Convergent Knowing
Explorations of a Sustained – and “Sustainable” – Theological Reflection on Science, Environment, and Liberation

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Abstract
“Convergent Knowing: Explorations of a Sustained – and ‘Sustainable’ – Theological Reflection on Science, Environment and Liberation.”
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Since the last half of the twentieth century, Christian theorists, theologians, biblical scholars, philosophers and ethicists have been struggling, in varying degrees, with the increasingly pressing issues that have arisen from a planetary environmental crisis and a growing inequality and persistent poverty afflicting the majority of human beings. They have tried to reconcile these emergences with discoveries from science about how our world functions, and traditional affirmations of their faith. The struggle has been daunting, marked by a litany of concerned voices that argue that one or more of the issues or facets of the debate require greater attention.

In this dissertation, I investigate the writings of four Christian thinkers: Rosemary Radford Ruether, Leonardo Boff, Diarmuid O’Murchu and Thomas Berry. These authors attempt to integrate, to varying extents, environmental concerns, liberation thought, scientific discovery and traditional precepts of their faith. These thinkers, I argue, are greatly facilitated in their integration of all these aspects by the particular epistemic framework they employ when engaging their faith and science in a communal conversation. I label this framework “convergent knowing,” characterized by a close and seemingly continuous relationship between these two significant ways of knowing. I suggest that “convergent knowing” could serve as a model for other Christian thinkers who are currently struggling to integrate ecology, justice, science and their faith. Evidence for this is found within the collective work of the four authors I examine, which reveals an emerging ethical vision that seeks liberation for the human and the other-than-human. I further argue that “convergent knowing” adds a new and important dimension to the religion-science debate, one that does not seem to be adequately represented by current leading typologies representing the religion-science nexus. The dissertation concludes by suggesting that there might be a larger civilizational paradigm shift occurring that underlies a growing convergence of Christianity and science. Characterized by relationality, this new paradigm is shaping how scholars currently approach science, ecology, ethics and religion.
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Introduction

In their critical survey of Christian literature, comprising over five hundred articles, essays and books by over three hundred authors from 1961 to 1993, Peter W. Bakken, Joan Gibb Engel, and J. Ronald Engel determine that the task of integrating ecology and justice and the Christian faith has been marked by a profound struggle. The struggle, revealed through tensions, conflicts, fragmentation, passionate arguments and debates, arises when one or more aspects of the ecology-justice-faith triad receives either too much attention or emphasis, not enough, or even none at all. At the extreme, theologians, ethicists, or Christian theorists, might argue that justice and ecology are inherently adversarial or that, in the larger scheme of things, one is less important. Some Christian thinkers, Bakken, Engel and Engel tell us, give disproportionate attention to ecological values such as integrity of ecosystems, sustainability issues or evolutionary processes; others direct their attention mainly to social justice values such as liberty, equality or issues like wealth distribution, sexism or political oppression; still others focus their critical attention on Christian theology, history and ethics and how these issues relate to social and/or ecological issues. What is implied by Bakken, Engel and Engel throughout their survey, and at one point directly stated, is that each domain, ecology (and the environmental crisis which informs its study) and justice (and the growing inequality and persistent poverty in our world that cries out for it), and Christian faith ought to be taken seriously.

“Serious” is a curious term. It is charged with many different meanings: serious could convey a matter of grave importance, often a situation that is critical, giving cause for apprehension; it could connote a question that is not easily answered or resolved, requiring deep concentration; it could also tell us that someone is being earnest, or that he or she is occupied in deep thought; serious is also used to express the notion that much thought or work is required for...

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2 Bakken, Engel and Engel suggest a Venn diagram where the ideal ethics is found where all three meet, xvii.
a task, or that someone is deeply interested in a subject.\(^3\) While meanings differ, all of them seem to have a common thrust, one that is implied within the definition and in the research of Bakken, Engel and Engel: the need to engage a subject or issue with thoughtfulness, constructive resolve and critical attention.

The writings of four Christian thinkers, Rosemary Radford Ruether, Leonardo Boff, Diarmuid O’Murchu and Thomas Berry, undergird this dissertation precisely, I argue, because they appear to be engaging the environmental crisis and the liberation of all creation, as well as approaching their faith and science, with thoughtfulness, constructive resolve and critical attention. One might consider this point to be redundant, since all such thinkers and academics take their research seriously. And at a basic level, this is undoubtedly true. However, the reasons for “taking something seriously,” and the context and manner in which Christian thinkers today are being implored to do it is redolent of a deep influence that weighs upon the thinker, requiring of him or her a great degree of openness to allowing the discourses of others to deeply penetrate, challenge and even change his or her thinking.

I suggest that such an openness characterizes how our four interlocutors have approached the issues and concerns of the environment and liberation and science and their faith. But it is not just this particular hermeneutic that facilitates these four interlocutors in integrating these aspects. The particular epistemic framework that Ruether, Boff, O’Murchu and Berry utilize has greatly facilitated their conversation with the natural sciences. I label this framework “convergent knowing,” which, as we will discuss presently, is characterized by a close and seemingly permanent relationship between these two significant ways of knowing the world, where the epistemological lines between one’s faith and science are somewhat blurred. Moreover, since convergent knowing is focused on liberating all Earth subjects, it is inclusive of the voices and concerns of the entire Earth community.

While tensions, conflicts and arguments will undoubtedly persist in the pursuit of integrating ecology and justice and Christian faith and science, I put forth that convergent

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\(^3\) I adopt these meanings from *Random House Dictionary of the English Language, Unabridged Version*, 1\(^{st}\) ed. (New York: Random House, 1987) s.v.v. *serious;* a more contemporary usage of serious could be to describe something excessive or extreme in quality, quantity, extent, or degree, such as ’Bill has some serious anger issues;’ see Merriam Webster online at [http://www.merriam-webster.com/dictionary/serious](http://www.merriam-webster.com/dictionary/serious), accessed June 2013.
knowing could minimize the struggle currently experienced amongst Christian thinkers, as it presents an epistemic framework for arriving at new ethical visions for our future that take the environment and justice, along with science and the Christian faith, seriously. I further argue that convergent knowing, as a model for Christians engaging their faith in dialogue with science, adds a new and important dimension to the religion-science debates, one that does not seem to be adequately represented by current leading typologies representing the religion-science nexus. Convergent knowing, I suggest, distinctly grows out of, and remains attentive primarily to, addressing two questions not always manifest within the religion and science debates: what kind of science, and what kind of Christianity do we need today and tomorrow when the liberation of countless subjects of creation is at stake?

In this introductory chapter, I will outline the meaning and significance of convergent knowing and discuss its viability as a possible model for Christians engaged in conversations with scientists with the aim of reconciling the increasingly pressing issues that have arisen from a planetary environmental crisis, and a growing inequality and persistent poverty that afflicts the majority of human beings. To do this, I will first need to discuss the historical context in which these four Christian thinkers have been writing. This includes attending to some of the voices that have expressed concern that at least one aspect of the debate described by Bakken, Engel and Engel is not being taken seriously. I will also clarify terms and discuss in more detail the criteria I put forth for taking something seriously. The preceding will make it clear why I have chosen to discuss the works of these four theorists in particular. Finally, I will briefly outline my method of inquiry, the principal sources I employ, and the structure of the dissertation. To begin this inquiry, it will be helpful to hear from some of these voices that comprise the larger debate for engaging the environment, social justice, Christianity and science with thoughtfulness, constructive resolve and critical attention.

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4 I have adapted this question from one posed by Charles Kleiber, former State Secretary for Science for Switzerland in his keynote address at the International Transdisciplinary Conference in Zurich, 2000; he asks the question only of science. I pose it to both science and Christianity. See Julie Thompson Klein, Walter Grossenbacher-Mansuy, Rudolf Häberli, Alain Bill, Roland W. Scholz, and Myrtha, eds., Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society: An Effective Way for Managing Complexity (Basel; Boston; Berlin: Birkhäuser Verlag, 2000), 47.
The Scope of the Project

Environmentalist David Orr is being serious in more than one sense when he tells us that on “a typical day on planet Earth, we will lose 116 square miles of rainforest, or about an acre a second. We will lose another 72 square miles to encroaching deserts as a result of human mismanagement and overpopulation.”5 He continues, “By year’s end, the total loss of rainforest will equal an area the size of the state of Washington; expanding deserts will equal an area the size of the state of West Virginia, and within a typical day the global population will have risen by more than 90,000,000.” Likewise, the Intergovernmental Panel on Climate Change is treating water issues seriously when, in its “Climate Change 2007: Synthesis Report,” it concludes:

Climate change is expected to exacerbate current stresses on water resources from population growth and economic and land-use change, including urbanisation. On a regional scale, mountain snow pack, glaciers and small ice caps play a crucial role in freshwater availability. Widespread mass losses from glaciers and reductions in snow cover over recent decades are projected to accelerate throughout the 21st century, reducing water availability, hydropower potential, and changing seasonality of flows in regions supplied by meltwater from major mountain ranges (e.g.: Hindu-Kush, Himalaya, Andes), where more than one-sixth of the world population currently lives.6

In the same manner, biologists are urging us to dedicate much more constructive resolve to addressing current and projected rates of biodiversity loss, which, they underline, constitute the sixth major extinction occurrence in our planet’s history, one specifically anthropogenic in origin.7

We find the Bolivian government – whose population is part of that “more than one-sixth of the world population” – articulating the polyvalent nature of the term serious when, at the

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5 David W. Orr, Earth in Mind: On Education, Environment, and the Human Prospect (Washington, DC: Island Press, 2004), 7; in the introduction to this book, on the occasion of its tenth anniversary edition, Orr writes: “A decade ago I opened this book with a description of the losses incurred in a typical day on planet Earth. To the extent that we know such things, the numbers are somewhat worse a decade later” (xiii). We could say that the issue is even more serious now.


culmination of the arguably disappointing talks at the United Nations Climate Change Conference in Cancun, Mexico, December 2010, it issued the following statement to the nations of the world, so as to highlight the dearth of attention to a political economy approach in environmental decision-making:

Bolivia has participated in these negotiations in good faith and the hope that we could achieve an effective climate deal. We were prepared to compromise on many things, except the lives of our people. Sadly, that is what the world’s richest nations expect us to do.⁸

Similarly, when Methodist Bishop Bernardino Mandlate of Mozambique spoke to a United Nations delegation in 1999, referring to the millions of dollars in capital and interest transferred yearly from poor African nations to foreign banks, governments, and international finance institutions of nations in the global North, he implied the many meanings of “serious” when he concluded, “African children die so that North American children may overeat.”⁹

John Polkinghorne, a scientist, theologian and Anglican priest, writes in Quantum Physics and Theology that one of the aims of his book is to encourage theologians to engage with scientists “a little more seriously than many of them have seemed inclined to do.”¹⁰ Also a theologian as well as a scientist, Celia Deane-Drummond avers,

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⁹ Quoted in Cynthia Moe-Lobeda, Resisting Structural Evil: Love as Ecological-Economic Vocation (Fortress Press, Minneapolis, 2013), 23. The bishop is referring to the serious matter of debts that are crippling real development rather than fostering it (24).

Yet, if biological science is to be taken as a serious issue for debate in theology as such, rather than just by an elite who happen to have had combined both careers, then there is a need for more theologians to take biological issues seriously.11

Much less timid in his evaluation of the situation, mathematical cosmologist Brian Swimme asks whether theologians ought to speak about “life” without being aware of the dynamics of cell division, of genetic language, of the elegance of photosynthesis. If “life” for theologians is not biological life, he maintains, but principally some metaphysical comportment such as, “I am the way and the life,” scientists are apt to withdraw from the conversation.12 In the same manner, in her examination of Christian ecotheologians appropriating science in order to create a new ethic, author Lisa Sideris finds that, too often, many fail to take nature – and by extension, the science that describes nature – seriously.13

Polkinghorne does not just point his finger at his fellow theologians. He also enjoins his scientific colleagues “to take what theology has to say with a greater degree of seriousness than many of them display,” noting that in the scientific community (of which he was a member), “the adjective ‘theological’ is sometimes used pejoratively to refer to a vague or ill-formulated belief.”14 Echoing Polkinghorne’s views, theologian David Tracy points out that,

Religion suffers even greater losses than art by being the single subject about which many intellectuals can feel free to be ignorant. Often abetted by the churches, they need not study religion, for ‘everybody’ already knows what religion is: it is a private consumer product that some people seem to need. Its former social role was poisonous. Its present privatization is harmless enough to wish it well from a civilized distance. Religion seems to be the sort of thing one likes ‘if that is the sort of thing one likes’.15

In many ways, the phrase “take seriously” (quite often written, but sometimes merely implied, as in the case above), has become a popular trope for our time. The amount of literature in English language scholarly journals with the theme of “taking something seriously” – usually

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13 Lisa H. Sideris, Environmental Ethics: Ecological Theology, and Natural Selection (New York: Columbia University Press, 2003); this is the theme of her book, which we will discuss in Chapter 6.
14 Polkinghorne, Quantum Physics and Theology, xii-xiii.
pronounced within the title – is astonishing. On the University of Toronto library search engine, the words “take,” combined with “seriously” produces a staggering 349,124 findings. A refined search using the gerund “taking” in lieu of its verb form comes up with 67,312 articles. The titles range from “Taking Canada Seriously,” found in the International Journal to “Taking Asthma Seriously,” found in The Journal of the American Medical Association. Simply searching for “Take” and “Seriously” in any language, any format (which would include journal articles, newspaper articles, books, government documents, conference proceedings, dissertations, technical reports), and extending the search beyond library holdings, produces 3,497,983 hits. And like the instances above, the majority of these were written after the year 2000: 550,285 of which were written after 2010.16

While “seriously,” as a trope, has arguably become pedestrian in many ways, I contend that the term nevertheless merits academic attention for two main reasons. One is the calibre of academics employing the term. Along with Polkinghorne, Deane-Drummond, Tracy, Sideris and the other writers mentioned above, we can add many others who express epistemological concerns when employing this trope. Canada Research Chair in Chinese Thought and Embodied Cognition at the University of British Columbia Edward Slingerland, for instance, argues that “humanists need to start taking seriously discoveries about human cognition being provided by neuroscientists and psychologists, which have a constraining function to play in the formulation of humanistic theories….”17 And physicist and philosopher of science Henri Bortoft, insistent that there are other ways of approaching our world beside the analytical and reductionist approaches embraced by many scientists, conveys a more dynamic way of thinking and seeing based on Goethean phenomenology. Suitably, and not surprisingly, he entitles his book Taking Appearance Seriously.18

The other reason that this trope merits attention is the ethos or, perhaps more pointedly, the pathos it evokes. The accounting above is but a sample of the vast cacophony of voices who employ “seriously” directly or imply its meaning in order to convey to others that the

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16 If we input “Take” and “Seriously” into a Google search we obtain an astonishing 705,000,000 results.
environmental degradation we are creating is endangering potentially all life systems, or that the growing inequity and poverty is an urgent matter of life and death, or that the theories and descriptions about nature that science provides us can no longer be ignored or misrepresented, or that Christianity and its deliberation about God and creation should not be circumvented in the process of building a just and environmentally sustainable world. This “take-this-seriously” scenario, I contend, has characterized the nature of the debate amongst Christian theorists, theologians, biblical scholars, philosophers and ethicists who, since the last half of the past century, have been attempting to integrate ecology, justice and faith.

As Bakken, Engel and Engel attest, the task of taking environmental degradation and poverty and faith seriously, has proven to be challenging and intriguing. Evidence supports the claim that the undertaking will become increasingly more difficult as the urgency to address both the social and environmental problems mounts. These are challenges that seem to defy easy characterization, let alone any final solution. They are sometimes referred to as “wicked problems,” which, at times, require imaginative and bold responses. A brief survey of this process will clarify what I mean.

Tracing the Context

In 1961, when Lutheran theologian Joseph Sittler addressed the third Assembly of the World Council of Churches (WCC) in New Delhi – the event Bakken, Engel and Engel suggest marks the beginning of the struggle to integrate ecology, justice and Christian faith – he put forth, among other things, that Christology becomes irrelevant if it is not related to our “Earthiness,” which includes such issues as hunger, war and the care of the planet. Sittler’s contention, that “a doctrine of redemption is meaningful only when it swings within the larger

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19 The term was first described in length by Horst W. J. Rittel and Melvin M. Webber, *Policy Sciences* 4 (1973): 155-169. It has since gained much traction on social and environmental problems that are seemingly resilient to solutions, such as biodiversity loss and urban violence. See Norbert Gilmore, “Experiences with Transdisciplinarity: From Neologism to Worldview,” in *Transdisciplinarity: ReCreating Integrated Knowledge*, eds. Margaret A. Somerville and David J. Rapport (Oxford, UK: EOLSS Publishers Co. Ltd., 2000), 185. Cf.: *Tackling Wicked Problems through the Transdisciplinary Imagination*, eds. Valerie A. Brown, John A. Harris and Jacqueline Y. Russell (London; Washington D.C.: Earthscan, 2010). Wicked does not imply something “evil.” According to Brown Harris and Russell, a wicked problem “defies complete definition, for which there can be no final solution, since any resolution generates further issues, and where solutions are not true or false or good or bad, but the best that can be done at the time” (3).
20 Bakken, Engel and Engel, 7.
orbit of a doctrine of creation, encountered then – and arguably still does, though to a lesser degree – tough resistance from theologians who reject “a new revelation of Earth as a ‘theater of grace.’” Such detractors argue that the doctrine of creation cannot serve “as a basis for, or significant concern of, Christian ethics.”

If Sittler had been calling in the early 1960s for a “serious and sustained theological reflection on the environment,” as some theorists contend, by the end of that decade, in 1967, cultural historian Lynn White Jr. leveled serious accusations at Christian theology and practices. In his article, “The Historical Roots of Our Ecologic Crisis,” Lynn White Jr. claimed Christianity was the “most anthropocentric religion” the world has ever known. Its scripture, which portrayed humans as subduers of Earth, together with the injunction in *Genesis* to have “dominion” over Earth, sanctioned the development of aggressive views and technologies toward nature. The works of Sittler and the condemnation from White Jr. certainly instigated an onslaught of sustained theological reflection on the environment.

Almost a decade after Sittler’s address, according to Bakken, Engel and Engel, a steady stream of challenges presented itself to theology. Bakken, Engel and Engel point to theologian Langdon Gilkey, for instance, who argued that a theology of history ought to be understood within a theology of nature, which necessitated rethinking the doctrines of God, providence and liberation. In the mid-1970s, conflicts broke out within the WCC, as spokespersons from the global South pressed for increased recognition of the new theologies of liberation, while others – those from Europe – advocated for eco-justice. Around the same time, a further conflict ensued within the National Council of Churches between the eco-justice advocates and politically-conservative church leaders. In 1979, at a WCC Conference on “Faith, Science, and the Future” at the Massachusetts Institute for Technology (MIT), attended by over 900 theologians and

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22 Ibid., 7.
25 Bakken, Engel and Engel, 8.
church leaders from throughout the world, arguments erupted between representatives of “developed” countries and those from “less developed” countries: the factions claimed that the conference was biased in either the liberationist or eco-justice perspectives. Bakken, Engel and Engel tell us of theologian C.T. Kurien of India who attacked the notion of sustainability “as an ideology of a ‘pampered’ minority,” while liberation theologian Rubem Alves and thirty of his colleagues “staged a ‘Third World Protest’.”

By the early 1990s, the struggle to integrate ecology, justice, and Christian faith was intensified by an increase in the number of viewpoints and constituencies that had arrived at the table of discussions. Each new voice demanded that her or his concerns be taken seriously, leading to ever increasing fragmentations: feminist theologians were addressing questions of the theology of nature; philosophers like Peter Singer and Mary Midgley weighed into the conversation, arguing that the intrinsic value of other-than-humans ought to be taken seriously; others, like James Gustafson, were revising Christian ethics, accentuating not a natural but a theocentric viewpoint; theologians like Jürgen Moltmann expounded a Trinitarian understanding of human responsibility for creation; and Douglas Hall promoted notions of stewardship. Throughout this period, while some rapprochement between liberation theology and eco-justice theology occurred, new divisions cropped up: conservative thinkers like E. Calvin Beisner or Richard C. Chewing, preferring to view economic justice as the right to property and profit, spoke out against the notion of environmental limits. On this point, Bakken, Engel and Engel note that such authors viewed “eco-theology” of any kind as being “unbiblical or heretical in its view of God, humanity and nature.”

It is fair to say, given the above, that within the period between the 1960s until the mid-1990s – where the survey conducted by Bakken, Engel and Engel concludes – the integration of ecology, justice and faith is indeed marked by a struggle. The passionate debates arose as

26 Ibid., 10.
27 Ibid., 23. Bakken, Engel and Engel write: “Finding the appropriate ‘exchange-rate at the species barrier’ between human and non-human interests is a daunting but necessary task if the intrinsic value of non-humans is to be taken seriously.”
28 Bakken, Engel and Engel point out, for example, how Charles Birch began articulating liberation as a theme while liberation thinkers like Leonardo Boff began to include panentheistic views of the relations of God and the world into their theologies (14).
29 Ibid., 14.
Christian theorists, theologians, biblical scholars, philosophers and ethicists charged one another for failing to take one or more domains of the triad seriously. By the mid-1990s Bakken, Engel and Engel note, we begin to see “an overall trend toward acceptance of the need to integrate ecology, justice, and Christian faith…” The normative centre of the debate became the concept of eco-justice.

However, notwithstanding this growing reception to taking ecology, justice and faith with greater thoughtfulness, applying constructive resolve and critical attention, it would be a mistake to think that the actual struggle to integrate these three elements is over. Moreover, it would be naïve to assume that merely having the commitment to integrate these domains seriously assures the creation of a viable environmental and social ethic. Surely, the quality of critically integrating divergent claims and needs must also be taken into account. Such a process, if it is to be authentic, must allow each domain not only to affirm and clarify but also to inform and qualify the others. We allow, as we discussed above, the discourses of others to deeply penetrate, challenge and even change our thinking. Some examples will help explain what I mean.

As Bakken, Engel and Engel point out, many Christian thinkers acknowledge that their faith “requires more than simply adding ecology to the list of important social and spiritual concerns, or even […] widening the circle of community to include non-humans.” Such a process, however, is not always evident. For example, a recent investigation by Keith Douglass Warner, OFM on the “greening” of American Catholicism since the 1970s, shows that while there is some evidence that at least some environmental concerns can be taken seriously, their integration into a comprehensive ethic is wanting. Warner tells us how Catholic theology of the environment builds upon existing theologies of social justice (and the notion of conversion) and “grafts onto these new moral responsibilities while reinforcing identity (continuity).” The environment, in this manner, merely becomes an extension of Catholic social teaching, which is

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31 Bakken, Engel and Engel, 30.
very human centred. As late as 1999, Warner adds, Catholic bishops in the United States were still “uneasy” with the use of the term “sacramental” within pastoral letters on the environment.33

Important questions arise from this: is an ethical system that merely affixes environmental concerns onto social concerns going to be able to competently address the concerns voiced by biologists over the rate of species extinction? What, for instance, does “common good,” a prominent principle of Catholic social teaching, mean when, as we discussed earlier, the projected rates of biodiversity loss are anthropogenic in origin and so huge in proportion that they constitute the sixth major extinction occurrence in our planet’s history? In this manner, one would expect a critical integration to allow the facts surrounding species extinction to permeate the character of the common good, as well as qualify it, that is, to modify or, in some way, limit it.

By way of another example, Rosemary Radford Ruether and Marion Grau, editors of the volume *Interpreting the Postmodern*, point to a rise since the 1990s of a “radical orthodoxy,” which “occurs alongside wholesale dismissals of other theological options beyond modernity and the critical claims made by liberation theology, ecological theology, feminist theology, liberal theology, and even neo-orthodoxy.”34 While radical orthodoxy critiques capitalist consumerism, thus arguably giving critical attention to the plight of Mozambique children mentioned above, how effective might a critique of the culture of violence be, one that is wedded in so many ways to capitalist consumerism, if it excludes the feminist practice of the explicit naming of sexual violence, torture, or child abuse?35 The authors of the volume write:

The challenge of otherness is heightened by the voices of women who find radical orthodoxy’s approach to gender and embodiment little more than a simple undercutting of feminist theological critiques, claiming a subversive maleness of Christ, a

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33 Christopher Hrykow and Dennis Patrick O’Hara (“The Vatican and Ecospirituality: Tensions, Promises and Possibilities for Fostering an Emerging Green Catholic Spirituality,” *Ecozon*®: *European Journal of Literature, Culture and Environment* 2, no. 2 [2011]: 177-197, accessed, 5 July, 2013), argue much along the same lines: merely grafting green motifs onto social teachings will not do. Instead, a more biocentric focus, they argue, “would revise [Catholic Social Teaching] so that it could more effectively support behaviours that are mutually enhancing for humanity and the rest of creation” (178).


transcorporeality that once and for all does away with the challenges to masculine and heterosexist theology.  

