ethics from a theocentric perspective? The unknown and the incomprehensible aspects of the universe should prompt humility in scientists who profess faith in God and theologians who reflect critically on God's relationship to the world. This humility will be played out in two distinct but not unrelated ways: humility in perceiving one's discipline vis-à-vis another, and humility in approaching one's endeavors with caution about the unknown and unpredictable that might adversely affect human and other planetary beings. Both ways will be achieved out of humility before God who grounds and empowers the development of the universe.

Humility in perceiving the natural sciences in relation to theology will be demonstrated by theologians and scientists who appreciate the incomprehensible universe. Cognizant of physicist Werner Heisenberg's uncertainty principle that points to the limitations of human knowledge to predict outcomes because of the inseparable interconnection between the observer and the observed,[101] scientists will strive for microcosmic to macrocosmic

[100] Ibid. 241.

[101] Werner Heisenberg, *The Physicist's Conception of Nature,* trans. Arnold J. Pomerans (New York: Harcourt-Brace, 1958). Also see Louis de Broglie, *Heisen-*

knowledge about the world without the hubristic expectation that everything there is to know about reality can or will be measured with precision through scientific methods.[102] Scientists will be perceptive to the unknown that transcends scientific discovery. They will avoid falling into the mind set of scientific "materialism"[103] that moves the scientist from the bonafide realm of a scientific discipline into metaphysics through a claim that the scientific method is the only reliable path to knowledge. They will aim to understand the limitations of their own specialties and value those of other disciplines that open up to one another to achieve more comprehensive understanding of the world.

Cognizant of past efforts to talk about God from world views vastly different from our present understanding of the world, theologians will engage in discourse informed at least by broad scientific findings. They will work out more relevant and meaningful metaphors about God's relationship to the more-than-human world. They will be particularly alert to recognize the interrelationship of humans to other species, the dependence humans have on air, land, water, and other biota, and the rational-affective giftedness humanity possesses to recognize our intricate biological relationships to other-than-human beings, to appreciate those relationships, and to act on them in our mutual interests.

Theologians and scientists who are theists will perceive themselves as providing complementary insights about the world. Neither will expect to provide a definitive account that will remain unchanged, because striving to understand and to articulate that understanding will be considered tentative. All quests for knowledge about the world will proceed in humility before God, anticipating that a greater participation in God's knowledge about the world will be experienced as more is learned about the world.

Humility fueled by appreciation for the unknown and unpredictable will benefit environmental protection by dictating caution whenever research projects are being planned or technologies being implemented. Through cautious decision-making, adverse effects on human and other beings will be avoided. Caution is demanded for a number of practical reasons including our inability to understand fully the interrelatedness of species and their interactions with biota of ecosystems, the ongoing struggle to model

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berg's Uncertainties and the Probabilistic Interpretation of Wave Mechanics, trans. Alwyn van der Merwe (Boston: Kluwer, 1990).

[102] I have not encountered a text in the patristic or medieval period in which the author claimed that human beings would ever know the mind of God! Whether in jest or intended to be serious, this is theoretical physicist Stephen Hawking's conclusion of his otherwise brilliant and charming *A Brief History of Time: From the Big Bang to Black Holes* (New York: Bantam, 1988).

[103] Among those who describe scientific materialism succinctly are Haught in *Science and Religion* 9–17 and Barbour in *Religion and Science* 78–82.

the effects of technologies, and the illusiveness of the synergistic effects of chemicals so prolifically emitted into the air, spread on the land, and flushed into waterways. Whether or not scientists will be able to discover all the information essential to facilitate sound decision-making remains questionable as the search for answers continues.

Thus, impelled by appreciation for the unknown, research will be planned to avoid or mitigate the degradation of species, their habitats, ecosystems, and the biosphere. The precautionary principle will be followed so projects that threaten to endanger public health or the environment will be avoided. Moral theologians will proffer behavioral norms for cautions interactions among human beings near and far, now and into the future, among human beings in relation to other species, and among human beings in relation to the air, land, and water. The moral virtues of prudence, justice, temperance, and fortitude will be configured to pave the way for our interactions.[104] Researchers involved will be thankful to God for their abilities to explore the world and to respond affectively to its beauty, however limited they may be.

Because of the absence of solid predictability and gaps in scientific knowledge, those who esthetically appreciate the beauty of God's more-than-human-world will make decisions protective of species and ecosystems. They will not oppose restrictions or bans on the emission of toxicants that, in laboratory tests, genetically alter or cause anomalies. The search for information leading to greater predictability will be understood as participating in a limited way in God's all-encompassing knowledge of the evolving world.