Attempts to overcome the problem of integration through wholesale dismissals of scientific or theological options altogether do not appear either helpful or necessarily warranted. Religion scholar Edward Slingerland, for instance, provides a cogent argument to persuade humanists to revisit the great mind-body dualism that underpins humanities studies in the academy. While he takes much of the current science that informs his thesis seriously – notably research on human cognition – thus providing compelling arguments for humanists to abandon dualist mind-body thinking, he seems to exclude other persuasive arguments in science that would challenge his underlying conclusion: that we can only recognize a purely physicalist account of reality. Indeed, he would seem to preclude many theologians from entering into conversations with science by insisting that human beings, indeed all living beings, are “products of a blind process of replication and selection…robots or machines.”

It would seem, given the current state of Christian debate on the issue, that Bakken, Engel and Engel were quite prescient in their critical survey of Christian literature when they surmised back in 1994 that the struggle to integrate ecology, justice and faith shows “every indication of being a permanent part of Christian thought and practice for many years to come.”

The Role of the Natural Sciences

Within this triadic tussle presented by Bakken, Engel and Engel the natural sciences do not appear to receive too prominent a position. The natural sciences are treated more as a subset

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36 Ruether and Grau, xv.
37 Slingerland, 250. Slingerland is correct in stating that many humanists know very little to nothing about natural science and I believe he is accurate in suggesting that an embodied approach to culture will allow us to talk more responsibly about ethical norms shared by many species other than reserving these to the human species alone. His thinking is much in keeping with E.O. Wilson’s notion of “consilience.” To be sure, Slingerland, unlike Wilson, appears open to the possibility that at some point we could find ourselves modifying the tenets of physicalism due to scientific research into ESP. However, his insistence that it is an “uncontroversial” fact that human cognition is “inextricably grounded in and structured by the body and its sensory-motor systems” (11), and that this is why we are essentially machines, seems to belie other arguably no less viable interpretations, such as those from emergent theory, for instance. See Philip Clayton and Paul Davies, eds., The Re-emergence of Emergence: The Emergentist Hypothesis from Science to Religion (Oxford: Oxford University Press, 2006).
38 Bakken, Engel and Engel, 3. This, of course, is a sentiment shared by many. See both Mary Evelyn Tucker and John Grim, Series Foreword and Dieter T. Hessel and Rosemary Radford Ruether, “Introduction: Current Thought on Christianity and Ecology,” in Christianity and Ecology.
or background, albeit a “crucial intellectual background” – along with the social sciences – of the larger, more important discussion on eco-justice. To be sure, a portion of the literature that was reviewed by these authors specifically addresses the role of the natural sciences within the debate. Still, Bakken, Engel and Engel are not alone in their positioning of science more as a subset of the larger Christianity, ecology and justice debate. In the sizeable volume *Christianity and Ecology, Seeking the Well-Being of Earth and Humans*, amongst the forty-two articles comprising some six hundred pages of research dealing with the integration of ecology and justice and the Christian faith, only two explicitly deal with science, and only a handful make use of the natural sciences in their arguments. Is it enough to have science serve as a crucial intellectual background as Bakken, Engel and Engel suggest? Should not science, given its import and its ability to describe our world, be at the forefront of any discussions in any integration of ecology, justice and faith?

Curiously, the study of science and religion as a distinct domain has become a hugely important endeavour: “Scores of monographs and hundreds of articles appear each year,” Philip Clayton, editor of *The Oxford Handbook of Religion and Science*, tells us. He adds, “Dozens of conferences are being convened annually on specialized research topics; and refereed journals are springing up to publish important results in the field.” By way of example, the volume in


40 The two articles that explicitly deal with science are Ian G. Barbour, “Scientific and Religious Perspectives on Sustainability,” 385-402, and Thomas Berry, “Christianity’s Role in the Earth Project,” 127-134, both in *Christianity and Ecology, Seeking the Well-Being of Earth and Humans*, eds. Dieter T. Hessel and Rosemary Radford Ruether (Cambridge, Mass.: Harvard University Press for the Harvard University Center for the Study of World Religions, 2000). Others, such as the one by Sallie McFague (“An Ecological Christology: Does Christianity Have It?”), make reference to the second law of thermodynamics, and Heather Eaton (“Response to Rosemary Radford Ruether: Ecofeminism and Theology – Challenges, Confrontations, and Reconstructions”), brings in aspects of cosmology. There are two articles by Rosemary Radford Ruether, yet neither deals with science.

which he writes these words, an almost one-thousand paged tome, serves only “to provide an introduction to this burgeoning field and a snapshot [my emphases] of the state of the art across its various sub-fields.” It is not difficult to understand why this is an important and burgeoning field of inquiry. Philip Hefner reminds us “that the interaction between science and religion is a field in which individuals, cultures, and an entire historical epoch wrestle with some of the most fundamental issues of human existence. This is so because the science-religion conversation is a medium for our search for meaning today.” This matter receives even greater import when we consider, as Hefner puts it, “[that] today, the most fruitful and authoritative descriptions of the world are those of science.” Some Christian thinkers even acknowledge that it is the scientists who are playing the role of prophets today. Indeed, echoing the prognostication of Bakken, Engel and Engel above, the editors of the Oxford volume strongly expect the scientific and the religious quest “to be permanent features of human existence, and that humanity will be much better positioned successfully to navigate the threats that it faces if it draws constructively on both [italics original] dimensions.”

This much is clear: since the first instance when Christians began to consider ecology in light of their faith, the natural sciences have progressively gained prominence within the Christian ecology debate because of their authoritative role in describing the world and how it functions, and also because of their ability to clarify the state of the environmental situation and to offer possible solutions. There is an increasing number of Christian thinkers who correctly affirm that humanity will indeed “be much better positioned successfully to navigate the threats that it faces if it draws constructively on both dimensions.” With the above in mind, a strong

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Ibid., 1.
47 This is certainly the consensus on the matter when the environment is in question: in their “Open Letter to the Religious Community” in 1990, thirty-two prominent scientists and Nobel laureates, expressing their concern for the increasing assaults on the environment carried out by humans, made an “urgent appeal to the world religious community to commit, in word and deed, and as boldly as is required, to preserve the environment of the Earth.”
case can be made that while the normative centre of the debate within Christian circles continues to be the concept of eco-justice, its scope needs to be broadened to address not the triad suggested by Bakken, Engel and Engel above, but a four-fold nexus that explicitly includes science.\textsuperscript{48} The challenge presented to science and religion by Alfred North Whitehead, some ninety years ago, rings even truer today:

When we consider what religion is for mankind, and what science is, it is no exaggeration to say that the future course of history depends upon the decision of this generation as to the relations between them. We have here the two strongest general forces (apart from the mere impulses of the various senses) which influence men, and they seem to be set one against the other – the force of our religious institutions, and the force of our impulse to accurate observation and logical deduction.\textsuperscript{49}

The relation between Christianity and science is not simply an academic concern. Today, the salient enquiry for our time – when typically our planet sees the loss of some 116 square miles of rainforest daily, and when so many African children die because of a woefully deficient globally

\textsuperscript{48} One might ask why I have not assigned the social sciences equal importance, thus, making this a five-fold nexus. This is a fair question. My answer, much along the same line of reasoning of Bakken, Engel and Engel, is that the social sciences are not excluded but work more as a “crucial intellectual background” to the larger liberationist agenda of our four thinkers. The strong liberationist features of Ruether and Boff’s writings demand the wisdom of the social sciences to serve as intellectual grist for making their case. O’Murchu brings a strong psychological dimension to his writings and Berry a strong cultural-historical dimension. The natural sciences, because of their authoritative descriptions, and, we shall see, prescriptions regarding our universe, deserve a distinct domain within the nexus.

\textsuperscript{49} Alfred North Whitehead, \textit{Science and the Modern World} (New York: Macmillan, 1925), 260. The premise here is that science and Christianity are converging on issues pertaining to ecology; the question that remains is this: how can science and Christianity relate? This seems to be the same question asked by the authors of the volume \textit{When Worlds Converge: What Science and Religion Tell Us about the Story of the Universe and Our Place in It} (eds. Clifford N. Matthews, Mary Evelyn Tucker, and Philip Hefner [Chicago: Open Court, 2002]). The volume is the product of a meeting of the Parliament of the World’s Religions in 1999 in Cape Town. There was a four-day symposium comprised of scientists, science writers, and scholars of religion from around the world. They had as an aim the rethinking the story of the universe and human responsibility in an age of the destruction of the natural world, within the paradigm of an emerging alliance of religion and science. See John E. Carroll and Keith Warner, \textit{Introduction, Ecology and Religion: Scientists Speak}, eds. John E. Carroll and Keith Warner, OFM (Quincy Ill.: Franciscan Press, 1998), xxv. Both volumes employ the word “convergence.”
economic and political system – is not so much *whether* science and religion should relate, but what should be the quality and form of convergence between these two powerful forces. To complete the entire thought of Lisa Sideris above, if theologians fail to take nature – and by extension the science that describes nature – seriously, then surely the quality of their ethical visions will suffer. We can conclude this contextual overture by suggesting that if the struggle to integrate the triad above has proven to be challenging, it is fair to assume that a four-fold nexus will be even more contentious.

**Discussing the Central Claims of this Dissertation**

Seemingly mindful of Whitehead’s challenge, and of the anticipations of the editors of the Oxford volume, we arrive at the works of Rosemary Radford Ruether, Leonardo Boff, Diarmuid O’Murchu and Thomas Berry. When approached as a collective whole, their works stand as a valuable contribution to a convergence of sorts between Christianity and science in the struggle to integrate the social and environmental concerns of our time. Specifically, their works collectively pose three significant questions to their Christian faith: how and in what form might science and Christianity converge in a serious conversation when the future of life on the planet is at risk due to anthropogenic causes? In their convergence, how might the liberation of the human and the other-than-human be conceived? What challenges and opportunities do the above convergence and ethical deliberation present to the Christian tradition? These three questions will be addressed as we explore the works of these four authors individually and as a whole.

What will become apparent throughout this dissertation is that these questions speak to the larger question posed earlier, which seeks to understand what type of science, and what type of Christianity we might need today and tomorrow when the liberation of countless subjects of creation is at stake. I do not proffer here any definitive answers to the questions above, but merely present observations and likely conclusions that arise from the evidence examined.

While the normative centre of their work is the concept of eco-justice proposed by Bakken, Engel and Engel, the focus of Ruether, Boff, O’Murchu and Berry varies somewhat from this. Their emphasis is not simply on “ecology,” which, according to Bakken, Engel and Engel, amalgamates both the functioning and valuation of the natural world. Instead, it is more appropriate to separate this understanding of ecology into two domains: the science which describes the functioning of the world, and the environment which they value tremendously. And
instead of the domain of “justice,” they place emphasis on liberation. In the Bakken, Engel and Engel framework, justice incorporates a plurality of values (such as liberty, equality, community and wisdom), expressed in many forms (distributive, material, procedural). It is more precise, given the focus of our four interlocutors, to focus on the domain of liberation, which, as we will discuss shortly, incorporates a sense of social justice. We end up, then, with the following four-fold nexus: Christianity-science-environment-liberation. Each of these domains will receive further explanation presently, but first we turn to discussing the central claims of this dissertation which will help us understand why the writings of these four interlocutors are significant.

I am arguing in this dissertation that the communal conversation that these four Christian thinkers generate between their religion and science – in large part realized by them and, in part, critically elaborated by me – reveals a new epistemological framework for Christianity and science, one I label convergent knowing. It is a framework formed by an epistemic convergence between Christianity and science, marked by a close and seemingly permanent mutually beneficial relationship between their religion and science as two significant ways of knowing the world. In a more literal sense, convergent knowing refers to the integral and inclusive knowing, realized relationally. It is focused on Earth liberation issues and is, therefore, inclusive of the entire Earth community. What will become apparent throughout this dissertation is that this framework, in large measure, has facilitated these four authors in engaging each domain of the four-fold nexus with thoughtfulness, constructive resolve and critical attention. The employment of such an epistemological framework has facilitated the critical and, at times, bold integration process, as undertaken by our four theorists. Each domain is allowed not only to affirm and clarify, but to inform and qualify the others.

To depict more concretely the epistemic relationship suggested within the overall model of convergent knowing, consider, as an analogy, the cellular model theorized by microbiologist Lynn Margulis, entitled, “serial endosymbiosis.”\(^{50}\) Margulis argues that organelles within cells originated (very long ago, perhaps billions of years ago), as symbioses between two single-celled organisms, allowing the two entities to live and function within a mutually beneficial relationship that is so intimate that today it is difficult without very high-power microscopy to say where one

ends and the other begins. While the original convergence is uncertain (it might have occurred under the circumstances of harsh conditions, in order to survive), the relationship is permanent: previous entities are now part of one larger organism, functioning as a whole. What I am arguing here is that, in an analogous manner, science and Christianity – and more broadly religion – can also be characterized by a convergence where the blurring of epistemic boundaries occurs. What is important to note here is that I am not referring to a merging of science and religion as disciplines, but to a new epistemological paradigm that, again, not unlike Margulis’s theory, has different ways of knowing come into a radical partnership, under the circumstances of harsh conditions, in order to survive.

The epistemic relationship I describe, evident within the works of our four Christian authors, is characterized by a close and prolonged association between two significant ways of knowing the world. The relationship is ultimately designed to yield interdependent, collaborative and reciprocal insights while still preserving the definitional integrity of each body, in order to unite a liberationist agenda with an environmental ethic. I do not suggest that the insights gained are exclusive to just Christianity and science, though this is my focus of my research. Moreover, since the conversation between Christianity and science is focused on Earth issues, it is also inclusive of the larger Earth community.

Convergent knowing, I suggest, can serve as a viable model for Christians searching to integrate ecology and justice, as described by Bakken, Engel and Engel. Adapting what Joseph Sittler states above, we can say that it can serve as an epistemological means to facilitate a serious and sustained theological reflection on science, environment and liberation. Within this

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51 Symbiosis, as we will discuss further in Chapter 8, refers to the relationship of mutual benefit of two separate organisms. The term symbiosis itself was coined by German botanist Anton deBary in 1873 to denote the living together of very different kinds of organisms. In cases where new organisms and new organs merge or cohabitare, the Russian inventor Konstantin Merezhkovsky, about a century ago, coined the term symbiogenesis: “Symbiogenesis brings together unlike individuals to make large, more complex entities,” Margulis, 33. See also Lynn Margulis, “The Microbes Contribution to Evolution,” BioSystems 7, no. 2 (October 1975): 266-292: she says, “It is my belief that if one follows the example of van Leeuwenhoek and excludes none of the living microbes from consideration but recognizes all as products of the neo-Darwin-ian evolutionary process, one is led directly to the realization that the organelles of eukaryotic cells originated through a sequence of hereditary endosymbiotic association,” 266.

52 Like the organelles that dwell within a larger cell, then, so too do Christianity and science live in a permanent, epistemic relationship on Earth. As is explained by Margulis, etymologically, endon is the Greek term for “within,” sym refers to “together,” and biosis to “living,” which, as one word, denotes the coming together of cells of different histories and abilities. “Endo” is key here, as it denotes an embedded convergence.
model, we can understand better why a scientist can experience what Thomas Berry asserts is a “new type of religious experience differentiated from, but profoundly related to, the religious-spiritual experience of the earlier shamanic period,”\textsuperscript{53} Similarly, we can understand better why it is so difficult to demarcate an objective realm of “facts” distinct from subjective perspectives. Convergent knowing, as a model, allows the participant to see more readily the connection among story, myth, dream and cosmology. Such a connection can serve, as Berry shows, as a “meaning-giver and driver of action,”\textsuperscript{54} to both the Christian theorist and scientist so as to foster that “new intimacy” with the universe. Applying such an epistemological framework, the scientist and Christian theorist are potentially better able to absorb their experiences with the natural world into their very being, thereby helping to counter powerful destructive myths, such as the illusion that human beings are souls captive within corporeal forms, or that our technology and science make us invulnerable to entropy.

A significance of this model, then, lies in its ability to explain, at least in part, what manner the scientific and the religious quest, as the editors of the Oxford volume have stated above, can be seen as permanent and necessary features of human existence. Many scholars working within the religion-science field, as we will discuss in Chapter 8, have already identified various ways of understanding the closer relationship between religion and science. John Polkinghorne, for instance, describes a “cousinly relationship” between science and religion.\textsuperscript{55} However, Polkinghorne is concerned primarily with methodological issues, while I am concerned with epistemological issues underpinned by a liberationist and ecological agenda. Depending on where an author places particular emphasis, whether on the epistemological presuppositions or concepts behind assertions, or on methods used, seldom do we find in religion-science literature emphasis on liberation or some sort of ecological justice context. In fact, more often than not, we find an implicit or explicit goal of demonstrating the plausibility of God (the strong anthropic principle, for instance) or the relevance of Christianity. The question of what kind of science or Christianity we might need in order to address our pressing problems is not paramount.

\textsuperscript{53} Dalton, 95.
\textsuperscript{54} Dalton, 111; see also 108, 125.
\textsuperscript{55} Polkinghorne, \textit{Quantum Physics and Theology}. 
For this reason, a clear distinction needs to be made between the religion-science debate in general and the one being carried out by our four interlocutors. Specific to their intent is the engagement with new science in order to unite a liberationist agenda with an environmental ethic. This is why I suggest that the identification of a new typology within religion-science debates is necessary. There is something unique about what our four Christian thinkers seem to be doing. While epistemological issues become paramount, our thinkers are not seeking so much to achieve an approximation of truth, but an assessment of truth. In fact, one gets a sense that truth takes on, what I can only call, a liberationally-pragmatic significance to it. Truth is measured more by the quality with which all subjects in creation can participate in their own (Earthly) liberation, than merely being consistent with what we know of the world through science or indeed with tenets of the Christian faith. By pragmatic, I am referring, in part, to the Deweyan perspective in so far as it sees truth as an instrument used by human beings to solve their problems in a radically democratic fashion. Indeed, in the Deweyan pragmatic tradition, like in the liberationist tradition, philosophical ethics ought to arise out of the everyday experiences of ordinary peoples. In solidarity with marginalized subjects, it attempts to clarify the cause of suffering, with the goal of reconstructing (not just deconstructing) a just system within a democratic framework. Like our four Christian thinkers, then, Dewey sees truth as being bound up with the socially desired consequences, which, for our interlocutors, is more definitively represented as liberation.

In order to clarify my claims above, we will need to understand more precisely what it is I am suggesting our four interlocutors take seriously and critically integrate, since Christianity, science, environment and liberation are not univocal in meaning. While a more comprehensive


57 Ibid.; of course, when aligning my understanding of pragmatic with Dewey’s pragmatism, there is much of thinking that I do not include here as it stands in contrast to what our four Christian thinkers espouse: Dewey, influenced by the positivist tendencies of his day, for instance, negates metaphysical ways of knowing.
picture for each domain will be portrayed throughout this dissertation, a brief introduction to each will suffice.

Bounding a Four-fold Nexus

Christianity

It might help to begin by outlining what our four interlocutors believe Christianity does not or, perhaps, should not represent. It is not a controlling institution that holds monopolistic claims to truth. It is not patriarchal, androcentric or exclusive. While certainly tradition and the wisdom found in scriptures play a role in forming their ethical visions, their particular view of these is that the former can never be stagnant – for example, believing all necessary revelation has already been received by humans – and the latter cannot ignore the challenges from other wisdoms, including the social and natural sciences.

The Christianity that, on the whole, Ruether, Boff, O’Murchu and Berry share in common is particularly infused with a Catholic imagination that sees God present in the world. It is a strongly sacramental worldview which fills our interlocutors with a deep love for all creation. All four identify with a post-Vatican II understanding of their Christian faith tradition. As such, theirs is a “pilgrim church,” one that is ever evolving, collegial, considerably less hierarchical, and deeply ecumenical and interreligious in that it does not pretend to stand as the exclusive expression of beliefs, structure, systems of thought and practices that relate to God. It is a Christianity that embraces the modern world and all wisdoms that are found within it. It is

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58 When I refer to “Christianity” in this dissertation, I use it in its broadest sense, as a world religion, in that the term comprises Christian faith (for example: belief in Jesus, his teachings and in a loving personal God), and the institutional aspects with its structures, norms, rules and practices. Ideally, the two should coalesce as a single woven garment, but this is not – and arguably never has been – the case. Since our four interlocutors often speak in terms of what Christianity ought to be or become (rules, beliefs and structures) and since they base this on their own deep-felt faith, I use Christianity and Christian faith here synonymously, and make distinctions when necessary. I clarify the distinction between their Christianity and their particular Catholic denomination in Chapter 7. I should add that I use caution here in assigning one over-arching understanding of their faith, as this is not the case. Boff, for instance, appears far more comfortable with, and makes much more use of, Trinitarian doctrines of God than the other authors. All these matters we will discuss in more detail in Chapter 7.

also a Christianity that is deeply focused on the liberation of all of creation right now and right here on Earth. What is more, Ruether, Boff, O’Murchu and Berry all profess a mature faith, which demands that they be a part of the dialogical process that helps them to unearth deeper truths. Theirs is a faith that is open to challenge, not as dissent necessarily (though that option is not excluded), but to serve as a corrective to ensure the faith unfolds and develops faithful to the guidance of the Holy Spirit, revelation or divine disclosure, which is found throughout the universe and accessible to all.

**Science**

The domain of science here refers to the natural sciences. Ecological science, which is concerned with interrelationships among different species as well as the effects on ecosystems, is subsumed within this larger domain. Our four Christian authors appropriate a science whose worldview stands in contrast to the mechanistic, deterministic, reductionist, and dualistic classical Newtonian science. The science they appropriate also stands in contrast to the neo-Darwinist, seemingly purposeless and red-in-tooth-and-claw worldview. With the above in mind, some label the science they appropriate as “new science.” New science comprises contemporary concepts and understandings of reality from quantum physics, cosmology, incorporating transdisciplinary theories such as systems theory and the Gaia theory, with its inclusion of evolutionary biology and geology. New science – along with its often cited sub category of “new physics” – is not a precise term. We find other writers on the subject applying the term “postnormal science.” This science is broader in scope, which seems to describe more fittingly how our four Christian thinkers understand science: while also eschewing reductionist and mechanistic assumptions, postnormal science challenges assumptions that science produces final, precise estimates about reality that are free from uncertainty. Moreover – in keeping with the inclusive liberationist agenda of our four thinkers – it is also inclusive of normative social values and informed by inputs from community and stakeholders. Postnormal is arguably a better label

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60 James Lovelock (one of the scientists whose works the Christian thinkers consult) believes new science has a “postmodernist” tenor to it, producing ideas that in a sense “allow it to transcend its own limits.” Here, the whole is greater than its parts. What that “greater thing” is for him, though, is not clear (James Lovelock, *Gaia: A New Look at Life on Earth* [New York: Oxford University Press, 1982], x).

for the science our four Christian thinkers appropriate, then, since it embraces multiple types of knowing, challenging the sharp dichotomy between expert-lay participants.\textsuperscript{62}

Whichever label might best describe it (naming something that is so new is difficult), it is safe to say that the science our four authors appropriate functions within a new paradigm (laws, theories, applications, instrumentations, methods and traditions that undergird and guide the scientific endeavor).\textsuperscript{63} Prominent within the new paradigm is the irreversibility of time as an underlying dynamic of the universe. The universe is not static but continuously expanding and evolving. To be precise, the science within this new paradigm does not so much disprove Newtonian science as limit it:\textsuperscript{64} from the minutest quantum to the unimaginable expanse of the universe, reality, far from being orderly, stable, and equilibrial is seething with change, disorder, and process. Entities, from single sub-atomic particles to living organisms, are not defined by the sum of their parts but as a system through its interactions. It is also a science where emergent phenomena like life and consciousness resist explanation in traditional cause and effect sequential language.\textsuperscript{65} Indeed, it is a science that some argue is consistent with a mystical and sacramental view of the universe, one that could be described as creative or relational.\textsuperscript{66} Throughout this dissertation, I will employ simply “science” to convey the above understandings, unless a distinction is required.


\textsuperscript{64} This is an important caveat raised by Ilya Prigogine and Isabelle Stengers (Order out of Chaos: Man’s New Dialogue with Nature [New York: Bantam Books, 1984]).

\textsuperscript{65} James Lovelock, The Revenge of Gaia: Why the Earth is Fighting Back and How We Can Still Save Humanity (London: Allen Lane, 2006), 46.

Environment

Environment, as a domain here, refers to the whole\textsuperscript{67} natural world (which, depending on the context in which our four interlocutors use the term, could include the cosmos). It therefore comprises the human physically and psychically. As such, environment carries three imports: it stands as the primordial locus of revelation for our four Christian thinkers, as alluded above; it is revered and loved; and, because the immediate (Earth) environment is being destroyed, it has become a primary focus of concern. While David Orr and the IPCC report (quoted earlier) touch upon the seriousness of the matter, its breadth and scope cannot be overstated. Scientists are now referring to our era as the “anthropocene” to underscore the extent that anthropogenic pressures of the Earth systems have reached a point where the possibility of sudden planetary environmental change occurring cannot be excluded.\textsuperscript{68} Already, we have transgressed three planetary boundaries (operating zones within which life can continue relatively safely): climate change, the rate of species extinction, and changes to the global nitrogen cycle. These could further exert pressure on other biophysical system processes (atmospheric aerosol loading, global fresh water and land-system use, and chemical pollution), causing them to destabilize, leading to even more catastrophic environmental changes. By way of one example, we can look at ocean acidification which occurs when excessive amounts of CO\textsubscript{2} enter the waters. Marine organisms, such as plankton, are very sensitive to changes in ocean chemistry and the continued amounts of CO\textsubscript{2} entering the waters are putting them at risk. Plankton is vital to Earth systems. Without plankton the food web of the ocean would collapse. And while at the bottom of the food chain, plankton is at the top of the biogeochemical system of the planet – it is the key to controlling carbon and oxygen cycles: every third molecule of carbon dioxide we exhale is absorbed into the ocean; and every second breath we take comes from the oxygen produced by plankton.\textsuperscript{69}

\textsuperscript{67} The term “whole” is not unproblematic. It could be understood as a totalizing approach that ignores the different parts that constitute the whole or it could be understood as a summation of the parts, which is reductionist. Neither of these approaches captures the vitality of this term. I will be dealing with this issue in a little more depth later in this dissertation. Suffice it to say now that the concept of “whole” as described by Henri Bortoft (\textit{Taking Appearances Seriously}, 13-15), is more fitting. Bortoft argues that the whole comes into expression through its parts, and the parts are understood when we understand the whole.

\textsuperscript{68} Rockström et al.

Liberation

Liberation, at one level, implies a freedom from social, political and/or economic domination or manipulation. For the human, it could be summed up as the participation of a subject as an agent in her or his own history. Philosopher Enrique Dussel gives the example of building a house for homeless people to help explain liberation and how one can distinguish it from social justice. While an ethical duty to build a house is demanded of both the social justice and the liberation principles, the latter insists that, “it should be a house in which the victims have symmetrically participated in the design and its actual construction.”

To understand both liberation and social justice, it is necessary to understand the scale of poverty that exists today. In fact, the scale of poverty brought about by current social-political and economic structures – something our interlocutors clearly understand – stands at a crisis level. While overall global poverty rates between 1981 and 2005 have declined, due in part to Millennium Development initiatives and, in part, to improved rates of performance and higher wages, these are primarily sectoral gains. Were the developing economies of Brazil, the Russian Federation, India and China not included in the statistics, for instance, the absolute number of people living in extreme poverty, according to the United Nations Department of Economic and Social Affairs (DESA), actually went up from 619 million in 1981 to about 699 million in

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70 Enrique Dussel, *Ethics of Liberation: In an Age of Globalization and Exclusion*, trans. Eduardo Mendieta, Camilo Pérez Bustillo, Yolanda Angulo and Nelson Madonado-Torres (Durham and London: Duke University Press, 2013), 422. Understanding the difference between social justice and liberation and why, therefore, the latter becomes the primary focus of our authors is important. First, justice itself is conceived many ways: as communicative, distributive, restorative and social, to name some. Thus, we hear words like economic justice, and criminal justice. Social justice itself is not always used in the same manner by theorists or proponents. The Protestant Social Gospel movement believed that social justice entailed structural changes within society. But they also tethered social justice to personal piety. If we describe it in a way that resembles Christian biblical understandings of justice, we could look at it as “right relationship” where the needs of all are met in such a way that relationships can flourish and community can be preserved. Theologian Richard McBrien sees it as the reordering of society, changing of institutions, systems and patterns of behaviour which deny people their rights. Indeed, social justice seeks to correct oppressive and alienating developments in a society. Certainly, we can see similarities between social justice understood in this way and liberation. Missing in all these descriptions is the key distinction: the person who is suffering domination must be allowed to participate in her or his own liberation. One could *bring* social justice to those suffering injustice, but one can never *liberate* another. The process always requires self-participation. This is why we can seek liberation for the other-than-human. The entity, be it a cheetah or tree, must be free to express its evolutionary impulses. Leonardo Boff, as we will see in Chapter 2, puts it well when he says that we do not seek only to receive bread but to produce it. For a good discussion on social justice, see Cynthia Moe-Lobeda, 176ff. (note, however, that Moe-Lobeda in her classification brings liberation under the larger category of social justice. I, however – and I would argue so do our four interlocutors – understand it the other way around: social justice is subsumed within liberation).
Moreover, such statistics focus on income levels per day, per capita, which are difficult to navigate and of dubious value, as they do not always take into account the distribution of income within states, the quality of life or effects from the destruction of local or regional ecosystems. The burdens of poverty on women, for instance, are not always clear within such statistics. Yet, women in particular, as well as specific socio-ethnic communities, tend to be amongst the poorest of the poor, often bearing the brunt of a patriarchal system of domination and exclusion. If we rethink how we understand poverty, as the DESA report suggests we should do, and define it to include deprivation, social exclusion and lack of participation – in other words, within a more liberationist paradigm – “the situation today may be even more deplorable than a money income poverty line would suggest.”

Since the vulnerability of the majority world is increasingly further threatened by climate change and the decline of other planetary ecosystems, it is not surprising, then, that for our four Christian thinkers, liberation takes on a larger dimension. At the cosmic level, liberation entails following evolutionary impulses leading to greater diversity, interiority and communion, which means it therefore applies to all creation. Thus, for example, we find within ecosystems a complex and diverse community of producers, consumers, decomposers and detritivores, all interacting within the boundaries imposed by their physical surroundings. Through time, and by the processes of mutation, niche selection and natural selection, each member of the community helps shape life. These evolutionary dynamics, however, can be and have been radically altered with the advent of the anthropocene: cheetahs, hippos and gazelles are no longer evolving in the

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72 Ibid., 10, 74ff. The DESA report (in contrast, for example, to World Bank income poverty line reports) appears to take more of a liberationist approach as I discuss in footnote 68 above. It states, for instance, “The approach based on social exclusion focuses on the lack of participation of individuals or groups in society. Certain groups such as women or specific socio-ethnic communities may be excluded from the labour market and education, while others may be excluded from the political process.”

73 DESA report, iii. DESA adopts the wider definition of poverty that arose from the 1995 United Nations Social Summit.

74 This story comes through Moe-Lobeda, 68-69.
wild, but through interactions with human structures and actions; their location, size, and populations are largely determined by humans.\textsuperscript{75}

We can see from the above that liberation for Ruether, Boff, O’Murchu and Berry takes on an integral dimension. It is comprehensive reality from which no subject is excluded, whether a child, cheetah or river. Such a liberation can seem formidable. In this light, a helpful way to approach our understanding of liberation is to distinguish among three levels or dimensions of liberation, as discussed by Gustavo Gutiérrez.\textsuperscript{76} While Gutiérrez applies these dimensions to the human alone, we can adapt them to the larger other-than-human Earth community. The first level lies at the social level, which, as we have read above, relates to liberation from unjust structures within society that exploit subjects. The second level lies at the personal level, which relates to an inner freedom so that subjects are in control of their own destiny, or free to follow their evolutionary impulses. To ensure that one subject’s liberation does not impinge on the liberation of another, however, Gutiérrez proposes a third and important dimension at a communal level. He refers to this theologically as liberation from sin. At the human level, Gutiérrez sees sin as the severing of a relationship (or friendship, as he also calls it) with God and other human beings, but we can extend this understanding to comprise a relationship with the whole Earth community. The fullness of liberation, then – one that we will discuss in more detail in Chapter 5 – lies in subjects realizing their liberation within community. Relationship undergirds all liberation.

Discerning Criteria for “Taking Seriously”

We can identify two facets within the Christianity-science-environment-liberation nexus: taking each of the four domains seriously, as well as approaching the integration of all four with a seriousness that requires bringing the various issues, concerns and dynamics of their domains into a critical and constructive conversation. But how do we ascertain that these two facets have


been addressed so? Discerning the criteria for taking something seriously is not itself complicated. From the definition of serious supplied at the beginning of this Introduction, we can infer that we are taking a subject or issue seriously when we give critical attention to the complex and perhaps dangerous issues or perspectives. We also treat it with thoughtfulness by reflecting and questioning multiple perspectives, assumptions, concepts, methodologies, epistemologies and theories, weighing options judiciously, and only after a thorough and honest examination has taken place. We allow discourses of others to penetrate deeply, challenge and even change our thinking. Finally, we take a subject or issue seriously by showing constructive resolve, that is, by being committed to addressing fruitfully the task at hand. In short, to determine whether our interlocutors have taken each domain seriously, we will look at the degree to which they have applied critical attention, thoughtfulness, and constructive resolve to the domains.  

A conversation that critically integrates these issues is arguably a more difficult endeavour. It requires a particular surrendering of sovereignty on the part of the participating disciplines, which requires a certain amount of trust amongst them. A vital component within this conversation is to address the epistemological and methodological assumptions underlying the conversation. As Philosopher Robert Frodeman insists, environmental issues resist simple division into separate categories of science and ethics. It will not do, then, to employ within the conversation a scientific fundamentalism, one marked by an overemphasis on the scientific method and on rational analytic thought processes to the exclusion of other ways of knowing the

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77 These criteria will be adapted accordingly throughout the dissertation to address specific issues pertaining to taking science seriously and Christianity seriously.

78 The issue of surrendering sovereignty on the part of the contributing disciplines, or traditions is one promoted within transdisciplinary approaches. Hence, mutual trust and vulnerability – not unlike the project undertaken by Ruether, Boff, O’Murchu and Berry – become the cornerstone of transdisciplinary projects. Roderick MacDonald (Transdisciplinarity and Trust,” in Transdisciplinarity: ReCreating Integrated Knowledge, eds. Margaret A. Somerville and David J. Rapport, 61-76 [Oxford, UK: EOLSS Publishers Co. Ltd., 2000]), explains how the lack of these aspects lies at the root of why transdisciplinary projects fail:

The greatest obstacle to transdisciplinarity is a failure to trust those with whom we work; and the single most important determinant of this failure is our failure to trust ourselves. A failure to make ourselves vulnerable in the presence of the disciplinary other induces us to distrust the sincerity even of the disciplinary other who renders herself or himself vulnerable to us (71).

Margaret Somerville (“Transdisciplinarity: Structuring Creative Tension,” in Transdisciplinarity: ReCreating Integrated Knowledge, eds. Margaret A. Somerville and David J. Rapport, 94-107 [Oxford, UK: EOLSS Publishers Co. Ltd., 2000]), echoes this sentiment, adding that the trust MacDonald speaks of needs to be earned: a sort of “trust me because I will show that you can trust me” scenario (106).
New skills for thinking across categories will have to be learned. Indeed, while specialization is important within the scientific endeavor, scientists like James Lovelock eschew the reductionism that is prevalent in much scientific work today. He, along with biologist Lynn Margulis, physicists Fritjof Capra and Erich Jantsch, chemist Ilya Prigogine and cosmologist Brian Swimme would argue that science needs to include the whole picture, which includes many wisdoms. “We need the restraint of scientific conduct for investigation and theory,” says Lovelock, adding, “and we need the poetry and emotion that moves us and keeps us in good heart.”

Theologian David Tracy recognizes that a great turn must also occur in theology. He acknowledges that in the past, traditional Christian theologians, of whatever tradition, “preached and practiced a morality of belief in, and obedient to the tradition and a fundamental loyalty to the church-community’s belief.” Obviously, Tracy is not eschewing the concept of obedience here, but an obsequious version of it that follows tradition uncritically and with a closed heart and mind. In contrast to this obedience, he maintains, the modern historian and scientist – whether in the natural or social sciences – must preach and practice a decidedly divergent morality, which cannot have a theologian investigate a cognitive claim with intellectual integrity while insisting simultaneously, “that the claim is believable because the tradition has believed it.” Tracy claims that most Christians recognize today that much of the traditional Christian manner of understanding the cognitive claims made in the Christian scriptures “should be rejected by the findings of history and the natural and human sciences.” But Tracy goes beyond mere rejection of a literalist account of scripture. The method he presents subjects the cognitive claims for its central symbols of revelation, God, and Christ, to an open-ended inquiry, autonomous judgment, critical reflection, a skeptical hard-mindedness, and a “willingness to

80 Frodeman suggests that scientists must commit patently to conversation with the wisdom found in the humanities.
81 James Lovelock, Gaia, xiii.
82 Ibid., 5; Tracy describes what the Victorians called the “crisis of belief” which he designates a crisis of “cognitive claims.”
83 Ibid., 5.
follow the evidence wherever it may lead,” even if such conclusions, “may, in fact, negate a particular traditional belief.”

The approaches Tracy, Frodeman and the scientists mentioned above present are in line with our criteria to assess whether the integration process is taken seriously: an openness to allowing each domain to affirm, clarify, inform and qualify the others. The first two criteria are fairly straightforward. To be clear about the meaning of the last two, “inform” implies that the concerns, issues or dynamics of one domain are allowed to permeate and critically dialogue with the other(s). “Qualify” implies that the domain is allowed to modify or in some way limit it. In other words, we allow discourses of others to penetrate deeply, challenge and even change not only our thinking, but to challenge each of the other domains. In this way, Tracy’s conclusion is apt for our purposes: “There is no intellectual, cultural, political, or religious tradition or interpretation that does not ultimately live by the quality of its conversation.”

Such an approach is very much in keeping with the liberationist thinking that undergirds the thinking within this dissertation. Faced with the marginalized or excluded Other, be it the African children mentioned above, or the larger biotic community on the mountain, the liberationist thinker subjects her or himself to the “imperative of hermeneutical humility.” This imperative involves a self-reflective process that denounces any claim to seeing and understanding things from “God’s perspective,” or universal perspective. Rather, acknowledging her or his own situatedness geographically, socially and economically, the liberationist thinker underlines that her or his knowledge is particular. The thinker must, therefore, learn from the excluded, the poor, the Other. This self-critical reflection, then, is arguably an overarching criterion in determining that our four Christian thinkers are taking not only liberation seriously, but an indicator that they are taking seriously the integration of their faith and science in order to unite a liberationist agenda with an environmental ethic.

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85 Ibid., 7; He cites the Lonergan formulation of imperatives in method: “Be attentive, be intelligent, be rational, be responsible, develop and, if necessary, change” (12).
86 Ibid., 6.
87 Outlining this tenet within liberationist thinking are David Batstone, Eduardo Mendieta, Lois Ann Lorentzen, and Dwight N. Hopkins, Introduction to Liberation Theologies, Postmodernity, and the Americas (New York: Routledge, 1997), 2-3.
Confirming Interlocutors

The works of Rosemary Radford Ruether, originally trained as a Christian historian, Leonardo Boff, a theologian, Diarmuid O’Murchu, a social psychologist, and Thomas Berry, a cultural historian, stand out precisely because they demonstrate a concerted effort to integrate their faith and science in order to unite a liberationist agenda with an environmental ethic. While their writings are not homogeneous in content or approach, as we will see, they are remarkably similar in many ways, most notably in their liberationist intent, their epistemological framework and in the imaginative Catholic framework through which they see and engage with the world. By taking each of the four domains identified above seriously, they have allowed their faith to become vulnerable to the open-ended inquiry with the natural sciences Tracy mentions above, incorporating a “willingness to follow the evidence wherever it may lead,” even if such conclusions, “may, in fact, negate a particular traditional belief.” In other words, they are allowing science not only to affirm and inform their faith, but to clarify and qualify it.

This hermeneutic of being “willing” to follow evidence underpinned by a liberationist agenda is not an attitude common to Christian literature within the eco-justice debate, as the Bakken, Engel and Engel survey suggests. Without entering into a comparative analysis of current Christian literature that probes into our four-fold nexus, I suggest that the works of our four interlocutors present a distinctive approach that merits attention. Their willingness to follow evidence, and integrate their faith and science, I suggest, arises out of a deep reverence all of them share for all of creation. Should this matter? I think it does. This is why in each of the first four chapters, where I examine the works of each of our four thinkers, I begin with an exploration of their starting points, that is, aspects of their personal biography that have influenced their thinking. As we will see, at a relatively early age, each formed a loving, even reverential relationship with nature and, initially at least, a specific place – whether for the Irish countryside, the Amazon forest, the San Bernardino Mountains, or a North Carolinian meadow. In liberationist terms, we can say that much within their world, which comprises both the human and the other-than-human subjects, had become the excluded Other, which called for thoughtfulness, constructive resolve and critical attention. This starting point informs their work, their willingness to open their faith to change, and to follow the scientific evidence.
While other Christian thinkers, such as ecotheologians Sallie McFague and Michael S. Northcott, have produced important works that engage with all four domains of the nexus, I exclude them from my review because their interest in science is first and foremost to lend credibility to what they regard as important insights into their Christian faith on ecology and justice. Northcott, for instance, seems to assign preeminence to scripture and tradition for knowing our world. He rejects Aldo Leopold’s Land Ethic, for example, not for scientific reasons, but because of its decentralization of humans, which according to his interpretation of his faith, is untenable. He argues that the “ecocentric ethical priority” underlying the Land Ethic is “not consistent with a Hebrew and Christian ethic, for it seems to locate moral value primarily in the biotic community of the land.”\(^{88}\) It is not just the Land Ethic that Northcott dismisses because of its incongruence with his faith tradition. He asserts “the Hebrew emphasis on the moral and biological centrality of human life and community to the purposes of God for the cosmos is of course inconsistent with Lovelock’s Gaia Hypothesis.”\(^{89}\) McFague insists her writing is “not…about shaping theology to science…rather it is interested in a loose fit between the contemporary scientific picture and theological reconstruction,” adding, “This is a theological not a scientific, project.”\(^{90}\) McFague, in other words, like Northcott, permits science to affirm and even clarify her faith, but she stops short of allowing it to inform (at least deeply) and qualify it.\(^{91}\)

Of course, there are some Christian thinkers who also engage with science without adequately applying the thoughtfulness or critical attention we described above; but, in the process, they allow the science, perhaps too readily or without enough warrant, to inform and qualify their Christian faith, or ethics, such as self-professed New Ager David Toolan or

\(^{88}\) This, as we will see in Chapter 6, is something Lisa Sideris also finds in her own reading of Northcott: Sideris, *Environmental Ethics*, 227.
\(^{91}\) Other authors also fall into this category: Steven A. Butkus, for example, a Roman Catholic ecotheologian, also considers the Bible to be the “primary medium of divine revelation;” see Butkus and Kolmes.
evolutionary theologian and evidential evangelist Michael Dowd.\textsuperscript{92} Conversely, there are some Christian thinkers who are very thoughtful in their appropriation of science, such as John Haught, Ian Barbour, John Polkinghorne, and Philip Clayton, to name some. What is missing from their discussions, however, is one or more of the other domains (environment and/or liberation).

To be sure, and this is important to note, the list I present of four authors who seem to assign great importance to each domain of the four-fold nexus is not meant to be exclusive. There are other Christian thinkers who attend to the Christianity, science, environment, liberation nexus who we could include within this grouping. The works of Anne Primavesi and Heather Eaton could be included here, for instance. However, time and length preclude including more authors.\textsuperscript{93} My aim is not to demonstrate that these four Christian thinkers alone approach the four-fold nexus seriously, or that their ethical visions – either individually or collectively – are necessarily more viable than those of others. I wish here to present their work as a noteworthy and important example of how Christians engaging the environmental crisis and seeking the liberation of all creation might approach the importance religion-science nexus. Their epistemological framework, which I identify as convergent knowing, is a crucial element in the process.

Methodology

One of the most intriguing aspects about my research is that little is written that speaks specifically and certainly fully to what my Christian interlocutors are trying to do. The aim of their work is relatively new. Because the subject is so multifaceted and interdisciplinary, and

\textsuperscript{92} The evidence Toolan reads from the new cosmology and physics is that, “The whole cosmos…is a tissue of…new possibilities…The past no longer decides everything that comes; the future is once again back at the forefront of physics.” While he is obviously trying to stress novelty in the universe, seemingly to deny causality to this extent is not empirically verifiable: David Toolan, “The Physics of Promise,” in \textit{At Home in the Cosmos} (Maryknoll, N.Y.: Orbis Books, 2001), 173; cf.: 156-177. See Michael Dowd, \textit{Thank God for Evolution: How the Marriage of Science and Religion Will Transform Your Life and Our World} (New York: Penguin Books Ltd., 2007); see also his podcast online that has him interview 38 Christian thinkers and scientists on the question of evolutionary Christianity (Diarmuid O’Murchu is among these): available at \url{http://thegreatstory.org/ec-leaders.html}; accessed January 2011. See also, \url{http://www.thegreatstory.org/michaeldowd.html}.

because I am looking at four interlocutors, I have chosen first to explore their works individually. I then weave them into a communal conversation. It will become evident that their new epistemological framework is, in large measure, realized by them. Yet, the salient features of their work are not always readily apparent. While each is aware of the others’ writings and – in many instances – each relies on the others’ works, none has collaborated with the other, as far as I can ascertain. Hence, I critically elaborate their work, weaving together themes and ideas.

My method of inquiry, then, is primarily a qualitative literature review that, in a spirit of questioning, entails a critical weaving of various points of view into a conversation, so as to discern patterns and discrepancies and new insights. I incorporate social analysis to examine our current historical moment. I apply a hermeneutic of suspicion with regard to the employment of science as well as the claims of my interlocutors along with their own situatedness. I investigate the political interests, agendas and power relations underlying the human production of truth. In this critical spirit, I conduct an analysis of the ethical visions of each of our thinkers, as well as the epistemology and methodology backing their claims. At times, for instance, I find ambiguity in Ruether’s conclusions, or a lack of precision in Boff’s post-1992 writings (which switch from a perspective of the poor to one that seemingly stems from everywhere). I find that the works of O’Murchu and Berry miss some of the deeper reflections on the roots of poverty and injustice that we find in Ruether’s and Boff’s analyses. And while Berry avoids conclusions not supported by current scientific understandings, O’Murchu is arguably more liberal in arriving at some of his claims. It is chiefly when I weave all four interlocutors into a communal conversation, allowing each of their visions not only to clarify and affirm but to qualify and inform the visions of the others, that we are presented with a more robust ethical vision, one that addresses the challenges and/or weaknesses found within their individual ethical visions.

My core sources in this weaving have been the writings of my interlocutors along with the writings of the scientists whose works they engage directly. Included within these sources are interviews I had with Rosemary Radford Ruether and Diarmuid O’Murchu, the former with whom I spoke in person. Fortunately, there is no shortage of literature that analyzes Ruether’s ecofeminist work. However, there are no works, as far as I can ascertain, that analyze Ruether’s
appropriation of science, other than the work by Lisa F. Sideris. I was in contact via email with a former collaborator with Ruether on ecofeminist thinking, Heather Eaton, who was able to provide some clarity on some of Ruether’s positions. For Diarmuid O’Murchu, I was fortunate to have access to him via Skype and, on more than one occasion, by email, as I could find little in the way of academic analyses conducted on his work. For Thomas Berry, an interview was not possible, as he died before I began my research. However, given his prominence within some academic circles, there is a good amount of literature that analyzes his thinking. I have been less fortunate in obtaining an interview with Leonardo Boff. While literature analyzing his works exists, the ones that deal with his later works – when he deals with natural science – are fewer in number. I was fortunate to have conversations with Mark Hathaway who co-authored The Tao of Liberation, an important book that outlines clearly much of Boff’s appropriation of science. I have also corresponded with physicist Fritjof Capra via email who was able to answer some of my questions of the quality with which Boff appropriated the science.