Preserving the Sacramental Quality of Earth

Finally, reverence should be shown for the natural environment because it mediates to us God's active presence and character. From a sacramental perception of the world, the faithful will open to God's self-revelation through flora and fauna, vistas, the biosphere, other planets, stars, galaxies, and the vastness called "space." They will be perceived as components of a dynamic totality through which God's active presence in the world can be contemplated. Other animals, plants, the air, the land, and water will not be seen, heard, felt, tasted, or touched without also sensing the invisible God who provides the possibility for their beauty and who promotes the emergence of even more beauty.

[104] Insightful teachings on the virtues can be found in Aquinas's *Summa theologiae* which I explore in "Ethical Implications of Applying Aquinas' Notions of the Unity and Diversity of Creation to Human Functioning in Ecosystems" (Ph.D. diss., Marquette University, 1994) 182–241.

Hugh of St. Victor's teachings that we should educate our senses to be more attentive has special significance for today. Clearly, we need to have greater sensitivity to biota and abiota with which we come into contact directly and indirectly in our daily lives. We need to recognize their shared existence with us in the unfolding of the universe. We need to acknowledge our radical reliance on them for our bodily and mental well-being. We need to discern how their degradation inevitably affects us, other human beings, and the more-than-human others that share our planet. As we move into this deeper sensibility, we need above all to be open to the mediating role that all beings play so that we can function more reverently within this world that God has made possible.

Beholding the world through a sacramental lens should stimulate the transformation of our attitudes and actions. Because we perceive natural beings as mediating God to us, we will respond with reverence to God's self-communication through them. We will strive to assure that species, their habitats, and the biosphere will not be inhibited from mediating God to us or to others now and in the future. We will want biota and abiota to continue to evolve freely without the impediments that thoughtless human activities and inappropriately applied technologies inflict upon them.

Beholding the natural environment through a sacramental lens should prevent us from using other species as mere stuff for our consumption and exploitation. We will be disgusted with ourselves for having blemished or obliterated the beauty of a habitat. We will abhor sulfur emissions across an otherwise beautiful blue sky, oil washed up on beaches and weighing down the wings of wildlife, silos of radioactive spent fuel along a lakeshore, cattle grazing in an area once a lush rainforest, a highway through prime agricultural land. We will identify actions of our economic and social lives that are conducive to the flourishing of species, ecosystems, and the biosphere. Through our actions, we will show our reverence for the beautiful world because it mediates Beauty itself.

At present, sacramental beholders are desperately needed. Sacramental beholding was a Christian esthetic during patristic and medieval times when God was thought to have designed the world exactly as it was experienced. If cultivated and informed by the contemporary sciences today, sacramental beholding can again become a Christian esthetic facilitating our appreciation for the beauteous wonders of the world. If elevated to the level of ritual, our sacramental practices could become patterned ways of acting out of reverence to God who empowers our existence within our beautiful, endangered planet. The hope that this can be accomplished is assured by God's continuous offer of grace to use our affective-rational natures to promote the health and well-being of the beautiful others with whom we share Earth.

CONCLUSION

Patristic and medieval theologians expressed their esthetic appreciation for the beauty of God's creation in five ways: affective appreciation precipitated by their initial encounter with natural beauty, affective-cognitive appreciation acquired from studying details of natural beings, cognitive appreciation for the harmonious functioning of the world, wondrous appreciation for the incomprehensible complexity of the cosmos, and reverential appreciation for physical beauty that sacramentally mediates God's presence. Their expressions of appreciation suggest some promising theological foundations for ecological ethics when understood from the world views of their times, reformulated from our present understanding of the world informed by broad scientific findings, and worked creatively to identify norms for human behavior. Among these norms are striving to be open to the beauty of the natural environment, paying close attention to the details of natural phenomena, endeavoring to understand and protect the harmonious functioning of biota and abiota that comprise ecosystems, acting humbly before God's incomprehensible universe in our scientific and theological endeavors, and showing reverence to God through preserving species and vistas so they can mediate God's active presence and character now and into the future.

The ongoing degradation and destruction of species and ecosystems requires that theologians strive to respond in meaningful ways. This examination of reflections on the beauty of creation by some of the most revered theologians in the Christian tradition provides one way that seems meaningful, relevant and ripe for tapping.