Further to my methodology, my weaving was conducted through a liberationist perspective, utilizing a political economy approach. Thus, I subjected claims made by our four Christian thinkers, as well as the other prominent interlocutors I have included within the conversation, to critical reflection and, most notably, from the point of view of the excluded or marginalized Other, be it a human being or a river. This last point is important. Throughout the dissertation, I make reference to an indigenous campesina woman, her community and her immediate surroundings in nature within Guatemala. The woman, with her immediate needs and desires, while fictitious, is loosely fashioned upon Rigoberta Menchú, indigenous activist and

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94 A point confirmed by Ruether herself in my personal interview with her.
95 The woman could easily have been an African or South-east Asian. The term campesina in its feminine form is a Spanish word that can be translated roughly as “peasant farmer.” As “peasant” carries popular connotations of an uneducated person and derogatory baggage, I find this term inappropriate. In fact, in Latin America many campesinos are well educated. Without going into detail, it is clear, for example, that some campesinos barely conform to the image of peasant: articulate leaders with ties to urban society with shallow roots in countryside. The image of rustic peasants with hoe in hand does not coalesce with the image of peasants using laptops and camcorders. The campesina I have in mind, however, is an indigenous woman of few means living as a subsistence farmer with her community. I will refer here to the Spanish term with its more nuanced understandings. For a good discussion on this issue of language, see Marc Edelman, Peasants against Globalization: Rural Social Movements in Costa Rica (Stanford: Stanford University Press, 1999).
96 Rogoberta Menchú is a woman of Maya Quiché indigenous origin and leader amongst indigenous in Guatemala in the struggle for justice. She is also a Nobel Prize winner for her struggles for human rights in that country. A good read on her life – though not uncontroversial because of its methodology – is Rigoberta Menchú, I, Rigoberta
Guatemalan recipient of a Nobel Prize, for her work to bring liberation to the majority of peoples excluded from the decision-making processes in her country. In light of Gutiérrez’s three-fold notion of liberation, I employ our campesina, or Guatemalan woman, as well as the trees and rivers with whom she and her community co-exist, to serve as a symbolic benchmark throughout this dissertation for discerning whether the liberation needs of all creation have been taken seriously.

Structure of Dissertation

I have structured this examination by commencing with a description and analysis of the ethical visions of each of our four Christian thinkers separately. The first four chapters all have the same arrangement: in the first section, I discuss the starting points in the lives of each theorist – those experiences that have deeply influenced their thinking; the second section discusses the targets of their critiques; the third, the science authoring their ethical visions; and the fourth analyzes their visions. Each chapter ends with an identification of the epistemology and methodology backing the ethical vision put forth by the author. Throughout this description and analysis, I identify similarities and dissimilarities in their thinking and in the manner in which they appropriate science. This will form the basis for the examination of their work collectively in Chapter 5.

The order in which I investigate the authors is purposeful, as it demonstrates, albeit roughly, the degree in which each author appropriates science, beginning in the least amount with Ruether, then increasing in degree with Boff, then O’Murchu and ending with Berry, whose appropriation of science in forming his ethical vision appears the most profound. And because many of the scientific theories or concepts are found in all of their works, I have chosen to discuss each scientific theory or concept (or an aspect of each) chiefly in one section and to build on that concept as warranted throughout the examination of all the ethical visions of all four


While our four theorists also deal with ontological issues (such as the discussion of sub-atomic particles and how they constitute reality), my emphasis in this dissertation is on their epistemology, which I believe is of greater importance to the forming of their ethical visions.
thinkers. This process avoids repetition while also allowing me to emphasize which theory or concept receives a more prominent consideration by each author.

In the remaining chapters, I investigate the larger epistemological dialogue that these theorists are pursuing with science and their religion collectively. While attention is given to avoid conflating their visions, the communal conversation I weave amongst their various works allows us to recognize a more robust ethical vision, one that addresses the challenges and/or weaknesses found within their individual ethical visions. In light of the theme of “taking seriously” that underlines this dissertation, I search for evidence that our theorists have allowed the dynamics and concerns surrounding the issues of environmental degradation and the marginalization of the majority of humankind, as well as those of science and their faith, to inform and qualify as well as clarify and affirm each other. Chapters 5, 6 and 7 focus on this aspect.

In Chapter 5, I assess the degree to which our four theorists have allowed the dynamics and concerns surrounding the issues of environmental degradation and the marginalization of the majority of humankind to inform and qualify, as well as clarify and affirm each other. This necessitates also assessing the viability of their communal ethical vision, based on five core tenets I identify within it. I argue that while theirs is a complicated and challenging vision, at times lacking in precision, this is not necessarily a liability. On the contrary, it could be viewed as a virtue. Their vision stands in contrast to conventional and inadequate ethical theories that authorize the rationalization of the lifeworld of billions of excluded people into simplified and, therefore, manageable economic, political and cultural subsystems. It becomes evident in this chapter that our four thinkers could not have articulated such a vision had they not approached both the liberation of the human and the natural world with thoughtfulness, constructive resolve and critical attention. By sheer dint of purpose, they needed to allow the dynamics and concerns surrounding the issues of environmental degradation and the marginalization of the majority of humankind to inform and qualify, as well as clarify and affirm each other. A fruit of this integration is, I suggest at the end, the notion of an eco-tethered liberation.

In Chapter 6, I consider the manner in which our four Christian thinkers have approached science, reasoning that the quality with which the science is understood and used by them will affect the quality of their ethical vision. I borrow upon the work of Lisa Sideris so as to point out
some of the main criticisms of Christian thinkers appropriating science in order to formulate an ethical vision. I investigate whether these criticisms apply to our four thinkers. In the analysis, it becomes apparent that in order to judiciously pass judgment on our Christian theorists’ appropriation of science, and to judge the reliability of Sideris’s claims, we need to have a better understanding of how science is structured, and some of its processes for knowing reality and communicating its findings. Through an analysis of Kuhn’s theory on scientific revolutions, we find that the scientific process is not a purely rational process. Rather, it is one that entails the entire spectrum of human experience: it takes place within a fragmented social community, with social forces, habits and biases, and within a particular culture that influences what science is carried out, and within a certain paradigm that is rarely questioned. It becomes apparent that, when it is the liberation for the entire planet we are seeking, a valuable approach to science is more likely to be one that is wide in scope, inclusive of multiple scientific branches, and one that takes into account the myths and imaginations that surround the broader issue.

In Chapter 7, I examine the challenging manner in which our four theorists have approached their own faith. This requires an examination of their approach to theology. Given the plurality of viewpoints, as well as cognitive models used in theological deliberations that characterize the current state of theology, a simple approach that seeks to compare their work to some “orthodox” standard will not work. Instead, I employ a relational model for discerning truth, common in ecumenical and interreligious dialogue, to discern the authenticity of their approach. The model takes the plurality of viewpoints and cognitive models as its starting point. Thereafter, it seeks only to arrive at a relative adequacy of conclusions. While it becomes evident that our four interlocutors have approached their faith with thoughtfulness, it also becomes clear that they have also applied critical attention to the integration of environment, liberation, science and their faith. In fact, the challenges to Christianity and theology from our four interlocutors, and the firmness with which each engages his or her own faith, appear not as a trivialization of Christianity, but more like the fruit of an intense conversation with it in order to equally engage with the social and ecological realities facing our planet, and pre-eminently with findings from science. I conclude this chapter by inquiring into what might underpin the particular approach of these four Christian thinkers. I find that the Catholic tradition to which they all belong plays a large role in this, specifically the Catholic imagination. It has served not only to help foster a love for all creation, but to find readily within the material world a platform from which to learn
about creation, God, humans, and our role on Earth. And since science for these thinkers is the quintessential means to learning about our world, it receives a preeminent role in fostering an ethical vision.

In Chapter 8, I take a step back so as to explore what it is we have been observing throughout this dissertation. I put forth that our four Christian theorists have presented a novel epistemological framework that describes an epistemic convergence between Christianity and science, one marked by a close and seemingly permanent connection between their religion and science. The conversation they envision appears to be widely inclusive of a multitude of ways of apprehending reality. Seeking to classify this framework, I investigate current typologies used by scholars. Yet, none appears to adequately represent what our four theorists are attempting to do. This leads me to formulate my own typology, which I label convergent knowing, building upon the biological scaffolding presented by biologist Lynn Margulis with her theory of endosymbiosis. I end this chapter with a discussion of the implications and application of convergent knowing for other Christian theorists currently struggling to integrate ecology and social justice and their faith.

I conclude this dissertation by returning to the three questions posed by the works of our four thinkers to their Christian faith. I suggest that convergent knowing represents one possible and viable option for Christians seeking to answer how science and Christianity are to converge in a serious conversation when the future of life on the planet is at risk due to anthropogenic causes. I suggest that the concept of an eco-tethered liberation discussed in Chapter 5 addresses how both the liberation of the human and the other-than-human can be perceived. And finally, I suggest that the challenges and opportunities that convergence and the ethical deliberations present to the Christian tradition will not disappear. Rather, Christianity could be undergoing a theological paradigm shift of relationality, one that Christians can choose to embrace or ignore.
Chapter 1
Rosemary Radford Ruether

Introduction to Ruether

Rosemary Radford Ruether was born in St. Paul, Minnesota in 1936, the daughter of a Catholic mother and an Episcopalian father.¹ Her childhood was “generally pleasant,” as she describes it, “climbing apple trees… [with] quiet moments of depth and mystery in the daily liturgy,”² and it was imbued with a love for art.³ Notwithstanding these pleasant elements, Ruether speaks of the time her father died when she was only twelve. The family was living in Greece at the time, and her mother happened to be away when it happened, leaving Ruether alone to face the ordeal. Her recollection of the event is worth noting:

During the grief-torn scenes that followed my mother’s tardy return, I remember feeling a strange detachment. I was haunted by a vivid image of my father in his grave, sinking down into the earth. Both then and in subsequent brushes with death, I have experienced a strong sense of human mortality, the finitude of the individual self….The doctrine of the personal immortality of the soul slipped away from me as an idea without real roots in my own better intuitions. Nature clearly cared only for the species, not the individual. If there is meaning in ongoing human life, it must be sought somehow in solidarity with the race, with the earth, with the matrix that binds us all together, not in the isolated self. This was the perception that took shape in my mind gradually.⁴

Ruether also speaks of her childhood as being religiously ecumenical, humanistic and free-thinking, which, she believes, laid the foundation for a career as both a radically-minded scholar and activist. Taking a stark heteronomous stance to autonomous selfhood, she decided early in her life to believe only that which she found personally believable and not because “the Church” taught it.⁵ She embraces what she terms, “an ‘adult’ stance toward institutional Catholicism.”⁶ Her sense of solidarity with all humans and the Earth, coupled with her search

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¹ Rosemary Radford Ruether, “Beginnings: An Intellectual Autobiography,” in Journeys: The Impact of Personal Experience on Religious Thought, ed. Gregory Baum (New York: Paulist Press, 1975); it is interesting to note here that Ruether labels her father an Anglican of the “twice-a-year variety” (35).
² Ibid., 36.
³ Ibid., 37; in her teenage years, she had the ambition to be an artist.
⁴ Ibid., 39.
⁵ Ibid., 40.
⁶ Ibid., 47.
for a spiritual “environment of worship that would not insult [her] intellect,”\(^7\) are the reasons why she can claim that her four years spent in a Benedictine monastery in the high desert area of San Bernadino (as a young adult writing her dissertation), remain a golden memory for her. Imbued with a sense of renewal that was coming out of the Second Vatican Council at that time, the monastery became a centre for people who were beginning to organize around civil rights and peace issues. She recalls in a somewhat poetic manner,

> Rising just before dawn, I walk the small hills at the foot of the San Bernardino Mountains….as the sun slowly turns the desert to a rosy glow….The high desert spring boasts a carpet of exotic flowers…. I hear the bell for morning prayers. A flock of ducks from the pond accompany [sic] me to the chapel, standing with heads tucked piously into their necks in front of the altar window. Swaying from side to side, in seeming imitation of the cowled monks swaying in chant inside.\(^8\)

Ruether’s involvement in the Civil Rights movement preceded her sojourn in the monastery. The experience would also shape her work in profound ways, as it was the Civil Rights critique of male dominance that propelled her into the field of feminism. “I got involved in feminism through the Civil Rights critique of male dominance,” she notes in an interview with the journal *Conscience*: “What you experienced in Mississippi was looking at the United States from the southern black side. You see the white dominance and the racism.”\(^9\) Since that time, Ruether has continued her activism in peace, liberation and feminist movements, incorporating them into her academic work.

Another important influence on Ruether’s thinking has been her life as a wife and mother. Married to Herman J. Ruether – a scholar in political science – and having three children (and now grandchildren), Ruether believes that these realities have influenced both her scholarship and activism, emphasizing that, “parenting essentially keeps you grounded in a lot of realities, not only in the whole work of bringing up little kids, but the questions that are

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\(^7\) Ibid., 47.
\(^8\) Ibid., 49; she was, in fact, a third-order lay member of the community; it was there that she wrote her thesis on Gregory Nazianzen, the fourth-century Greek Church Father.
important to young adults." Ruether received her PhD in classics and patristics from Claremont Graduate School in 1965. She has been described by scholars as a pioneer Christian feminist theologian, and as a feminist Christian historian, a social ethicist, and even a modern prophet. However, she has written on diverse fields such as the historical and theological roots of anti-Semitism, the Israeli-Palestinian conflict, the history of women in American religion, liberation theology, the mythology of Near East, the historical and ideological patterns of how the U.S. Americans view themselves and, of course, ecology. The sheer breadth and depth of her writings (with 49 books and close to 700 articles to her credit) seem to defy singular categorization. Still, it is undoubtedly as an ecofeminist theologian that we can best characterize her, as we investigate her engagement of science in order to unite a liberationist agenda with an environmental ethic. Not solely as a pioneer in Christian feminist theology, Ruether can also be considered a pioneer in eco-theology. When the environmental movement was in its infancy, Ruether was questioning environmental solutions and decision-making processes that excluded the majority of the human race.

Worthy of note is Ruether’s involvement in different vehicles to express her dissatisfaction with the teachings and views of the hierarchy of the Catholic Church. She has been a board member of Catholics for a Free Choice, a contributing editor for Conscience, a journal for Catholics committed to free choice, a columnist for the National Catholic Reporter,

10 Rosalind Hinton, in an interview with Ruether: “A Legacy of Inclusion: An Interview with Rosemary Radford Ruether,” Cross Currents 52, no. 1 (Spring 2002): available online: http://www.crosscurrents.org/Ruetherspring2002.htm; accessed July 2011. Ruether implies that it is not parenting per se that grounds a person but the act of concern and act for the other. She states in an interview: “I’m not saying that people have to necessarily have their own children. But, I do think we have to move to stages of life that we are concerned with helping the next generation of people.”


13 Miller Francisco.

14 Hinton, writing in 2002, had 36 books and over 600 articles cited; according to Conscience Magazine, A Special Commemorative Edition on Rosemary Radford Ruether (2011), Ruether had written 48 books. She has since written an autobiography in 2013. The numbers for articles written is an approximation of journal, magazine articles and reviews Ruether has written since 2002.

an independent Catholic newspaper, and a firm supporter of movements in feminism and religion. In 1964, in her early days in teaching, she was working for the Immaculate Heart College in Los Angeles. In response to the Vatican’s disapproval of contraception, Ruether wrote a piece for the Washington Post magazine entitled, “Why a Catholic Believes in Birth Control.” That article cost Ruether her position at the college but it also taught her an important lesson early in her career, which also explains why Ruether has escaped sanctions from the Vatican: she says, “[the incident] gave me the basic message: don’t work for a Catholic institution” Indeed, Ruether has never worked for a Catholic institution since then. She worked for some time at Howard University School of Religion and then at Garrett-Evangelical Theological Seminary, became Carpenter Emerita Professor of Feminist Theology at Pacific School of Religion and the Graduate Theological Union, and presently is visiting professor at Claremont Graduate University.

1.1 The Target of Ruether’s Critique

Ruether’s New Woman/New Earth: Sexist Ideologies and Human Liberation, published in 1975, is one of the first ecofeminist texts identifying the key issue underpinning ecofeminist thinking: the interconnection between the domination of women and the domination of nature. The book critiques a hierarchical system of domination. In an often quoted passage, Ruether lays out the extent to which social change must occur:

Women must see that there can be no liberation for them and no solutions to the ecological crisis within a society whose fundamental model of relationships continues to be one of domination. They must unite the demands of the women’s movement with those of the ecological movement to envision a radical reshaping of the basic socio-economic relations and the underlying values of this society.

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16 Hinton, “A Legacy of Inclusion.”
17 Patti Miller.
19 Ruether, New Woman/New Earth, 204.
Within the same book and in numerous subsequent writings, Ruether explores the cultural and social roots that have promoted the domination of women and nature (at the same time extending this analysis to include not just women but class, race and ethnic hierarchies). The system of domination, she avers, is rooted in a larger patriarchal and hierarchical system. It is shaped and perpetuated ideologically and socially by creation myths, social and legal codes, and philosophies that have become imbedded into institutional structures.\(^{20}\) On the ideological-cultural level, women are said to be “‘closer to nature’ than men, and more aligned with body, matter, emotions and the animal world.”\(^{21}\) This closer proximity to the material world has been used to justify the claim that women lack the capacity for intellectual and leadership roles, and leaves them, on the socio-economic level, “relegated” to the sphere of reproduction, cleaning, food preparation and the like.

This hierarchical system of domination was reinforced in the Greco-Roman era by the dualist thinking that pervaded classical Greek philosophy, such as mind/body, nature/non-nature, matter/spirit and indeed male/female. By the end of late antiquity, the patriarchal-dualist social economic pattern of society was set. As Ruether puts it, “The chain of being, God-spirits-male-female-non-human nature-matter, is at the same time the chain of command.”\(^{22}\) By the modern era, such dualisms were deepened by the philosophical thoughts of Descartes who saw “all bodily reality as mere ‘dead matter’ pushed and pulled by mechanical force.”\(^{23}\) In this way of thinking, the mind stands outside matter, independent of its influences, “contemplating and controlling it from beyond.”\(^{24}\)

It is this Western philosophical narrative, then, with its logic of domination and interrelated dualisms, that defines the root of the problem for Ruether. It is the source of a dysfunctional model of relationships that has structured Western society for many centuries and


\(^{22}\) Rosemary Radford Ruether, Sexism and God-talk: Toward a Feminist Theology (Boston: Beacon Press, 1983), 79.

\(^{23}\) Ruether, “Ecofeminist Philosophy,” 78.

\(^{24}\) Ibid., 78.
continues to do so today. This patriarchal thinking explains, in part, why women and countless people, because of their gender, class, race and ethnic origin, are marginalized and dominated. It also explains why nature is also marginalized and dominated.

In contrast to this, as Ruether posits in *Gaia and God*, her goal is to bring about an Earth healing, “a healed relation to each other and to the earth” which, she stresses, “calls for a new consciousness, a new symbolic culture and spirituality.”25 This is what liberation is for Ruether: a restoration of the human to her or his true self, and a reintegration of creation with its true destiny as “God’s kingdom.” And as we shall see, Ruether’s employment of science plays a considerable role in countering this logic of domination, thus ushering in a new consciousness and liberation.

**1.2 The Science Authoring Ruether’s Ethical Vision**

In fashioning an ecologically sensitive ethic, Ruether focuses on four areas of scientific exploration (though not all are given equal weight): the new story of evolution or cosmology (particularly as it pertains to Earth), the Gaia theory (as a subset of Earth’s evolution), subatomic physics, and ecology (as a subset of biological science). Drawing upon the work of scientists Nigel Calder, Steven Weinberg, and Steven Hawking (through John Boslough), Ruether describes the scientific theory of the origin of the universe, beginning with what she believes has been unimaginatively termed “the big bang:” the rapid explosion of intensely charged, radiant light-waves that expanded “not into ‘empty space,’ but created space and time itself by its expansion.”26 She describes the continuous process throughout the first billions of years where various forms of force – from the gravitational to the electromagnetic, nuclear and subnuclear – arranged the relation of everything in the universe from the atomic nuclei and atoms to the planets and galaxies. She demonstrates the connectedness of creation by emphasizing, “Except for the even older hydrogen and helium atoms, all of the atomic elements that make up earth, from rocks to the human body, are ultimately ‘stardust.’”27

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26 Ibid., 41.
27 Ruether, *Gaia and God*, 41. That we are stardust is a common phrase used by scientists themselves, but it says more than that we are made of the same elements comprising stars. These elements were synthesized within the stars.
Ruether describes the same evolutionary process at work on our planet from its first billion years when it would have been inhospitable to life as we know it, stressing nevertheless that “all the atomic elements that would combine to create life were already present in its molten seas.”

Relying much upon the works of biologists Paul and Anne Ehrlich, she contemplates the history of biogenesis on Earth, a process that began some four billion years ago, noting how each stage of biotic development leads more rapidly to the next stage. Hence, while it “took about 3.9 billion years, some eight-ninths of earth’s history, simply to generate photosynthesizing bacteria…the entire evolution of land plants and animals has taken place in the last one-ninth of earth’s history.”

We can see where Ruether is going with this: “Within that history of land animals, humans occupy a fraction of time, a mere 400,000 years, or less than one-tenth of 1 percent of earth’s history.” From the above, Ruether concludes that our anthropocentric claim of having dominion over Earth “appears absurd in light of the 4,599,600,000 years in which earth got along without humans at all!”

Ruether continues her examination of the evolutionary process through the Gaia theory, de-emphasizing, as above, any human pretentions to be the universe’s most important entity, as well as highlighting the finite nature of our planet. Her description of the theory, however, “that the entire planet is a living system, behaving as a unified organism,” appears too simple.

Developed by atmospheric chemist James Lovelock with the help of biologist Lynn Margulis, the theory is more accurately described by its author as, “A view of the Earth that sees it as a self-regulating system made up from the totality of organisms, the surface rocks, the ocean and the atmosphere tightly coupled as an evolving system. The theory sees this system as having a

and released into the galaxy when the stars exploded at the end of their lives, releasing elements that eventually make up other stars, planets and life-forms.

28 Ibid., 43.
29 Ibid., 45.
30 Ibid., 45.
31 Ibid., 45.
32 Ibid., 42; similarly, in emphasizing the finite nature of the universe, she notes that it will not continue to expand indefinitely, but that after billions of years its energy will be exhausted and stars will explode or fade away without replacement, leading eventually to its termination, “not with a ‘bang’ (and a new creation), but with a terminal ‘whimper’” (42).
33 Ibid., 4.
goal – the regulation of surface conditions so as always to be favourable as possible for contemporary life.” Ruether incorporates little of the scientific details of the Gaia theory, as explained by Lovelock, into her work. The intricacies of how the atmosphere, biosphere, lithosphere, hydrosphere and barysphere form a single self-regulating cybernetic system are not dealt with. Ruether relies instead on the biological science of Paul and Anne Ehrlich to demonstrate the laws by which nature, independent of human management, has generated and sustained life. 

Ruether holds Gaia more as a metaphor for the sacramental nature of Christianity in a dialectic tension with the God of the covenant. The term Gaia certainly carries a religious-spiritual meaning to it – something understood by Lovelock himself when he chose it – as the name refers to the Greek Earth Goddess. However, Ruether does not suggest replacing the Christian male monotheistic God as a hostile concept with Gaia as an immanent female goddess. Gaia, for Ruether, serves as the other voice which calls us into communion, a voice that “has long been silenced by the masculine voice” of power and law which – when authentic – speaks on behalf of the weak to protect the powerless and to restrain the power of the mighty. Still, while not exploring the intricacies of Gaian theory, Ruether uses it as a platform to present the work of paleontologist Pierre Teilhard de Chardin which, she claims, meshes well with Gaia theory.

Teilhard de Chardin’s explanation of Earth’s evolution is important to Ruether’s program, as it is to all four Christian thinkers I am studying, for it makes room for consciousness in the world in a way that eschews dualistic thinking, while simultaneously challenging any

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35 I find her use of the Ehrlich’s writings for this purpose somewhat curious; it does not adequately explain – as the Gaia theory does – why Earth, as a whole, maintains homoeostasis which is viable for life to thrive through cybernetic, self-regulating feedback systems within the barysphere, lithosphere, hydrosphere, biosphere and atmosphere. Given her intention to de-emphasize our role in managing Earth systems, and to emphasize Earth’s self-regulating system, one would think the scientific details of the Gaia theory – of which she was obviously familiar – would feature more prominently.
36 It is interesting here to note that Lovelock, when formulating his hypothesis, originally was thinking of naming it the “Biocybernetic Universal System Tendency/Homoeostasis.” “Fortunately,” as Lovelock himself puts it, author and friend William Golding was a fellow villager and when Lovelock discussed with him his proposed name Golding recommended instead Gaia, after the Greek goddess: see James Lovelock, *Gaia*, 10.
38 Ibid., 242-243. Ruether sees Teilhard de Chardin’s work as representing an important step in incorporating new scientific developments in the Earth’s evolution and quantum physics.
notion that thought implies a hierarchy of being. In addition to Earth’s many interconnected self-regulating spheres as mentioned above, Teilhard de Chardin posits yet another sphere, the “noosphere,” which Ruether describes as the thinking mind of the human “that is privileged to contemplate the cosmic process [which] beams outward from this one planet, and perhaps from this planet alone.” In Teilhard de Chardin’s own words, with the advent of the human being, there was an instantaneous leap from instinct to thought, which he terms “hominization.” Earth, according to Teilhard de Chardin, “gets a new skin,” the noosphere. His hypothesis ties the geogenesis to the biogenesis, ascending ultimately to a psychogenesis which terminates in what he calls the “Omega Point.” Teilhard de Chardin’s thinking, then, offers Ruether a unique representation for the increasing organizational complexity found in evolution while simultaneously allowing for a raison d’être for the human that does not ascribe a managerial function to it.

Arguably most important to Ruether’s ethical vision is Teilhard de Chardin’s challenge to scientific dualistic thinking. Working from findings in quantum physics, Teilhard de Chardin posits that energy (which we will see can also be understood as spirit) and matter are not dichotomized but the inside and outside of the same thing. As Ruether explains:

> When we proceed to the inward depths of consciousness or probe beneath the surface of visible things to the electromagnetic field that is the ground of atomic and molecular structure, the visible disappears. Matter itself dissolves into energy. Energy, organized in patterns and relationships, is the basis for what we experience as visible things.

To Teilhard de Chardin, all energy is psychic in nature composed of tangential energy (as understood empirically by science) and radial energy (as hypothesized by Teilhard de Chardin as a cosmic energy that does not suffer entropy and constantly increases). Our intelligence,

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39 Ibid., 43.
41 Ibid., 202.
43 Rosemary Radford Ruether, “Toward an Ecological-Feminist Theology of Nature,” in *Readings in Ecology and Feminist Theology*, eds. Mary Heather Mackinnon and Moni McIntyre (Kansas City, Mo.: Sheed and Ward, 1995), 89. Note that this article comprises a good portion of Ruether’s Chapter 3 of *Sexism and God-talk*.
44 It is this latter energy which is the spirit within. Teilhard de Chardin, *Phenomenon of Man*, 70-71, 79, 318. Teilhard de Chardin states that to make room for thought in the world, he had to “interiorize” matter, which meant
according to Teilhard de Chardin, is an intense form of this radial energy. Mind is no longer the antithesis to body but the inside or interiority of matter. Mind or consciousness, therefore, does not originate from outside nature or in some transcendent world, but has been present in some form from the beginning of time. The role of the human is underscored in this regard, for, as Ruether puts it, mind now represents “the place where nature itself becomes conscious.”

Applying the arguments above to nature and non-nature, and indeed male and female, Ruether can challenge the dualisms as well as the hierarchical thinking that undergird the logic of domination. Hence, in opposition to the chain of being described earlier, “The chain of being has been laid on its side, so to speak.” To be sure, to fully conclude this, Ruether needs to modify Teilhard de Chardin’s thinking which is unabashedly anthropocentric. She does this by looking for continuities between human consciousness and the radial energy of matter throughout the universe. In this way, for example, our intelligence, while special, is not without continuity with other forms. She states, “it is the self-conscious or ‘thinking dimension’ of the radial energy of matter.”

In summary, Ruether’s studies of cosmogony, the evolution of Earth, and subatomic physics have allowed her to challenge notions that there exists a radical dichotomy between humans and other-than-humans, or between energy and matter. We are not only stardust but the elements of our bodies “have been circulated billions of times through other biotic and abiotic beings throughout the 4.5 billion years of earth’s evolution.” Ruether suggests the story of Earth’s “creation,” as put forth by science, can serve as a myth in the classic sense whereby mandates for ethical relationships emerge. It is a deeply interrelated universe where “both earth
science and astrophysics give us extraordinary and powerfully compelling messages about our kinship, not only with all living things on earth, but even with distant stars and galaxies.\textsuperscript{49}

This is not a romantic ontology that Ruether is painting, as she herself claims. Since spirit and matter are the inside and outside of the same thing, her framework represents an embodied or Earth-bound spirituality which is scientifically-inspired. In this way, the spirit believed to exist in plants or animals by some Christians should be considered not in anthropomorphic but in “biomorphic” terms.\textsuperscript{50} Hence, from an ethical standpoint, “We respond not just as ‘I to it,’ but as ‘I to thou,’ to the spirit, the life energy that lies in every being in its own form of existence. The ‘brotherhood of man’ needs to be widened to embrace not only women but also the whole community of life.”\textsuperscript{51}

The above investigation of astrophysics, Earth evolution and sub-atomic physics lays a foundation for viewing the universe as deeply relational. It is through a study of ecology as a branch of the biological sciences, which receives the most attention from Ruether. She utilizes ecology to formulate a new ethical vision based on radical interdependency of all Earth’s systems. Here again, she relies much on the works of Paul and Anne Ehrlich. Ruether believes ecology, unlike the modern physical and biological sciences which are only descriptive, is “normative” or “ethically prescriptive.”\textsuperscript{52} In saying this, she suggests that we are restoring the classical role of science.\textsuperscript{53}

\textsuperscript{49} Ibid., 48.
\textsuperscript{50} Ruether, “Toward and Ecological-Feminist Theology,” 90.
\textsuperscript{51} Ibid., 90.
\textsuperscript{52} Ruether, \textit{Gaia and God}, 47.
\textsuperscript{53} In an interview I had with Ruether (San Francisco, November 2011), she clarified that a return to the classical role of science indicates a return to how science was understood by Plato, Aristotle, and medieval scholars, where the assumption was that the order of nature was created by God. This, she believes, is the understanding of natural law as being the extension of the mind of God; hence, the order of nature was not just some mindless data but something created by the mind of God and therefore had to have some normative status. She concludes that there must therefore be some kind of ethical mandate from that, which for her, is the basis of natural law. The modern ecology movement, she states, takes this idea and, without making any connection to a mind of God, similarly finds a normative order in nature. She puts it like this: “A forest doesn’t produce pollution by itself because it has a built-in system in which the birds and insects disintegrate everything in the cycle. Humans violate that. The way in which nature causes things to recycle is seen as having a normative status and is an ethical critique therefore on how humans are not following nature.” I will revisit this notion of natural Law in Chapter 7. My contention is that while maintaining a connection to the mind of God, the form in which Ruether (and my other interlocutors) find science normative differs in the way natural law is traditionally understood in Catholic thinking; hence, it is inappropriate to speak about any restoration of it, even if Ruether herself uses it.
She finds that ethical norms arise as one investigates the dynamics among air, soil, water, plants, rock and animals that sustain life. Conversely, our failure to take heed from what nature tells us is the cause for Earth’s destruction. For example, she states, “The crisis of pollution that distresses modern civilization results, in large part, from its failure to imitate nature in [its] system of recycling.”\textsuperscript{54} Similarly, our oversimplification of ecosystems, as evidenced through monoculture farming, makes a crop prone to collapse by “cogenerating an excessive population of one type of insect that will feed on this one plant.”\textsuperscript{55} This process ignores the demand for diversity, a lesson learned by observing how Earth works. With the same line of reasoning, Ruether concludes that the escalating human population is equally unethical as it “represents an extreme case of such a proliferation of one population, which threatens to strip the planet of its life basis and thus eventually to destroy itself.”\textsuperscript{56} And since humans have no substantial predators, it is up to us to self-limit.

Equally unethical, if we are to treat ecology as normative, is the human-heightened regard Western civilization has for competition. Here, Ruether is borrowing upon Lynn Margulis’s discussions about symbiosis, the merging of organisms into new collectives, and its importance within the evolutionary framework. Margulis’ research, as we discussed briefly in the introduction to this dissertation, demonstrates that life on Earth evolved in novel ways through symbiotic relationships. She finds evidence that suggest that parts comprising present microbes were once independent organisms. It was not a mere branching from one mutant cell to others, that led cells to evolve, but the merging of cells, a fusion, so to speak which, through time, led to the development of organelles within cells, including the nucleus.\textsuperscript{57} Life, Margulis shows, is symbiosis. Ruether concludes from this that,

Cooperation and interdependency are the primary principles of ecosystems, within which competition between populations stands as a subcategory that serves to maintain this

\textsuperscript{54} Ruether, Gaia and God, 53.
\textsuperscript{55} Ibid., 54.
\textsuperscript{56} Ibid., 54.
\textsuperscript{57} I will deal with Margulis’ theory in more depth in Chapter 8. Though Ruether’s understanding of Margulis’ work is correct, Ruether is not very detailed in her account of it. And while Ruether appears to consult an earlier book by Margulis (Lynn Margulis and Dorion Sagan, Microcosmos: Four Billion Years of Microbial Evolution (New York: Summit Books, 1986), Ruether is not as detailed with her referencing either; cf.: Lynn Margulis, Symbiotic Planet, 37. In this way, chloroplast is a result of oxygen-breathing bacteria eating green photosynthetic bacteria without being able to digest them. Eventually, chloroplast formed into part of the oxygen-breathing bacteria’s body, referred to here as organelles. An organelle is to the entire cell what an organ is to the body.
interdependency in a way that sustains the balanced relation of each population in relation to the whole.\footnote{Ruether, \textit{Gaia and God}, 56. Margulis (\textit{Symbiotic Planet}, 98), concludes that symbiosis is crucial to understanding evolutionary novelty and the origin of species. Interestingly, she notes that we are “rebuilt” every two decades or so by fused mutating symbiotic bacteria (98): “Our symbiotic composite core is far older than the recent innovation we call the individual human. Our strong sense of difference from any other life-form, our sense of species superiority, is a delusion of grandeur.”}

Consequently, Ruether maintains that our cultural concept of competition is mistaken, as it is mutually exclusive, always imagining the other side as an “enemy” that ought to be “annihilated.”\footnote{Ruether, \textit{Gaia and God}, 56.} The lessons from biology and ecology, however, demonstrate quite the opposite: that the other is “an essential component of an interrelationship upon which it itself interdepends.”\footnote{Ibid., 56.}

1.3 An Analysis of Ruether’s Ethical Vision

As a broad summation of Ruether’s ethic, then, we can quote her from \textit{Gaia and God}:

“Human ethics should be a more refined and conscious version of this natural interdependency, mandating humans to imagine and feel the suffering of others, and to find ways in which interrelation becomes cooperative and mutually life enhancing for both sides.”\footnote{Ibid., 56.} Ruether’s employment of science upholds this natural interdependency – which is in keeping with her ecofeminist thinking – depicting an expanding universe that is relational, interconnected, interdependent and finite. She thus presents a scientific basis for dismissing dualistic and hierarchical thinking that undergirds the logic of domination predominant in Western society. Science is providing a myth, guidelines, as well as models that can help us change how we see the world and ourselves in it. As early as 1983 in \textit{Sexism and God-Talk}, Ruether summed up the process of obtaining a new ethical vision as the conversion of our minds to nature’s logic, which means understanding – through science – what that relational logic of natural harmony entails. We learn to subsume our human anthropocentric ethic into the larger not-just-human “ecologic” which maximizes the welfare of the whole rather than undermining and subverting the life systems which support us.\footnote{Ruether, \textit{Sexism and God-talk}, Chapter 3.}
Much along the lines of a bioregional model, then, we learn from nature how to cultivate the welfare of the whole ecological community. It is within such a model that humans can begin to develop the sustained relational logic of natural harmony with humans and the entire Earth community. She states:

Many cultures of indigenous people of the Americas, Asia, Africa and the Pacific Islands, long scorned as ‘pagans’, have begun to be accorded more respect as we recognize how each of these peoples created their own bioregional culture that sustained the local human group as part of a community of animals and plants, earth and sky, past ancestors and future descendants.  

Within Ruether’s bioregional model, therefore, the human and the concomitant need for justice are integral. She explains:

Converting our minds to earth cannot happen without converting our minds to each other, since the distorted and ecologically dysfunctional relationships appear necessary, yet they actually support the profits of the few against the many. There can be no ecological ethic simply as a new relation of “man” and “nature.” Any ecological ethic must always take into account the structures of social domination and exploitation that mediate domination of nature and prevent concern for the welfare of the whole community in favor of the immediate advantage of the dominant class, race, and sex. An ecological ethic must always be an ethic of ecojustice that recognizes the interconnection of social domination and domination of nature.  

Ruether’s analysis of a dynamic between ecological and social justice as two unique, yet inseparable, approaches is in keeping with her dialectical methodology. Such a dialectic reveals itself in the titles of many of her books: *New Woman and New Earth, Gaia and God* and *Sexism and God-Talk*. In analyzing Ruether’s ethic, then, it helps to view it broadly within this line of reasoning, as a dynamic balance between two realities. Apart from the ecological and social justice dialectic above, another worth discussing is the one between our vulnerability and dependency as embodied, finite beings on the one hand, and the necessities of responsibility and empowerment through community on the other.

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64 Ruether “Toward an Ecological-Feminist Theology,” 93.

By converting our minds to nature’s logic, or more simply to Earth, as Ruether also puts it, we are also accepting our vulnerability to the violent tragic force of nature, suffering, limits and death. To be sure, such vulnerability does not imply the act of being wounded or in a situation of immediate danger; these Ruether would say should be avoided or reduced. Instead, vulnerability, viewed as a permanent anthropological condition, undergirds Ruether’s ecofeminist thinking. Such vulnerability lies in contrast to patriarchal theology that seeks to escape the horrors of our Earthly, embodied existence in return for “immortal blessedness” or invulnerability that frees us from our finite limits.

Vulnerability, for Ruether, implies an utter dependency on all the systems that support life. Hence, dependency is also a fundamental character of human existence for Ruether, a point noted by Lucy Tatman in her analysis of Ruether’s ecofeminist theology. Ruether posits that in recognizing that we are utterly dependent, we recognize ourselves as finite organisms that eventually “disintegrate back into the nexus of life and arise again in new forms.” Tatman, quoting from Ruether’s Women and Redemption, underlines that Ruether sees redemption occurring when aspects of the mortal life, such as vulnerability, are accepted:

We can then recognize that the fragile fruit of the tree of life is indeed lovely and good for discernment, and eat the fruit with relish, making it a part of our bodies. This is the possible redemption of life on earth. But it is possible only when we put aside the impossible redemptions of final conquest of limits in a realm of immortal life untouched by sorrow, vulnerability, and finitude.

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67 We can see this contrast in a number of her writings: Ruether, “Ecofeminism Symbolic and Social Connections,” 53, and “Ecofeminism: The Challenge to Theology,” 109.

68 Rosemary Radford Ruether, To Change the World: Christology and Cultural Criticism, (London: SCM Press, 1981), 1, 66-67; Ruether, “Ecofeminism Symbolic and Social Connections,” 54-55. At the same time, neither Ruether nor our other Christian thinkers, as we shall see, deny the value of producing technologies that save lives, such as pace makers, vaccines or water-cleaning filters. The difference lies in emphasizing a quality of life over a denial that, eventually, we all die.


Borrowing upon the work of ecofeminist theologian, Ivone Gebara, Ruether demonstrates that redemption on Earth comes only when we abandon notions of invulnerability. When we do this, death becomes an integral part of life, not something foreign to it which, Ruether stresses, has been the claim of traditional Christian cosmo

The conversion of our minds to nature’s logic facilitates our embrace of these fundamental characteristics of human existence, such as death. But since we cannot convert our minds to nature’s logic without also converting our minds to each other, as indicated above, we begin to see how vulnerability and dependence relate to responsibility and empowerment in a dynamic balance. To be precise, as Tatman points out, when Ruether is speaking of “other” she is referring to the entire community of being: past, present and unknown future. Such solidarity with the other in community – from the human community to the biotic community to the God/ess or the “empowering matrix” in whom we live and move and have our being – is where the process of empowerment unfolds. According to Tatman, Ruether conceives of an empowering matrix marked by a “yearning or a desire for relational mutuality among and between all aspects of creation.” In this light, it is also not surprising that in many of her writings Ruether commends the work carried out by women religious communities and some of their ecologically oriented movements such as Sisters of Earth in the United States. She states, “This movement recognizes that the private individual or even the nuclear family is too fragmented and isolated to be a base for ecological living. One must start with a community a little larger, living together with some roots in the land,” as suggested in a bioregional model. Such a communal base, enjoined by an ecofeminist vision and its application in liturgical life and service, Ruether believes, has enabled women religious “to reclaim the best of past monastic life

73 Tatman, 177; cf. Ruether, Sexism and God-talk, 266-257; also, Roseland Hintin, “A Legacy of Inclusion.” It is interesting to note that Hintin concludes that Ruether has a community behind each book that she has written; she gets involved with issues and the people themselves mean much to her; cf. Rosemary Radford Ruether, “Reflections on Being a Catholic,” Consciences: A Commemorative Issue 23, no. 2 (Summer 2002): 38, available online: http://viewer.zmags.com/publication/946fc2f8#/946fc2f8/40, accessed October 2011. This relates to the notion of responsibility: Ruether explains why she remains in the Catholic Church, of which she is very critical: she feels it necessary for people to take responsibility for the communities in which they have been born and choose to live.
74 Tatman, 177.
75 Ibid., 178.
with the call to renewal.” In this light, it is also not surprising that Ruether gives prominence in her later writings to the Earth Charter as a means to responding to our ethical challenges. The charter itself stresses “a new sense of global interdependence and universal responsibility.”

Understanding the frameworks above, we begin to get a sense of perhaps the most demanding aspect of Ruether’s ethic: contending with the valuation of different forms of life: the human and non-human. As Steven Bouma-Prediger points out, value for Ruether serves as both necessary and sufficient condition for ethical obligation. This being the case, because we depend on the collective life systems of Gaia, as well as on each other, Gaia and all humans should gain value. Does this imply an instrumental valuation of life forms? Not for Ruether, as each life form has its own purpose, its own right to exist. Nevertheless, consciousness, Ruether adds, allows humans an element of volitional power that seeks to rearrange patterns in nature to suit our demands. This last point is important for Ruether. With our self-conscious ability, she likens the human’s role to that of a caretaker or gardener though not because nature needs us to manage its processes; quite the contrary; we inherit this role of caretaker because of our capacity to create dysfunctional relationships that destroy nature. This does not imply a freedom to do what we will, however, as we saw earlier: we are also constrained by nature’s ecologic system.

The issue of valuation becomes more complex when we try to reconcile the preferential option for the marginalized human with that of the marginalized non-human. Ruether recognizes that there is violence and bloodshed in nature; however, with the exception of the human, she

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77 Ibid., 228; cf. Ruether, *Integrating Ecofeminism, Globalization*, 150; here, Ruether praises the work of various alternative agriculture movements that have organized collective and viable responses to corporate industrial (and unsustainable) farming. We can see this sense of empowerment through community in the organizations and movements she mentions, such as *Sem Terra* (a movement in Brazil of landless workers to gain land, and economic and social justice) and *Via Campesina* (a global umbrella organization that defends small-scale sustainable agriculture as a way to promote social justice and dignity), including the fair trade movement.

78 Rosemary Radford Ruether, *Christianity and Social Systems: Historical Constructions and Ethical Challenges* (Landham, Md.: Rowman & Littlefield Publisher, 2009), 264. Ruether reproduces the Charter in its entirety as an appendix to this book; the Charter underlines that “it is imperative that we, the peoples of Earth, declare our responsibility to one another, to the greater community of life, and to future generations;” cf. Rita M. Gross and Rosemary Radford Ruether, “Christian Resources for Ecological Sustainability,” in *Religious Feminism and the Future of the Planet: A Christian-Buddhist Conversation* (London: Continuum, 2001), 198-199.

79 Ibid., 88.

80 Ibid., 88.

states, this takes place within its own built-in balances. Ruether notes how theologian Jay McDaniel once agonized how the pelican, given two eggs so that at least one will survive, once the first hatches, will peck the second to death and throw it out of the nest. So while sentimen
tality for the second pelican would be misplaced, as this is the logic of nature, sentimen
tality for an impoverished mother with two children whom she cannot afford to feed is not, as this is the logic of the human-within-nature. It is the human being alone that has no such built-in balances, through instinct or predation – other than through our ethics – which is telling us to self-limit. While this might sound problematic, Ruether explains. She states, for example: “When I garden, I would be foolish to make a preferential option for the weak and the diseased. I need to root out the excess growth of many plants so that a few, the healthiest, can grow well.” Does this mean we ought to root out the excess growth of the overabundance of humans populating the Earth? The answer is a qualified yes. She does not suggest, however, that we root out the overabundance of humans through the same means she would weed or squish a slug eating her cabbage. Nor does she suggest culling the weak and diseased humans. Understanding the distinction here is crucial to understand how Ruether envisions her ecological ethic.

Ruether posits that human consciousness includes impulses to loving care of others which allow us to self-limit and in a way that is just. For example, we deal with the overabundance of humans populating the Earth not by force, but by limiting future births through education and by providing resources (such as contraception) to the mother of two children mentioned above; but it does not end there. We rectify the conditions (such as malnutrition and unclean water) that lead to an untimely death of her child. We could say – in keeping with our observation above – that within her bioregional framework, the ecological call to sustainability is held in an uneasy tension with the preferential option for the poor by correcting the destructive “option for the rich at the expense of the well-being of the whole community of life.”

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82 This aspect of Ruether’s writing is challenged by Lisa Sideris, as we shall see in Chapter 6. Sideris criticizes Ruether, and not without warrant, for seemingly positing only the human being as the source of environmental destruction. Ruether tends to accentuate the “balance” aspects of ecosystems over their also evident chaotic character.
83 Ibid., 109-110.
85 Ibid., 109.
pragmatically, “To refuse to limit ourselves rationally means that these limits are imposed cruelly and violently.”

We can see two logics at work in Ruether’s ethic. While we recognize our vulnerability and utter dependence, we are also responsible and can become empowered through community. Hence, both the logic of nature and consciousness play decisive roles in Ruether’s understanding of liberation. In this way, while “all life forms exist through an interdependency of consuming and being consumed,” Ruether stresses that a different ethic must apply to the protection of human life because humans (because of our consciousness) live within a different context or “plane” of reality. She writes, “The ethical principles applicable to the protection of human life cannot be exactly identified with those appropriate for highly sentient mammals.” Does this imply a hierarchy? Not so, says Ruether. In ecological thinking, the hierarchical model of reality is misleading, as no part is intrinsically higher or lower. She writes:

Plants are not ‘lower’ than humans because they don’t think or move. Rather, their photosynthesis is the vital process that underlies the very existence of the animal and human world. We could not exist without them, whereas they could exist very well without us. Who, then, is more important?

With this same line of reasoning, Ruether finds the demand for animal rights to be morally unconvincing. She observes ambiguities and some arbitrariness from its proponents, such as Tom Regan, who readily extends rights to mammals but is “unclear about extending it to fish and fowl, much less, lesser life.” This does not mean we are to condone cruelty to animals in laboratory experimentation, or in factory farming. But, in keeping with dynamic balance between different contexts or “planes” of reality, a blanket call to vegetarianism cannot be supported. She states, “All humans do not dominate nature equally, view themselves as over nature or benefit from such domination,” hence, she concludes: “we can hardly impose a vegetarian ethic on

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86 Ibid., 109.
87 Ruether, Gaia and God, 223.
88 Ibid., 226.
89 Ruether, To Change the World, 67.
90 Ruether, Gaia and God, 223.
third-world peasants for whom the eating of the occasional chicken or pig that grows up in the barnyard is an indispensable part of an otherwise very limited diet.”

Again, as we saw earlier, Ruether is seeking a dynamic balance between justice and ecological sustainability, but she appears to steer away from science in doing so. To understand this balance, we must see that it occurs within the larger philosophical-theological framework of process thought, which Ruether discusses in *Gaia and God* and incorporates into her other writings. Building upon the philosophy of Alfred North Whitehead, process theology postulates a dipolar God whose primordial nature contains the whole of potentiality of all entities that exist. This nature of God also provides the initial aim for these entities. Each entity, however, has its own subjectivity, the ability to adapt and actualize or even thwart this aim of God. But the fulfillment of this aim can only be partial. This thinking undergirds why for Ruether nature is never “perfect” or in a paradisiacal state. While Ruether believes nature can be cruel, it is not fallen. In fact, Ruether eschews the Christian prelapsarian notion of a paradisiacal nature. Nature is not capable of completely fulfilling human hopes for the good. However, because our consciousness and aspirations also represent the evolutionary growing edge of what is “not yet” realized, humans take on a role of imperfect co-creators in an imperfect world. We pass on our

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95 Ruether “Toward and Ecological-Feminist Theology,” 93. Ruether does not believe – as in the traditional Catholic sense – that nature is fallen; rather, nature is “marred and distorted by human misdevelopment.”

96 It becomes obvious that the traditional Christian notion of original sin whereby the first humans – first through Eve – ate of the forbidden fruit and thus made humans culpable for their own finitude is eschewed by Ruether: “The evaluation of mortal life as evil and the fruit of sin has lent itself to an earth-fleeing ethic and spirituality,” Ruether writes, “which has undoubtedly contributed very centrally to the neglect of the earth, to the denial of our commonality with plants and animals, and to the despising of the work of sustaining the day-to-day processes of finite but renewable life” (*Gaia and God*, 139). Moreover, such despising of finitude led to the theological and sociobiological subordination of women (see *Women and Redemption* 6-7). What might be considered “original or inherited” sin for Ruether (outlined in *Gaia and God*, 139-142), are the historical systems and ideologies of culture and social organization that negate our relationality with all creation, which all humans inherit by virtue of our freedom to choose and by being social beings. We participate in our “original goodness” (a way of being human, the initial aim for these entities given by God), in an uneasy embrace with the ‘not yet’ of creation, by restoring biophilic and human relations that are just and life-giving.
ideals to the future “by partly reshaping ‘nature’ to reflect our ideals.”\textsuperscript{97} This is a theology of becoming.

There is a certain reasonableness to Ruether’s ethical vision. Within the frameworks she provides, an uneasy balance between the needs and desires of all life is supported. With this attention to the “not yet” “partial fulfillment,” of creation, it should not be surprising that Ruether eschews ethical monism. Any application of a single set of principles that are all-encompassing has no place in her worldview.\textsuperscript{98} Instead, Ruether’s is a moral pluralism where a plurality of values needs to be balanced in relation to each other. Her specific framework is crucial to understanding her ethic though, otherwise we unwisely spin our wheels, so to speak, on trying to make sense of the plight of the second pelican, ignore the plight of the woman and her child, or resist self-limitation, only to have limits cruelly imposed upon us down the road. But this does not mean her ethic is without difficulties.

Notwithstanding its logic, one has to question the extent to which Ruether’s ethical vision has avoided a form of anthropocentrism. I contrast here what I term a strong anthropocentrism to a weak anthropocentrism. A strong anthropocentrism takes the view that value is to be accorded to the human, thereby placing humans above and apart from all other life forms. A weak anthropocentrism takes the view that reality can only be interpreted from a human point of view, thereby still according some centrality to the human. While it is true, as Ruether states, “Clearly the anthropocentric claims to have been given “dominion” over the earth, and over all its plants and animals, appears absurd in light of the 4,599,600,000 years in which each got along without humans at all!”\textsuperscript{99} Ruether still seems to have us in the driver’s seat of evolution and not simply because we are capable of destroying it. While humans take on a role of imperfect co-creators, or caretakers, in an imperfect world, Ruether stresses that humans are uniquely situated as mediators between the realities of the subatomic and the cosmic realms.\textsuperscript{100} This phenomenal position grants us a more engaged function beyond that of mere caretaker, since it is we who reshape nature to reflect our ideals. As it stands, we are the ones deciphering the logic we find in

\textsuperscript{97} Ruether, \textit{Gaia and God}, 31.
\textsuperscript{98} Ibid., 225.
\textsuperscript{99} Ibid., 45
\textsuperscript{100} Ibid., 249.
nature; and while this privilege carries with it a responsibility, it is nevertheless we who decide what constitutes responsible action, not the pelican. While the anthropocentric character in her ethical vision appears to be more of the weak kind, it cannot be described as very week either. Ruether does not make a distinction between these two understandings of the term, which is why I raise it here.

Related to the above, Stephen Bede Scharper takes issue with Ruether’s insistence that humans are situated as mediators between realities while simultaneously she rejects any dualism between the male and female. He claims that in doing so, Ruether, despite her claims to the contrary, advocates a “managerial ‘dualism’” between humans and other-than-humans, while eschewing any such hierarchical import between males and females. How can we account for this seeming inconsistency? Scharper states, “Since ecofeminists want ‘humans’ to act responsibly in regard to ‘nature’, they seem to credit humans with the higher faculty of critical intelligence.” In fact, we see this above with Ruether’s reference to different planes of reality: the pelican does not receive the status of gardener. At the same time, as Scharper points out, for Ruether there is no higher or lower in this regard when it comes to men and women. Scharper suggests that Ruether is simply not recognizing the limits of dualistic discourse: she seems to be contending with different dualisms, one that is completely eschewed (the human-human) the other, which is only partially eschewed (the human-nonhuman).

Finally, readers might notice how Ruether appears to use redemption practically interchangeably with liberation, evidenced above, for example, when Ruether posits that redemption on Earth comes only when we abandon notions of invulnerability. In fact, reading Ruether’s various works, we find a blurring of the boundaries between redemption and liberation. The use of both terms, therefore, warrants some discussion. In *Women and Redemption* she traces the notion of redemption and shows how it changes through time from its original Hebraic Earthy (social, historical) notion to its otherworldly individualistic reconciliation with a God out there and beyond Earthly existence, back, in some ways, to its

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102 Perhaps this discrepancy is a result of Ruether having two logics at work simultaneously.
more original form as being Earthy, tied to a finite existence and the construction of the “kingdom” here and now. Certainly, with Ruether’s strong emphasis on the person and community as a source of one’s own redemption (not having to rely on an exterior savior figure), and with her severe downplaying of any afterlife that splits body and soul, we can see why she can speak of redemption as the transformation of the human into life-giving relationships – and not as any form of escape to the afterlife. Redemption, if it is to occur, happens here and now on Earth; it is a shift away from the modern Western cultural other-worldly construct to a this-worldly hope. It is also not primarily about being reconciled with a God either, but more about reconciling ourselves to one another and Earth. She writes:

Redemption puts us back in touch with a full biophilic rationality of humans with their bodies and one another and rebuilds social relations that can incarnate love and justice. The redemption is about the transformation of self and society into good, life-giving relations, rather than an escape from the body and the world into eternal life.

She adds, seemingly as a theological caveat, “Other-worldly eschatology is usually not explicitly denied, but it is put aside.”

We can compare the above understanding of redemption to what she writes about liberation in her book, Liberation Theology: Human Hope Confronts Christian History and American Power. Ruether argues that liberation is,

a veritable resurrection of the self…a violent exorcism of the demons of self-hatred and self-destruction which have possessed [the oppressed] and the resurrection of autonomy and self-esteem, as well as the discovery of a new power and possibility of community with their brothers and sisters in suffering.

She further complicates the issue by suggesting an integral connection between the inner self-liberation as the conscientization process, and a redemptive rebirth; conscientization here – which has always been used as a term to denote the process of liberation – is also redemptive.

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104 Ruether, Women and Redemption, 253.
105 Ibid., 6-7.
106 Ibid., 7.
107 Ibid., 7.
108 Ibid., 7.
110 Ibid., 12.
111 Ibid., 178-179.
112 Ibid., 183.
Indeed, when liberation is defined as a restoration of the human to her or his true self, and a reintegration of creation with its true destiny as “God’s kingdom,” how are we to distinguish it from redemption that has no other-worldly import? Even Mary Grey, in her Foreward to *Introducing Redemption in Christian Feminism*, writes that redemption is more like a cluster of concepts that take in sin, salvation, grace, and the saviour figure. She concludes, “Redemption is clearly conceptualized on a global perspective as the path of liberation transforming both people and oppressive social systems.”\(^\text{113}\) Could it be that Ruether sees redemption as a means to liberation which is the end? If so, why would she suggest we rid ourselves of redemption if it is the means? We can take, for example, how Ruether ends her book *Introducing Redemption in Christian Feminism*. In reciting the Beijing Women’s Conference in 1995 as being all the redemption we need, she suggests, as well, that maybe the idea of redemption should come to an end, or at best be understood like this:

> Bread. A clean sky. Active peace. A woman’s voice singing somewhere. The army disbanded. The harvest abundant. The wound healed. The child wanted. The prisoner freed. The body’s integrity honored, the lover returned…labor equal, fair and valued. No hand raised in any gesture but greeting. Secure interior – of heart home, and land – so firm as to make secure borders irrelevant at last.\(^\text{114}\)

Of course, we could attribute such blurring of the boundaries between redemption and liberation simply as lack of clarity from Ruether. According to ecofeminist Heather Eaton, who has collaborated much with Ruether throughout the years, such a conclusion cannot be rejected entirely.\(^\text{115}\) I do not suggest here that Ruether willingly conflates the two terms – thus retaining a theological distinction between the terms for traditional theological purposes; rather, she wants to re-think our use of the notion redemption, and play up its liberation elements while downplaying its salvific (other-worldly) elements. Reasons why notwithstanding, I think it reasonable, for our purposes, to understand redemption and liberation, with regard to Ruether’s ethical vision, as being virtually interchangeable terms.

\(^{114}\) Ruether, *Introducing Redemption in Christian Feminism*, 120.
\(^{115}\) In an email conversation on this matter.
1.4 The Epistemology and Methodology Backing Ruether’s Ethical Vision

When it comes to knowing, Ruether’s feminist epistemological foundations become starkly evident. Ruether places her starting point on experience, though, in her case, it is unambiguously the experience of women where her investigation begins. As a result, we find Ruether less focused on any discipline (be it cultural history, theology or science) and more on context and relationality. Again, showing her ecofeminist credentials, Ruether eschews abstract hierarchical dualistic notions that emphasize the rational thinking processes over the intuitive, imaginative and embodied ways of knowing. In Sexism and God-Talk, for instance, Ruether discusses the problem of using only left-brain thinking: this is linear thinking, she avers, which simplifies, dichotomizes and focuses on parts and fails to see the larger rationality of interdependence. Epistemologically, Ruether seeks a balance of tensions, a point between linear thinking and spatial and relational thinking, which uses the whole brain, both its left and right hemispheres. And in keeping with her affinity to process thinking, like Leonardo Boff and Diarmuid O’Murchu – as we will see – what we consider truth is an ongoing incomplete epistemological endeavor, which never ends, giving truth as she puts it, a “status viatoris.”

Ruether conforms to a “feminist standpoint theory” of understanding where knowledge about reality, while attainable, is nevertheless the product of a critical engagement within one’s life as it is lived. We see this readily in Ruether’s writing:

It became necessary to recognize that the world not only appears differently according to our standpoint toward it and methods of addressing it, but itself will be constituted differently by the stance assumed toward it. Rather than assuming a standpoint outside of and unrelated to reality, from which ‘objective’ knowledge is possible, the observer is an integral part of the reality observed.

Ruether is not espousing a purely subjectivist epistemology: while all standpoints differ, her way of knowing the world is also expressly communal. Lucy Tatman likens it to a shared, “participatory discernment” that comprises self-critical reflection, “painstaking, roll-up-the-

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116 Ruether, Sexism and God-talk, 89-91. Not surprisingly, as we noticed with regard to her approach to ethics, there is dynamic tension in her knowledge making too: her embrace of process thought, the ideals held by the human are forever held in an uneasy embrace with the “not yet” of creation, and knowing through physical observation is held in a dynamic tension with intuition.
118 Tatman, 96 ff.
119 Ruether, Gaia and God, 39.
shirtsleeves, get-your-hands-dirty work…that requires that I acknowledge the other member of the epistemic communities of which I am a part…”\textsuperscript{120} It is for this reason that Ruether stresses,

But such a fuller integration of the sciences necessary for the fullest reflection on the question of human liberation today cannot be done by a single scholar. It waits upon a multi-disciplinary team work that can integrate the many sources of data and the types of reflection and symbolization around the core of theological reflection. Only with such a multi-disciplinary integration of human sciences can we begin to speak of the basis for a theology of liberation adequate to the present human situation.\textsuperscript{121}

These epistemic communities are not limited temporally, physically, nor by any cultural or physical differences such as race, sex or religion. And while less explicit than our other interlocutors about where nature’s voice comes into play, Ruether maintains nature’s voice comes into the conversation through our empirical sciences and through our senses and our poetry.\textsuperscript{122}

The epistemic communities Ruether defines are, as Tatman suggests above, communities of “shared truths”\textsuperscript{123} which, somewhat pragmatically, demand of its members a certain responsibility to ensure the liberation of others is facilitated. What is constituted as the web of relationship, Tatman states, “will also be shaped by how we relate to it. The knower[s] must take

\textsuperscript{120} Tatman, 258. Like our other interlocutors, as we will see, Ruether’s epistemology parallels a critical realism in that she views human knowledge as being, at least in part, a product of the various ideologies, attitudes, agendas, and data that constitute the culture and individual location of the knower (from personal interview).

\textsuperscript{121} Ruether, \textit{Liberation Theology}, 2; writing almost twenty years later, Ruether upholds this integrated way of knowing saying,

Fuller exploration of ecofeminism goes beyond the expertise of any one person. It needs the cooperation of a team of historians of culture, natural scientists, and social economists who would all share a concern for the interconnection of domination of women and exploitation of nature (Ruether, “Ecofeminism: Symbolic and Social Connections of the Oppression of Women and the Domination of Nature,” 46).

\textsuperscript{122} A reader might well conclude that what appears missing from these epistemic communities are the non-human subjects participating directly in the conversation, thereby distinguishing Ruether’s epistemological claims from our other interlocutors who, as we will see, include an explicitly other-than-human community of knowing. However, while it is true that Ruether is less vocal on this aspect, in many of her writings she promotes Carol Merchant’s “Partnership Ethic,” which we will look at in more detail later; see Ruether, “Ecofeminist Philosophy, Theology, and Ethics,” 89-93. Merchant goes into more detail on this matter in her paper, “From the Control of Nature to Partnership,” found on her website at University of California at Berkeley, http://nature.berkeley.edu/departments/espm/env-hist/Moses.pdf, accessed 1 January 2012. Merchant speaks of hearing nature’s voice which speaks to us through the senses: “through the semi-permeable membranes of our bodies,” we are better able “to communicate with nature through sensuous experience…Such consciousness can be reclaimed by listening to the voice of nature.”

\textsuperscript{123} Tatman, 166-167.
responsibility for shaping the reality that is known in ways that are benign or destructive.”

Truth comes about through a critical engagement with one’s life. In this way, the features of Ruether’s ethical vision that we discussed above, vulnerability and dependency and empowerment through community, serve as salient features for justifying truth. A truth is justified by whether or not it realizes just and authentic relationships within community (never descending from on high), where vulnerability and dependence are accepted and responsibility and empowerment are fostered.

The demarcation between ways of knowing blurs in Ruether’s epistemology. Ruether points this out herself when speaking about the changing paradigm of scientific knowledge ushered in by Albert Einstein, Wolfgang Pauli, Neils Bohr and others:

Just as science had broken down the Christian separation of spheres between earth and planetary matter and between humans and animals, so the new physics itself began to break down the distinction of spheres on which the separation of science from religion (and humanities) had been based. It no longer seemed possible to distinguish so clearly between matter and energy. Nor was it so clear that science could demarcate an objective realm of ‘facts’ distinct from subjective perspectives.

In other words, the scientist who does nothing but describe will fail to capture the full import of her or his experience. Speaking specifically to theology in her earlier writings, Ruether states, “Theologians today must be more willing to dissolve the traditional perimeters of their ‘field,’ its

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124 Ibid., 166-167. Not surprisingly, then, there is within Ruether’s process of knowing a deep concern over the power dynamics at play. As Rebecca S. Chopp explains (in “Seeing and Naming the World Anew: The Works of Rosemary Radford Ruether,” Religious Studies Review 15, no. 1 [January 1989]: 8-11, doi: 10.1111/j.1748-0922), Ruether is iconoclastic in how she approaches all her work, “employing different devices both to unsettle our comfortable consciousness and to shatter our stabilized symbols.”

125 Ruether seems to underline this in her autobiography when she says, “What is relevant? Anything you know is relevant, if you use it to bring together larger configurations of experience, sparking new insight into who we are;” Ruether, “Beginnings: An Intellectual Autobiography,” 55.

126 Ruether, Gaia and God, 37; she speaks of a bridge having been constructed between science and religion conjoined by new science by scientists like Einstein, Pauli and Bohr who helped usher in the change from mechanistic, value-free model of the universe to one that is unfolding in a constant movement of “dance” in non-determined and relational ways where, “The line between the observer’s perceptions and ‘external facts’ became hard to delineate.” 37-39. This breaking down of the distinction of epistemological spheres is supported, says Ruether, by the fact that all human language is symbolic (personal interview). She says, “Scientists think the scientific language which is doing nothing but describing empirically proven reality is, of course, ludicrous…they are oblivious to the other cultural ramifications of such language like big bang.” Ruether is referring here to the nomenclature we spoke of earlier of “big bang,” employed by scientists to speak of the origin of the universe as opposed to something like the “cosmic egg,” which she believes is a far better metaphor. The point, however, is not so much whose language is more appropriate but that language and its symbolic nature matters. This issue will be discussed in more detail in Chapter 6.
sources and content, in order to rise to the task of sketching the horizon of human liberation in its fully redemptive context.” 127 This task of dissolving disciplinary walls is specifically vital with reference to liberationist-ethical issues, according to Ruether: “If theology is really to speak meaningfully about the mediating point between the ‘is’ and the ‘ought’ of human life, then it takes as its base the entire human project…” 128

To realize Ruether’s relational program, it becomes clear that it “needs visionaries to imagine how to construct a new socio-economic system and a new cultural consciousness that would support relations of mutuality, rather than competitive power.” 129 These are the poets, artists, and liturgists, as well as scientists and even revolutionary organizers, who work to incarnate more life-giving relationships in our cultural and social systems. This is why Ruether calls forth the “scientist-poet,” as an ecological leader, one “who can retell the story…in a way that can call us to wonder, to reverence for life, and to the vision of humanity living in community with all its sister and brother beings.” 130

Ruether does not explicitly describe how her epistemological framework might function. Still, through some extrapolation we can get a picture of how it might unfold, in part, by how she describes the building of bioregional communities and, in part, through Carolyn Merchant’s Partnership model, which Ruether promotes in many of her writings. Merchant’s Partnership model is explicitly a collaborative effort where negotiation and the seeking of consensus are key to engaging with others, replacing more contentious power-over, legal and litigation processes that are in vogue today. Ruether points out, for instance, that through the natural sciences, we can

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127 Ruether, Liberation Theology, 2.
128 Ibid., 2; while in this instance the theologian becomes the generalist extraordinaire in which distinctions between ways of knowing blur somewhat, in her later writings/thinking, some twenty years later, she does not assign such a task only to the theologian. Ruether describes a situation where the entire discourse changes on the subject of life, for instance, if the discussion occurs when one talks about the right to life (personal interview); while the issue of life is complex in itself when referring to such subjects like molecules, it is a very different discourse when values on human life come into play; hence, the is-ought question, which will be discussed in Chapter 5, cannot really be a purely science or religion issue, as each professional is incorporating multiple ways of knowing. Citing an example of a very damaged fetus whose mother wishes to abort, she says, “One might contest her right arguing the fetus has a right to life regardless whether the mother has the capacity to raise the child who will be very damaged,” underlining that the religion-science discourse is always contextual, adding, “I don’t think it’s necessarily a sharp division between one discipline and another.”
130 Ruether, Gaia and God, 58. Of interest, Ruether considers Brian Swimme a prime example of the scientist-poet figure (personal interview).
learn about chaos and complexity and learn that nature is not passive or mechanical, much less composed of dead matter. Consequently, we observe, “a meadow with many kinds of plants and insects balancing each other, each with their ecological niches, and then one learns to plant for human use in a way that imitates these same principles, in a more simplified and selective fashion.”

Ecofeminists, in turn, engage in the dialogue by asking who might profit from the intended method. For example, while the normative ecological requirement would have humans eat lower on the food chain, the ecofeminist would not deny a subsistence farmer the meat from a chicken or pig if that is the only source of protein for her family. How Ruether envisions the dialogue between the ecofeminist above and the scientist ensuing, is less clear. We can presume that a scientist-poet would be open to multiple epistemologies. Problems remain, however, since the welfare of the subsistence farmer above surely is not as guaranteed as Merchant’s Partnership model seems to presume: here, his/her welfare has to be negotiated within a larger communal debate. To be sure, Ruether’s program rests more on the force of her principles and less on the intricacies of a system of dialogue.

There is, however, an embodied practice at play, be it meditation or just “tak[ing] time to sit under trees, look at water, and at the sky, observe small biotic communities of plants and animals with close attention, get back in touch with the living earth,” which might allow us to engage more harmoniously with nature. This process, Ruether asserts, is meant “to assist releasing the stifled intuitive and creative powers of our organism, to draw and to write poetry, and to know that we stand on holy ground.” Similarly, according to Merchant’s partnership model, humanity can learn to listen to nature’s voice as revealed through ecological principles, ethics, poetry, and a reverence for our other-than-human partner. It is through such listening that

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132 Ruether does this sort of analysis in Gaia and God, 260; in my interview with her, she mentions friends in Nicaragua who have a pig who lives with the whole family for the whole year: “…but the pig is not being abused, he is living with the family eating the scraps.” She uses this example to underline the importance of approaching animal-food issues from a contextualized and liberationist perspective.
133 Ruether, Gaia and God, 270: one can see the parallels here to Ruether’s sojourn at the Benedictine monastery in her earlier days. Ways of knowing, Ruether adds, are all honed in praxis whether through “prayer and practical management; outreach to society and service to the poor; and cultivation of the inner self” (Rosemary Radford Ruether, “Christian Resources for Ecological Sustainability,” 195-6).
134 Ibid., 270.
we permit the river “to act freely.” And while nature’s language differs from our own, we can nevertheless listen “through the membranes of our bodies.” This action allows us to communicate with nature through the sensuous experience: “The rustling of leaves in an oak tree or an aspen grove is itself a kind of voice.” The intention of all this is that we learn to “respond not just as ‘I to it’ but as ‘I to thou’ to the spirit, the life energy that lies in every being in its own form of existence.”

**Conclusion**

We began this investigation of Ruether’s ethical vision by discussing the starting points in her thinking, her life experiences that lead her to conclude that to find meaning in life we need to live in loving solidarity with all of creation. She developed early in her life a mature stance to her faith and a readiness to fight injustices. It is not surprising, then, to see that the target of her critique is the logic of domination that marginalizes both the human, especially the woman, and the natural world. The two concerns are indelibly linked by the same corrupt values.

It is apparent from our investigation on Ruether that she is thoroughly concerned with meeting the needs and desires of the entire Earth community, while accessing abundantly the wisdoms of her faith and science. In all this, science, expressly ecology, regains a normative character. Yet, science is not exclusively authoring Ruether’s ethical vision. As we have seen, her feminist intuition ranks prominently in her epistemological paradigm. Ruether, from her early life, intuited a finitude to existence long before she studied ecology that teaches the same lesson. And long before cosmologists demonstrated our radical kinship amongst humans, trees and ducks, Ruether experienced and valued an affinity amongst them all.

The result is an uneasy balance amongst disparate pressures that stem from her faith, what science is telling us, her feminist sensibilities, and her concern for the destruction of our planet. I say “uneasy” because some of the converging interests, as we will see in later chapters, appear to challenge understandings in science and important tenets of her faith, such as the view

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135 Merchant.
136 Ibid.
137 Ibid.
that humans alone are the cause of ecosystem imbalances or the downplaying of an afterlife. In fact, marking her ethical vision is a decided determination to arrive at a balance between a plurality of views, multiple ways of knowing, and between difficult-to-reconcile issues, such as the preferential option for the poor and environmental sustainability. The balance she speaks of, then, is not without tensions and contentions. This is not problematic for Ruether, though, but seemingly natural. What is important in all this is the participatory process in which this balance is achieved.

What is clear about Ruether’s ethical vision, and something we will find in the ethical visions of our remaining three authors, is the importance she assigns to relationality here and now on Earth, our planetary home. Ruether’s ethical vision is decidedly a grounded or Earth-bound spirituality that is rooted in the reality of our permanent anthropological condition of being vulnerable to finite limits of reality. It implies an utter dependency on all the systems that support life. Consequently, we see relationality underpinning the conversation between her faith and science. In fact, truths within this conversation are justified by whether or not they realize just and authentic relationships within community, which, for Ruether, describes liberation.

To be sure, some aspects of Ruether’s ethical vision are not always clear, as we have discussed. Yet, we should keep in mind that her work spans some four decades, in which time some of her thinking has changed. While Ruether is adamant that converting our minds to Earth cannot occur without converting our minds to each other, she is not as clear on how such a process might occur, other than situating it within a bioregional context. Ruether also posits that there are two logics at work. If liberation is to be accorded to all creation, how is this bi-logic to work? It is not just Ruether, as we will see, who struggles with this issue.
Chapter 2
Leonardo Boff

Introduction to Boff

Leonardo Boff was born in Brazil in 1938 where he resides today, in Jardim Araras, an ecological wilderness area in the municipality of Petrópolis, Rio de Janeiro.\(^1\) Boff joined the Order of the Franciscan Friars Minor in 1959, where he underwent specialized studies of Franciscan spirituality. He was ordained to the priesthood in 1964. His fascination with St. Francis and his mysticism is evident in much of his writings. St. Francis, he states, “reclaimed of the rights of the heart, the centrality of feeling, and the importance of gentleness in human and cosmic relations.”\(^2\) According to Boff, the saint, created a synthesis that Christianity had lost: the encounter with God, with Christ and with the Spirit in nature, and accordingly the discovery of the vast cosmic kinship and the preservation of innocence – childlike clear-sightedness at an adult age – that brings freshness, purity, and enchantment back to the afflictions of life on this Earth.\(^3\)

A decisive experience that initially led Boff to embrace liberation theology was his work as a priest in the slum of Petrópolis, near Rio de Janeiro. There, he came in contact with people who “had to scavenge for food in garbage dumps and yet were able to hope and draw a sense of self-worth from their base communities.”\(^4\) Indeed, the 1950s and 1960s were tumultuous times for the people of Brazil, as they were for most of the poor in Latin America. The populist

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2. Leonardo Boff, *Cry of the Earth, Cry of the Poor*, trans. Phillip Berryman (Maryknoll, N.Y.: Orbis Books, 1997), 208. Boff adds (“Francis of Assisi: The Ethos that Integrates,” available on his website, [http://leonardoboff.com/site-eng/lboff.htm](http://leonardoboff.com/site-eng/lboff.htm); accessed, August 2012), “The Franciscan ethos integrates all. It befriends everything and makes of this world the beneficent home of all human beings. The supreme expression of this ethos is found in the admirable ‘Canticle to Brother Sun.’ In The Canticle we find not only a religious-poetic discourse about all things. All things serve as vestments to a deeper discourse, the discourse of the Unconscious that reaches its Center, to the interior Mystery of tenderness that integrates all things.”

3. Ibid., 208.

government of Vargas in Brazil, for instance, inspired nationalistic consciousness and much industrial development, which “threw huge sectors of the peasantry into deeper rural marginalization or sprawling urban shantytowns.” The process led to the rise of popular movements which, in turn, provoked the rise of military dictatorships – as was the case in Brazil – leading to further repression of those marginalized. The 1960s were also a time of renewal within the Catholic Church, which led many people to “take their social mission seriously.”

During this time, Boff would make frequent trips to the diocese of Acre-Purus which was in the heart of the Amazon Jungle. There, he would eventually meet and befriend Chico Mendes, “with whom [he] participated in long journeys through the Amazon jungle of Acre.” Mendes, and indeed the Amazon forest itself, would greatly influence Boff’s understanding of ecology as well as his understanding of the role Indigenous peoples have on Earth. Mendes, Boff writes, “could hear the powerful call of the forest in his body and soul. He experienced himself as part and parcel of the land.” It is not surprising, in this light, to learn that Boff considers Mendes “a secular and modern St. Francis.”

Boff received his doctorate in philosophy and theology from the University of Munich, Germany, in 1970. He began his career as a professor of systematic and ecumenical theology at the Franciscan Theological Institute in Petrópolis. He is hailed as one of the founders of liberation theology along with Gustavo Gutiérrez. As he puts it, he “was present in the first reflections that sought to articulate indignance toward misery and marginalization with discourse, which later generated the Christian faith known as Liberation Theology.”

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6 Ibid.
8 Such a conclusion is not difficult to arrive at reading Boff’s *Cry of the Earth*, where he devotes an entire chapter to the Amazon, which he assigns, “the place where Gaia displays the lush riches of her body; it is also where she suffers the greatest violence. If we want to see the brutal face of the capitalist and industrial system, we need only visit the Brazilian Amazon” (86).
9 Boff, *Cry of the Earth*, 101.
10 Ibid., 101. Chico Mendes was a Brazilian rubber trapper who saw the need to live and harvest within the rainforest sustainably. He helped form a union of rubber trappers and led resistance struggles against clear cutting operations. He was assassinated by a rancher in 1988. Boff concludes of his life, “He departed from life in the Amazon to enter into universal history and into the collective unconsciousness of those who love our planet and its vast biodiversity” (102).
11 Boff’s biography on his website.
In 1984, Boff faced a doctrinal process imposed upon him by the Vatican’s Congregation for the Doctrine of Faith in Rome because of his book *Church: Charisma and Power*. By 1985, he was condemned to “obsequious silence” and was removed from his editorial functions and suspended from religious duties. While Boff was undoubtedly silenced, as he puts it, because of his trenchant views that society and the Church ought to be transformed so that the poor become protagonists, it was specifically, as expressed by then Cardinal Ratzinger, then prefect of the Congregation for the Doctrine of the Faith, his “ecclesiological relativism,” his teaching that the one true church can exist outside the Catholic Church, that landed him in trouble. Ostensibly, Boff espouses a different model of church that lies in contrast to the current model where power rests with the hierarchy. Boff emphasized the Holy Spirit over current ecclesiological structures. While this first stricture was reversed to a large degree shortly after – due to international pressure on the Vatican – under renewed threats of punishment from the Vatican in 1992, Boff renounced his activities as a priest and, as he states, “promoted himself to the state of laity,” underlining, “I changed trenches to continue the same fight.”

Boff continued to teach ethics, philosophy of religion and ecology at the State University of Rio de Janeiro (UERJ) where he currently serves as Professor Emeritus. A prolific writer with some 60 book titles to his name, Boff is considered today to be one of the most widely read South American writers within the religious field. Boff has also been involved in promoting

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13 It is interesting to note that Joseph Ratzinger, later to become Pope Benedict XVI, but formerly the Cardinal who led the charge to silence Boff, was one of the supervisors of Boff’s dissertation when doing his doctorate in Germany.
17 Andrew Dawson, “Mystical Experience as Universal Connectedness: Leonardo Boff’s ‘Trans-cultural Phenomenology,’” *Journal of Contemporary Religion* 19 no. 2 (2004): 155, doi: 10.1080/1353790042000207683. Of interest is Boff’s use of media to connect with all peoples. Apart from his own website, which is written in Portuguese, English and Spanish, and where one can find literally hundreds of short articles, Boff has a popular
many grassroots organization in Brazil (among them, like Ruether, *Sem Terra*) and, notable for our purposes, was one of the authors of the Earth Charter.\textsuperscript{18}

While it is not incorrect to speak of Boff as a Christian liberation theologian, that title does not fully capture the broad scope of his work, specifically his works since 1992, which is also the time he began to deal with ecological issues in a systematic way.\textsuperscript{19} Indeed, Boff was the first Latin American theologian to situate the social and political liberation within an ecological framework. According to Andrew Dawson, since his renunciation of his holy orders, Boff concentrated his writings less on understanding and developing the Christian theological paradigm and more on articulating the need for a globally relevant spiritual ethos that more aptly speaks to the worldwide situation.\textsuperscript{20} In other words, Boff’s emphasis began focusing on the larger dimensions of liberation and not just for all humans but for the whole planet. As he put forth in his acceptance speech for winning the 2001 Right Livelihood Award, Boff considers himself an “integral theologian of liberation,” which, as will become evident throughout this chapter, is perhaps a more fitting designation.

2.1 The Target of Boff’s Critique

Boff targets what he labels a perverse logic of domination, based on self-aggrandizement and manipulation, that leads to the exploitation of both people and the natural world. Not surprisingly, given his experience in the slums and rainforests of Brazil, his early work targets global developmentalist models that lead to underdevelopment. An early critic of development theory, Boff notes how the ideal of development assumes an infinite supply of natural resources as well as possibilities. In such a scenario, both nature and humans become mere objects used for following (some 30,000 “Likes”) on Facebook, where I count communication in at least four languages: the three mentioned above and Italian. Boff, also speaks German.


\textsuperscript{19} Iain S. Maclean and Lois Ann Lorentzen cite a turn toward ecological issues beginning as early as the United Nations first international conference on the environment in Stockholm in 1972, but Dawson places his real turn toward ecology after the United Nations conference on environment and development in Rio de Janeiro, 1992.

\textsuperscript{20} Dawson, 155. This notion is echoed by Vázquez Carballo (219), who says, “Leonardo Boff busca los fundamentos de su propuesta ética en la fe cristiana experienciada en el contexto latinoamericano con la intención de alcanzar una perspectiva global.”
their resources and labour, respectively. He describes this vision as instrumentalist and mechanical: “people, animals, plants, minerals, in short, all living beings lose their autonomy and intrinsic value.” His analysis of development theory led him to conclude that capitalist industry flourishes by converting everything into accumulation mostly for the benefit of the few and only secondarily for the others. The foreign debts maintained by banks in wealthy countries to economically impoverished countries in the global South, for example, assures control and domination of the rich over the poor, and indeed, the interest on the debt causes the system to perpetuate itself. The main critique from liberation theology is that such a model is incapable of creating wealth without also creating poverty: “It cannot stimulate economic development without at the same time producing social exploitation, internally and globally.”

While neither the exploitation of the human nor of the natural world is new, Boff underlines that the ravages today are on a planetary scale and aided by the growth and application of science and technology. We first see his arguments on this develop in a systematic way (in its English translated versions) in *Ecology and Liberation: A New Paradigm*, published in 1995 and more thoroughly – especially in regards to its incorporation of new science – in *Cry of the Earth, Cry of the Poor*, published in 1997. The cries that come from the Earth and the poor explain why liberation theology and ecology must discourse:

[T]hey stem from two wounds that are bleeding. The first, the wound of poverty and wretchedness, tears the social fabric of millions and millions of poor people the world over. The second, systematic aggression against the earth, destroys the equilibrium of the planet, threatened by depredations made by a type of development undertaken by contemporary societies, now spread throughout the world.

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23 Ibid., 236.
25 As Boff’s work is never written first in English and always needs translating, the date of original publication is usually a couple of years earlier. *Cry of the Earth*, for instance, was first written in Portuguese and published in 1995: Leonardo Boff, *Ecologia: Grito da Terra, Grito dos Pobres* (São Paulo, SP: Editora Atica, 1995).
Indeed, in the context of woundedness, Boff underlines a grave imbalance not just between humans and the natural world, but amongst humans themselves. This is why he says that today’s social system is anti-ecological.27

Underlying this anti-ecological logic of domination, which in later writings he refers to as a cosmology of domination, is a spiritual and cognitive malaise, representing a flawed consciousness that promotes a power over the other and eschews our universal connectedness to all that exists.28 Such a condition has fostered anthropocentric and utilitarian attitudes and the denial of the sacredness of the world which have shaped how we conduct our economics and politics. Christianity, as far as it is complicit in inflicting both wounds, is also marred by its heightened anthropocentrism but also by its patriarchy, dogmatism, sense of election, its conviction that creation has fallen and its heightened monotheism to the exclusion of any depth of manifestation.29

In more recent writings, Boff assigns materialist realism – the philosophical view which he states has prevailed over humanity for the last four centuries – as a cause for our crisis. Materialist realism marks a reality that is independent of the subject and exists in the form of independent objects, which he feels reduces the scope of reality, “as it does not include within reality the phenomena of subjectivity, conscience life and spirituality.”30 This philosophical view further disconnects us from the whole: “the emptiness of conscience that no longer sees itself as part and parcel of the universe; the dissolution of a sacred feeling towards the cosmos and each

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27 Boff, “Liberation Theology and Ecology,” 74. Boff cites the statistic that 15 million young people under the age of 15 die each from hunger or the diseases associated with hunger and that 150 million are undernourished and 800 million live permanently with hunger. From this he makes a striking claim that “the most threatened beings in creation are not whales, but the poor, condemned to an early death.” Cf. Boff, Cry of the Earth, xi; however, it is not an either or for Boff: our environment is affected by social elements and society, in turn, is affected by the environment. He concludes, “The logic that exploits classes and subjects peoples to the interests of a few rich and powerful countries is the same as the logic that devastates the Earth and plunders its wealth, showing no solidarity with the rest of humankind and future generations.”
28 Boff, Cry of the Earth, 81. Boff adds that the connection is also disrupted between us and “our creator.”
29 Ibid., 81.
30 Leonardo Boff, Essential Care: An Ethics of Human Nature, trans. Alexandre Guilherme (Waco, Tex.: Baylor University Press, 2008), 8; Boff does not delineate whether this philosophical view applies merely to Western society or to all humanity.
of its entities; the unawareness of the unity of all things that is anchored in the mystery of the Supreme Creator and Provider of all things."

To transform and heal our world, Boff calls for a new paradigm (a term he has used consistently since 1995), marked by a process whereby humans reinvent our understanding of ourselves as a species and our role. We are not living so much in an epoch of change but in a change of epochs, he states, and the new era should be defined by a paradigm of care and connectedness brought about through a fundamental shift in consciousness. This is the process of “liberation,” as he understands it. Certainly, it is understood in the traditional sense, as personal enlightenment, and in a more concrete collective sense, as the freedom from oppressive, political, economic and social structures. But here it gains a wider ecological, even cosmological, dimension involving the conscious participation of humanity in the movement toward greater diversity, interiority, and communion with creation, inspired by science.

2.2 The Science Authoring Boff’s Ethical Vision

The scientists whose work Boff draws upon are numerous, many whose work is ancillary to his more central arguments. Boff principally employs the works of chemist James Lovelock and biologist Lynn Margulis to discuss the Gaia theory; chemist Ilya Prigogine, and physicists Erich Jantsch and Fritjof Capra to discuss systems theory; Capra again, physicists Nick Herbert, David Bohm, F. David Peat, Menas Kafatos, mathematician John von Neuman, science historian Robert Nadeau and – while not a scientist, but with a strong background in science – Danah Zohar to discuss quantum physics; physicists, Paul Davies, Stephen Hawking, Steven Weinberg, and cosmologist Brian Swimme to discuss cosmology. The work of paleontologist Teilhard de

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31 Ibid., 9.
32 Ibid., 12-13. Boff also uses the term ethos in a similar fashion to the way he uses ethics and paradigm here, though with a particular emphasis on how we shape the human house.
33 Vázquez Carballo, 220. This is my translation from the Spanish where Vázquez Carballo quotes Boff as saying, “Ya no estamos tanto en una época de cambios cuánto en un cambio de época.” It appears Boff might have been quoting Xabier Grosotiaga, SJ who stated this in a presentation of a paper at the Second International Symposium on Catholic Social Thought and Management Education, Antwerp, Belgium, July 1997, entitled, “The Universities of Christian Inspiration and the Catholic Social Thought Confronting the New Millenium.” Available at http://www.shc.edu/theolibrary/cst.htm, accessed 16 February 2014.
34 The works of Nick Herbert, David Bohm, F. David Peat, Menas Kafatos, John von Neuman, Robert Nadeau and Paul Davies are particular to Boff’s collaborative work with Mark Hathaway in The Tao of Liberation. To be sure, Hathaway’s contribution certainly expands the array of scientists whose work is consulted by Boff and, in many
Chardin is employed to emphasize the evolutionary aspect of the universe. Nevertheless, ecology – for which Boff relies much upon Lovelock’s and Margulis’s work to understand the historicity of nature, and, to a lesser degree, the works of E.O. Wilson and Paul Ehrlich – receives a preeminent position as the larger framework under which the many other sciences, as well as the many other ways of knowing the universe, coalesce. While Boff recognizes the scientific biological roots of ecology, as understood by biologist Ernst Haeckel (who in 1866 coined the term), he also sees notions of connectedness and relationship underlining its fundamental nature and, hence, extends the term to cover all existing things (alive or not) and all their interactions. Specifically, it is a holistic, or integral ecology, that he refers to, a science that connects all things and “every type of knowledge,” including all the branches of science. As such, Boff defines ecology as “the science and art of relations and of related things.”

Boff argues, “If ecology is not holistic, it is not really ecology.” In opposition to modern science which is “split up” and “disconnected,” holistic ecology continually looks for relationships amongst all things and at all levels, and this includes the social and mental processes that shape our environment. Thus, he speaks of a social ecology (the interaction of cultural systems and societies with their environment), and a mental ecology (the ideas, values and prejudices that undergird our actions). These two ideally coalesce under the larger rubric of an integral ecology with a view to founding “a new alliance between societies and nature.” In this light, it is perhaps evident for Boff to say, “more than any other science, ecology confronts

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35 Boff, *Cry of the Earth*, 20.
37 Ibid., 11.
38 Boff, *Cry of the Earth*, 41.
nature as an organic, differentiated, and single whole,” as ecology integrates other sciences.  

Ecology, as his seminal 1995 book states in its title, *is* the new paradigm. Underlining this rather grand role Boff assigns to ecology is the social and environmental context in which it arises: it represents nothing less than “a global interest, a question of life and death of humankind and the whole planetary system.”

According to Boff, the most basic insight of the holistic ecological approach is encapsulated in the Gaia theory with its deeply cooperative dynamics and interdependencies. As a scientific theory, it features rather prominently in many of his writings, which is not surprising, as Boff claims it serves to reprove our present mental ecology that places the human being at the center of everything, or as an other-worldly being not of this planet. Boff sees Gaia as a “supra-organism” that functions as a single living entity under intelligent principles (given that it generated intelligent beings such as the human). The theory for Boff also serves as a transformative praxis carrying with it strong mythic qualities, which is why he employs it interchangeably with the Andean indigenous term for Earth, Pacha Mama (akin to Mother Earth) in many of his writings, allowing for a maternal connection of human life to Gaia. He further highlights this connection by making the comparison of the human body’s proportions of water (71%) to that of the surface of the planet, and the proportion of salt level in our blood (4.3%) to that of the oceans.

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41 Ibid., 12, 56. In this light, Boff can say an ecological lens “enables” us to see and describe human beings “appropriately,” a view of the human stresses our connectedness to the Earth as well as our uniqueness, the interconnectedness and dynamic equilibrium of all entities of the planet. He states:

The human being is an animal of the mammal class, the order of primates, the family of hominids, the human genus, the species sapiens, with a body of thirty million cells, procreated and controlled by a genetic system produced in the course of a natural evolutionary process of four to five billion years, with a mind capable of forming global visions and constructing an indivisible unity, on the basis of some ten million of his or her ten billion neurons vibrating in unison, in order symbolically to create and recreate the universe and proffer an ultimate and all-inclusive meaning (26).

43 To be precise, Lovelock does not claim Earth is alive as Boff (and Ruether too, as we have seen) suggests here; cf. James Lovelock, *The Revenge of Gaia*, 20; Lovelock, uses living Earth as a metaphor but does not assume it is alive in a sentient way like an animal or human. In Boff’s collaborative work with Hathaway, this nuance is made more explicit: cf. Hathaway and Boff, *The Tao of Liberation*, 266.
44 Hathaway and Boff, 268.
46 Ibid., 138; see also Boff, *Cry of the Earth*, 17.
While Gaia is used to emphasize the human connection to nature, Boff also uses the theory to demonstrate that life and, as we shall see, the human, have an important planetary sense of purpose.\textsuperscript{47} In his collaborative work with Mark Hathaway, \textit{The Tao of Liberation}, Boff, like Ruether, turns to the work of biologist Lynn Margulis, whose research on microbial life also reveals the great extent to which micro-organisms influence Earth dynamics. Margulis is quoted as saying this “bacterial web” which has “survived throughout the billions of years of life on the planet, play[s] a key role in the regulation of the conditions necessary for life.”\textsuperscript{48} Boff and Hathaway note, for instance, that the removal of CO\textsubscript{2} from the atmosphere has played a crucial role in allowing Gaia to maintain a relatively constant surface temperature over the past four billion years despite the fact that the sun’s heat on Earth has increased 30 to 50 percent in that time period.\textsuperscript{49} Key to this happening, Lovelock and Margulis have found, myriad biological organisms that found ways to remove CO\textsubscript{2} from the atmosphere, mainly by burying the gas (in the form of oil or coal) or by locking it into rock (in the form of calcium carbonate that makes up limestone).

Boff makes an analogy between this key network of relationships amongst microbial life and the network of relationships amongst human beings. Building upon Teilhard de Chardin’s notion of a noosphere – as we saw with Ruether – Boff constructs a vision of evolution that moves toward some end which entails complexity, interrelationship, diversity and self-awareness.\textsuperscript{50} Boff writes in \textit{Cry of the Earth},

\begin{quote}
The complexity of human brains, their growing number, the network of relationships being established between persons, continents, and cultures through all the means of communication, raise the possibility that we are laying the foundations for the emergence of a common consciousness around the Earth, which would function as the Earth’s brain.\textsuperscript{51}
\end{quote}

\textsuperscript{47} It should be noted that Lovelock does not subscribe to Boff’s assignment of a significant role to the human as it pertains to Gaia; cf. Lovelock, 184; also cf. Stephen Bede Scharper, “The Gaia Hypothesis: Implications for a Christian Political Theology of the Environment,” \textit{Cross Currents} 44 (Summer 1994): 207-221.
\textsuperscript{48} Hathaway and Boff, 263.
\textsuperscript{49} Ibid., 263 ff.
\textsuperscript{50} Ibid., 261.
\textsuperscript{51} Boff, \textit{Cry of the Earth}, 49.
In this light, our presence, while demonic in its current logic of domination, is not inherently destructive to Earth. While anthropocentrism, for Boff, is “the worst sin of mental ecology,”\textsuperscript{52} he nevertheless believes the human with our consciousness is an expression of Gaia itself, making us “co-pilots” of its evolution.\textsuperscript{53} This purpose of the human is not assured though, as Boff notes it is possible that Gaia, with its own self-regulation in mind, could eliminate humans so as to allow for the overall homeostasis to be maintained: “If Gaia has had to rid itself of myriad species over its life history, who can assure us that it will not be forced to rid itself of our own?”\textsuperscript{54}

Notwithstanding this caveat, Boff is far more optimistic than pessimistic. In \textit{Global Civilization: Challenges to Society and Christianity}, he outlines how globalization – not what he refers to as the “dependent liberal-capitalist system”\textsuperscript{55} but a globalization marked by a rise in social participative democracy and instantaneous communication (through Internet technology, for example) and more equitable market systems – represents a new phase in human evolution. We can see where Boff is going with this: we are in the process of becoming the noosphere, as originally posited by Teilhard de Chardin, but reformulated to become the central nervous system or brain of Gaia. Indeed, Boff is taking his cue from Teilhard de Chardin when he says: “the more evolution progresses, the more complex it becomes; the more complex, the more internalized; the more internalized, the more self-conscious it becomes; the more self-conscious, the more self-creating it becomes…”\textsuperscript{56} The above progression explains why Boff marks greater interiority as being an important part of the liberation process.

This Teilhardian notion – that the passage of time and evolution follow a pattern that increasingly creates complex, self-organized and diverse entities – is shored up by Boff with the

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\item \textsuperscript{52} Boff, “Calling in Multiple Ecological Debts,” 138.
\item \textsuperscript{53} Boff, \textit{Cry of the Earth}, 112.
\item \textsuperscript{54} Ibid., 19. Boff makes a distinction between two natures that comprise the human: sapiens and demens. The former represents our rational, creative side, while the latter our violent and destructive side; see Leonardo Boff, \textit{Global Civilization: Challenges to Society and Christianity}, trans. Alexandre Guilherme (London: Equinox, 2005), 32.
\item \textsuperscript{55} Boff, \textit{Ecology and Liberation}, 124.
\item \textsuperscript{56} Boff, \textit{Global Civilization}, 34. This particular understanding of increased complexification comes from Pierre Teilhard de Chardin, \textit{The Future of Man}, trans. Norman Denny (New York: Image Books, Doubleday, 1964), 105: “The more complex a being is, so our Scale of Complexity tells us, the more it is centered upon itself and therefore the more conscious does it become. In other words, the higher the degree of complexity in a living creature, the higher its consciousness; and vice versa.”
\end{itemize}
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writings of Ilya Prigogine, whose science Boff greatly relies upon. Prigogine asks himself, How, if there is entropy – the process of increasing disorder or disorganization of a system through time, as explained by the second law of thermodynamics – can we explain evolution from lower to more complex forms? Prigogine reasons that entropy is not merely the downward slide toward disorganization but, under certain conditions, the progenitor of order. In order for this to happen, though, the system must be open, allowing it the possibility to import continuously free (useful) energy from the larger environment while exporting entropy (non-useful energy or waste); hence, the term “dissipative structures” is used, which is the title of Prigogine’s theory. This continuous metabolizing nature of reality led Prigogine to conclude that reality, instead of being orderly, stable and in a state of equilibrium, is seething and bubbling with this dynamic of change, disorder or chaos. Equilibrium, then, must be re-achieved continually through self-organization and an ever-higher level of internal organization. Physicist Erich Jantsch likens the process to someone who stumbles, loses her equilibrium and can only avoid falling on her nose by continuing to stumble.

While this way of seeing the world is non-mechanistic and non-reductionist, it is also non-deterministic, a point Boff stresses. He writes, “The system in some sense “chooses” between several possible paths of transformation. Which choice it will make, however, is not predictable, although it depends on both the system’s history and on the external stresses driving the transformation.” Causality, therefore, is not linear and, what is more, order and organization can actually arise spontaneously out of chaos. For the purpose of shedding new light on our global predicament, Boff underlines a salient feature of Prigogine’s theory: that the more complex a system is, the more sensitive it becomes to external influences which could lead to

57 Boff, Ecology and Liberation, 34. Teilhard de Chardin’s notion is a striking feat when one considers that his hypothesis was intuited in the early 1930s; see Boff, Cry of the Earth, 29.
58 Boff, Global Civilization, 25; Ilya Prigogine, incidentally, was awarded the Nobel Prize in chemistry in 1977 for his contributions to nonequilibrium thermodynamics, particularly the theory of dissipative structures. In the Foreword to Ilya Prigogine and Isabelle Stenger’s book (Order out of Chaos), Alvin Toffler writes of Prigogine: “What makes the Prigoginian paradigm especially interesting is that it shifts attention to those aspects of reality that characterize today’s accelerated social change: disorder, instability, diversity, disequilibrium, nonlinear relationships (in which small inputs can trigger massive consequences), and temporality – a heightened sensitivity to flows of time.”
60 Hathaway and Boff, 207.
Chaos is generative, which leads Boff to conclude, “Jumps in evolution can occur at any moment; it only requires enough accumulated energy to do so.”

If we return to Boff’s take on globalization cited above, we can see how Prigogine, Lovelock and Teilhard de Chardin’s ideas coalesce in Boff’s ethical vision:

The vast number of human brains currently at work along with the accumulation of knowledge and experiences, the increasing understanding of globalization, the perception that we are co-responsible for what may happen to nature, and to humankind enable us to put forward Teilhard’s thesis of noosphere, that is, a collective consciousness or the unification of human minds.

Since, as Boff states, “even the action of a single individual can have an effect,” we can extrapolate – with regard to the noosphere – that this also means one more brain can have an effect.

There is something decidedly positive in Boff’s writing that favours – in contrast to Ruether – the idea of a growing world population. While Boff’s assertion that one-more-individual could feasibly make all the difference might appear a fanciful appropriation of what the science says, Boff quotes Prigogine himself who suggests:

We know that societies are immensely complex systems involving a potentially enormous number of bifurcations exemplified by the variety of cultures that have evolved in a relatively short span of human history. We know that such systems are highly sensitive to fluctuations. This leads to hope since even the small fluctuations may grow and change the overall structure. As a result, individual activity is not doomed to insignificance. On the other hand, this is also a threat, since in our universe the security of stable, permanent rules seems gone forever.

As with any system, be it the universe or a social institution, a continual flow of (new) energy and matter is possible when the system is open. Boff labels this avoidance of entropy in positive terms, as syntropy. In its social-ecological dimension he labels it as solidarity. Boff uses syntropy (as he does solidarity) interchangeably with the term care; in any case, these aspects are the stronger force over entropy.

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61 Ibid., 213.
62 Boff, Global Civilization, 34.
63 Ibid., 34.
64 Hathaway and Boff, 207; this is a play on butterfly effect which we will discuss with O’Murchu.
65 Ibid., 214; Boff supports this opinion further with the work of Fritjof Capra (The Turning Point, 207).
66 Boff, Cry of the Earth, 14, 20; cf. Boff, Essential Care, 134.
Boff’s employment of quantum physics serves to buttress what we have looked at so far: the importance of consciousness and relationality in the process of evolution, the more creative, non-linear processes of transformation, and the non-deterministic properties of these processes. All these notions are important to his ethical vision. I will concentrate here on how Boff employs quantum physics to support these same notions as well as another: hope – that we are not without resources (help) in our present struggles for liberation.

Boff explains how the particles of the subatomic world (called quanta), have no objective attributes of their own until they are observed.\(^{67}\) They appear as waves or as particles depending on the viewpoint of the observer. Their wave attributes and particle attributes cannot, however, be examined at the same time. Boff writes, “Either the exact position of the material particle is measured and one loses the velocity of the wave, or the wave is measured and the position of the particle is lost.”\(^{68}\) They exist, therefore, only as patterns of probabilities. Quoting physicist Nick Herbert, Boff writes: “By deciding what attribute you want to measure and deploying the appropriate instrument, you invite that attribute, but not its partner attribute, to manifest itself in the actual world.”\(^{69}\)

This strange feature of quantum physics led Werner Heisenberg to formulate what is called the uncertainty principle. While the principle outlines that it is impossible to know both the position and the momentum of a particle at any given moment, a further implication is that there can be no rigid distinction between the observer and the observed, since, “the very act of observing causes the probability wave function ‘to collapse’ forcing a particular reality to

\(^{67}\) Elementary particles cannot be described as “matter” commonly understood; see Boff, *Ecology and Liberation*, 39: “Elementary particles are no more than energy at high level of concentration and stability.” In this sense, Boff asserts that one cannot even use the term “things” as this too is misleading. Scientists refer to them under the rubric of attributes: vibrating “wave packets” or “events;” see Hathaway and Boff, 173, and Fritjof Capra, *The Turning Point*, 78-79. As a result, Boff writes that quantum physics can be characterized by its “thinglessness” (Hathaway and Boff, 172). Indeed, as Hathaway and Boff point out, “On average, over 99.99999999999 percent of an atom’s volume is empty space” (173). The nucleus of the atom, were it viewed as a pea (about 4 mm.), would rest within the diameter of an atom the size of 100 m. (about the length of a football field). Thus, one could conclude that within the atom there appears to be very little “hard stuff” to speak of. When we consider that the electrons within the nucleus are even smaller, it seems logical to conclude, as Hathaway and Boff do, that “particles are really not ‘things’ at all in the way we normally conceive them” (173).

\(^{68}\) Boff, *Cry of the Earth*, 57.

\(^{69}\) Hathaway and Boff, 174.
become manifest either as a wave or a particle." Boff notes that it is not the mechanical instruments “observing” the phenomenon that causes the wave function to collapse: “A real observer recording the measurement must be involved – and this implies consciousness.” This, Boff concludes, implies a radically different epistemology or way of knowing in science, one that is characterized by uncertainty and one that supports his understanding of the role of consciousness in the universe: “If that is how things are, everything based on uncertainty, who determined that we should cease to be probable and should come to reality, we [sic] mountains, sea, trees, human persons?”

To answer this, Boff takes a cue from the writings of mathematician John von Neuman, who believed that the entire physical world remains in a state of pure possibility (for example, as waves), until a conscious mind “decides to promote a portion of the world from its usual state of indefiniteness into a condition of actual existence.” It should be noted that when Boff speaks of observer, he does not limit this to the human alone. Moreover, the idea, he says, is epistemological and ontological. What does he mean by this? He uses “observer” as a tool for understanding “that enables us to comprehend and clarify the interdependence of cosmic phenomena.” Here, “observer” denotes “any entity that dialogues and interacts vis-à-vis another.” Hence, a proton interacts with another proton. In so doing, they mutually exchange

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70 Ibid., 175.
71 Ibid., 183.
72 Hathaway and Boff, 174. It is not clear here whether Boff confuses epistemology with ontology (or metaphysics), as it seems like he is referring here more to ontology. Notwithstanding this seeming confusion, I wish to explain this phenomenon more, as it may itself sound confusing; certainly as physicist Nick Herbert asserts above, by deciding what attribute you want to measure and deploying the appropriate instrument, you invite that attribute, but the authors put it in a way that is even less mysterious: “On the one level, this is due to the nature of scientific observation itself. To observe something, at least one quantum of energy must be used. For example, we use light – made up of photons – to see something or detect it with an instrument. The quanta of energy we use – even if it is a single quantum – will affect what we observe because the particles we are dealing with are so tiny that the quanta energy will disturb them.” Still, as the authors note correctly, Heisenberg’s uncertainty principle goes further than mere limitations of our ability to measure things at the subatomic level, as the probability factor suggests that the observer is actually part of this process.
73 Boff, Cry of the Earth, 57.
74 Hathaway and Boff, 183; Boff (Cry of the Earth, 57), also finds Danah Zohar’s explanation in The Quantum Self compelling, as it was she who posited that consciousness could be the “bridge” between the world of elementary particles and our everyday world.
75 Boff Cry of the Earth, 58.
76 Ibid., 58.
77 Ibid., 58.
energies and hold information together that neither can obtain separately. Yet, while not discounting the possibility that even plants might have some kind of consciousness, the emphasis here is definitely on human consciousness. Where Boff is going with this becomes clear, as we touched upon this idea above: he suggests, given the findings in quantum physics, that mind in some sense “midwives” reality.

While the mind can affect (he also states, “co-create”) reality, Boff notes that causality – and not just with human actions – is not linear. In the classical understanding of science, he says, “Things moved because something else acted upon them…yet, in the case of quantum entanglement, nothing is there to push or pull on anything else. The whole relationship of cause and effect becomes much more mysterious and complex.” This idea of quantum entanglement is important to Boff’s vision. Quantum physicists have found that every particle is somehow linked to every other particle; in fact, no particle can be considered in isolation. This is a “non-local” connection or “entanglement” between particles that is independent of distance. Whenever two particles interact with each other, they somehow remain linked together from then on. In this way, what we do to one particle is experienced by the other, even if it is separated over a long distance. Boff quotes the work of science historian Robert Nadeau and physicist Menas Kafatos who put it thus: “[T]he universe on a very basic level could be a vast web of particles, which remain in contact with one another over any distance in ‘no time’ in the absence of the transfer of energy or information.” And given the deep time throughout which our universe has developed, Boff concludes it is “safe to assume that all quantum entities have, in fact, interacted with each other and become entangled.”

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78 Ibid., 78; Boff adds:
As far apart as they may be, whether in the subatomic world or in the macrocosmos, they make up a single system. The information is carried forward in time (the irreversibility of the time-encounter analyzed in detail by Ilya Prigogine), and goes into other encounters and qualifies those realities with these cumulative experiences. Thus a dialogue between entities – a connectedness, and a covenant of exchanges – is always taking place.

79 Hathaway and Boff, 184.
80 Ibid., 183.
81 Hathaway and Boff, 179.
82 Ibid., 192; this notion forms the basis for Bell’s Theorem.
83 Hathaway and Boff, 179; the idea of there being a connection over vast distances and in no time, Boff points out, was shocking for scientists, especially Einstein, as it contradicts his theory that nothing can travel faster than the speed of light.
84 Ibid., 179; cf. Boff, Cry of the Earth, 45, where he writes, “As portions of the universe, we are all brothers and sisters: elementary particles, quarks, stones, snails, animals, humans, stars, galaxies.”
Given the ecological holistic sense that undergirds Boff’s vision, cause becomes holistic itself, presented as a pattern of relationships. He cites a passage from Capra’s writings, which is worth repeating in part:

In quantum theory individual events do not always have a well-defined cause…We can never predict when and how such a phenomenon is going to happen…This does not mean that atomic events occur in completely arbitrary fashion; it means only that they are brought about by non-local causes. The behavior of any part is determined by its non-local connections to the whole, and since we do not know those connections precisely, we have to replace the narrow classical notion of cause and effect by the wider concept of statistical causality.85

Within Boff’s larger project of a new globalized interconnected world mentioned above, we can see more clearly the important role quantum physics plays for Boff: “We live in a cosmos whose foundations are built on deep rooted – or radical – relationality. On some subtle level, everything influences everything else.”86

The question of where the energy behind all of this relationality might come from preoccupies Boff. In speculating about the quantum void, he finds a possible explanation and a source of hope. Boff notes how quantum physicists have found that at any moment a particle, along with its corresponding antiparticle, can spontaneously spring into existence from an apparent emptiness, and then the two can annihilate each other.87

From where do these particles come? No one knows. But the point causes Boff to raise the even larger question of the source of energy in the cosmos. According to quantum physics, and in keeping with the uncertainty principle, the vacuum state is not truly empty but instead contains fleeting electromagnetic waves and particles that pop into and out of existence. This is the quantum vacuum or what scientists...
refer to as zero point energy, which is the lowest energy state of a system. Boff likens it to a “pregnant void,” for it appears more like a “vast sea of energy seething with possibilities.”

Such a claim is not hyperbole. Physicists David Bohm and F. David Peat, Boff points out, contends that by some estimates, “there is as much energy in a single cubic centimeter of the void (or the space being manifest from the void) than would be generated if all the known matter in the universe were to disintegrate.” Reality, Boff concludes, is “a kind of vibration arising from the pregnant void, waves on a vast ocean of energy.” From this, it becomes clear to Boff that while we are meant to “midwife” reality into being, we are not without the resources (energy) to support our venture.

While cosmology receives slightly less attention than do the other sciences in Boff’s writings, it appears no less important in the creation of his ethical vision. Since his reading of cosmology resonates closely with Brian Swimme and Thomas Berry’s, *The Universe Story* – which we will discuss in more detail in Chapter 4 – I do not need to go into much detail here. Certainly, the same themes we saw above are explored with cosmology. Boff’s use of the

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89 Hathaway and Boff, 181.

90 Ibid., 182.

91 To give you a sense of where he is going with this, see Hathaway and Boff, 182: Hathaway and Boff quote Thomas Berry, who may or may not have had the quantum vacuum in mind when he said this: “We are not lacking in the dynamic forces needed to create the future. We live immersed in a sea of energy beyond all comprehension. But this energy, in an ultimate sense, is ours not by domination but by invocation.”

92 For instance, Boff (*Cry of the Earth*, 44), highlights the creative nature of the universe. He describes the shift away from a static, eternal vision of the cosmos to one that is dynamic and “evolving creativity.” He notes that at the initial moment of expansion of energy from the big bang, everything was entirely undetermined. Between the $10^{-11}$ and $10^{-5}$ second most of the particles (antimatter) disappeared into light leaving only a billionth of the initial mass of elementary particles “with which the whole universe (including us) was to be formed.” Once the particles were stabilized, there emerged the initial symmetries and structures in particle interactions hence giving rise to the four original interconnections (gravity, the electromagnetic force, and the strong and weak nuclear forces). He concludes that these “inter(retro)connecting energies, which science has not yet been able to explain, should probably be understood as modes of primordial action through which the universe itself acts, interacts with its elements and is self-regulating” (45); cf. Hathaway and Boff, 253; the self-regulating nature of the universe is also creative, citing that “there are real choices to be made.” The moment when the galaxies could form was decisive: “If the opportunity had not borne fruit, our cosmos would have remained an amorphous soup of energy and primitive matter with no real form or structure” (251). Such creativity is pronounced in the greater complexity, beauty and depth of mind found in the universe; cf. also Boff, *Cry of the Earth*, 17; Boff concludes that creativity illuminates how things came into being despite the mathematical unlikelihood of our existence given the calculations of physicist Stephen Hawking. Hawking states that if the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million it would have re-collapsed before it reached its present size. Of course, the
anthropic principle, however, merits some attention here. The anthropic principle has two versions: the weak version states that the universe is finely tuned to the existence of human life because humans are doing the observing. The strong version states that the universe must have those properties which allow life to develop within it. Boff appears partial to its stronger version because it suggests that the creation of humans was aimed at. Notwithstanding this strong assertion on the significance of the human, Boff underlines that the anthropic principle, even in its strong version, does not imply anthropocentrism, adding that it is not the amoebas or hummingbirds or horses that are engaging in reflexive discourse on the cosmos; only to the human does it have meaning. The difference with our self-reflective nature, he maintains, is not quantitative but qualitative. Boff, then, uses the anthropic principle to suggest further that human beings are a purposeful part of the original teleology behind the universe.

While he is cognizant that ideas of purpose or a directive principle are resisted within scientific circles, he responds by asking whether the more accepted idea of “struggle for survival” or the “selfish” nature of genes is any less purposeful. Purpose or intension for Boff does not necessarily imply the need for self-reflective consciousness, either. Here he takes it as the principle of autopoiesis or the power of each thing has to participate directly in their self-fulfillment and evolution. Not unlike the processes of dissipative structures outlined by Prigogine, and the self-regulating nature of Gaia, autopoiesis is that principle that explains how creativity, renewal and self-regulation occur. This autopoietic character of the universe also underscores Boff’s understanding of liberation. He states, “Humans are made for participation

inverse is true too: had the expansion rate been infinitesimally greater, the universe would have expanded too rapidly and no stars would have formed; there would be no Earth, no humans.

Hathaway and Boff, 274. Certainly, the rate of expansion, as discussed above by Hawking feeds into this thinking.

Boff, Cry of the Earth, 22. This is also a point Berry makes.

Hathaway and Boff, 321, put it quite succinctly, in a Teilhardian fashion: In fact, looking back at the process of evolution that has now been unfolding for some 13.7 billion years, we cannot deny that there has been an ongoing progression: energy turns into matter, chaos organizes itself, the simple becomes more complex, from a complex entity life arises, and from life emerges consciousness. There is a purpose – a progression that suggests meaning – that cannot be denied.

Ibid., 284; see also Boff, Essential Care, 92.

This autopoietic sense to liberation receives a new twist in Boff’s later work, Essential Care, with an exploration of the works of Chilean biologist Humberto Maturana (The term autopoiesis was introduced by Humberto Maturana
and creation; we want not only to receive bread but to help produce it, so that we may emerge as agents of our own history.” Almost like a punctuation to his mantra, in *Cry of the Earth, Cry of the Poor*, Boff notes that physicist John Wheeler also saw, “very clearly,” that the universe is participatory: “it is a most intricate web of relationships, enveloping everything, and human beings in particular.”

### 2.3 An Analysis of Boff’s Ethical Vision

For Boff, then, science offers a transformative and corrective vision of ourselves as the pinnacle of evolution, reproving mistaken ideas of separateness from, or power-over others, and suggests we are conscious, spiritual and corporeal beings that belong here. The message from science is made clear: that we are all interconnected and that there is a communication happening through consciousness. New science also empowers us to act in accordance with a holistic ecological approach with hope and determination. In this sense, it is also liberating, showing that social, political, economic and personal transformation *are* possible and *ought not be so*

along with fellow Chilean biologist Francisco Varela). Boff explores love not simply as a mere psychological sentiment but as a biological phenomenon, as Maturana suggests. Boff writes that love happens within the dynamics of life, from the time of the big bang to this day at the level of complexity found in the human (72): “When one welcomes the other and thus co-existence happens, love emerges as a biological phenomenon” (73). Maturana, in his own studies of autopoiesis, notes two types of coupling in nature: one is the necessary coupling for survival that is well expressed in ecosystems. The other is spontaneous that is not for survival purposes. There are no reasons for such unions, “They happen because they happen.” With the human, the process is more than spontaneous, it becomes “a project of freedom that conscientiously welcomes the other and creates the conditions for establishing love as the highest value of life” (73). From this basis socialization emerges. Repudiating other philosophical and anthropological reasons for the formation of society, Boff concludes that societies exist because love exists. If the society persists and remains organized without love, thus forcing a union, it does so in the form of violence or coercion. Building upon the theme of cooperation put forth in the Gaia theory, Maturana emphasizes that the fight for survival of the strongest that guaranteed the perseverance of life was ultimately through cooperation and co-existence between them. Competition for Maturana is antisocial because it implies the negation of the other and the refusal to share and to love. When love reaches the human it reveals itself in sympathy and solidarity. Departing from the science, Boff concludes, “People unite themselves and recreate through the use of the language of love the feeling of affection and of belonging to the same destiny and to the same historic pathway” (75).

99 Ibid., 59.
feared, though the path is not assured nor easy. In short, the role of science is to “ensure” that this paradigm revolution succeeds.

Andrew Dawson, writing on Boff’s approach and use of science, affirms this visionary import of new science to Boff’s writings. Dawson states: “[T]he new science provides a conceptual foundation for a holistic paradigm fostering relatedness instead of atomism, respectful appropriation rather than acquisitive materialism, dialogue over antagonism, unity in diversity instead of homogenizing uniformity, interiority rather than positivism, and equality in place of hierarchy.” And as Fritjof Capra notes in the foreword to one of Boff’s books, the scientific cosmology Boff puts forth “appears fully compatible with the spiritual dimensions of liberation.” Moreover, the sense of “oneness” with all creation is borne out by the new conception of life found in new science. Perhaps this is why Boff feels it appropriate to match this science-inspired transformative vision with that coming from a saint: humans, he states, need to follow less the example of Pietro Bernadone – the great and wealthy thirteenth-century textile merchant and father of St. Francis of Assisi, who represents the culture of the satisfied, cynically ignoring the devastation he participates in – and more that of his son, whose burning, “seraphic love for all creatures” we ought to emulate. Such an emphasis on spirituality is also in keeping with Boff’s claim that a new planetary consciousness is developing (the noosphere in the form of globalization), a mental and physical connectedness that serves as the foundation for a new a new paradigm of care, connectedness and solidarity.

Given Boff’s deep concern for the “other,” it is not surprising that relationality is the most important lesson to emerge from science. Indeed, for Boff, all is relation and “nothing but relation exists.” To give an example, consider that while liberation is the primary aim for Boff, as it is for Ruether, it cannot be understood or realized in a vacuum outside the larger

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100 Recalling, for instance, that systems in high state of chaos are sensitive to even the slightest fluctuation, might empower one individual to do his/her bit to change societal structures, no matter how small the contribution.
102 Dawson, 158.
103 Hathaway and Boff, Foreward.
104 Boff, *Cry of the Earth*, 219.
105 Boff, *Ecology and Liberation*, 42; Boff looks at the complementarity of spirituality and science, stating that great scientists themselves gain a spirituality when they come face to face with the complexity of reality.
relationality. Closely related to relationality is the category of self-organization – autopoiesis. Life, we learn, is the interplay of self-organizing relationships and interactions allowing syntropy – or solidarity – to prevail over entropy. For this reason, the most important universal laws, for Boff, become synergy, syntropy, interrelationship, collaboration, cosmic solidarity, and communion in kinship. The key to our survival, it would seem, lies in a gestalt of relationships interacting with each other which, in his later writings, he would characterize simply as “love.” Being ethical, then, begins by being in solidarity, which then demands that we learn to limit our human desires insofar as they lead to our advancement at the cost of class and planetary exploitation.

It is in the above sense that new science becomes normative. There are “oughts” implied from this interpretation of new science. Further expressing how we ought to conduct our lives, like Ruether, Boff offers bioregionalism and the Earth Charter – respectively as model and mandate – as a way of informing our actions. We learn from the wisdom revealed in self-organizing mature ecosystems, for instance, that we must embrace limits, maximize diversity and cooperate. Everything possesses certain otherness. Everything has a right to continue to exist within the ecological balance, and this right produces a corresponding duty in humans to preserve this balance. For this reason, the common good, which Boff later reconfigures as an ethics of care, cannot exist solely for the human but must be for the whole terrestrial, biological world, with which humans share a destiny.

For Boff, however, an ethics of care can never be understood as “once and for all.” Like Ruether, Boff’s attention to the process of becoming, mentioned earlier in the form of noosphere,
means we have to be attentive to change and adapt our ethics to what must be done at each moment. Boff’s ethic, then, rests on a particular mindset that must be open to change. For this reason, Boff distinguishes between morality, which has more to do with customs – thus risking stagnation – and ethics, which is dynamic, “born out of a new definition of the human being and of its mission in the universe as understood by new science.” In this sense, liberation for Boff becomes a continual process of harmonizing of our conduct with the logic of the cosmos. And since liberation can never be realized outside the larger relationality, and that it is marked by the extent to which we participate with the logic of the cosmos, for Boff, like Ruether, it is something that can never be “reached.”

However hopeful and holistic Boff’s ethic may appear, it lacks clarity on some issues. Before the 1992 United Nations’ Rio Summit, Boff’s writing dealt specifically with a Christian theological paradigm which was decidedly from the viewpoint of the poor. We find, however, in his post-1992 writings, particularly in his more recent ones, a shift away from developing an ethic from the point of view of the poor, to a more global view of the larger dimensions of liberation and not just for all humans but for the whole planet. In other words, his ethic has gained a view from everywhere. Andrew Dawson, writing on Boff’s approach and use of new science recognizes this in his analysis, saying, “Having since exchanged his epistemological locus standi among the poor for the generalized experience of mystical connectedness, Boff’s profession of ethical universals is no longer rooted in any particular context.”

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113 Truth also receives an evolutionary dimension: “Truth means to capture the sense of the scenario, relative to the totality of reality, and which is itself (reality) characterized by complexity, contradiction, supplementation and evolution,” Boff, *Ecology and Liberation*, 29.

114 Boff, *Essential Care*, 6; cf. Vázquez Carballo, 225; According to Vázquez Carballo, the two terms in everyday life are synonymous, ethics being part of philosophy, morality concrete daily life, customs, habits and values that have become established. Making the distinction allows Boff to say people can be moral while not ethical. In Boff, *Ecology and Liberation*, 29, for instance, he states, “Ethics goes beyond morals to express appropriate behaviors and the right way for human beings to relate to one another by respecting the specific and intrinsic dynamics, the essential thrust in the nature of all things.”

115 Boff, *Ecology and Liberation*, 71; with this concept of never reaching full liberation in mind, Boff quotes Cuban poet José Roberto Retamar as saying that the human has two basic hungers, one for bread, the other for beauty. The former can be sated, the latter is insatiable. He concludes: “Hence liberation can never be restricted to the material, social, or merely spiritual realm. It is only true when it remains open to the full sweep of human demands.”

116 Dawson, 164.
There is truth to this statement and we cannot discount the possible benefits it can produce: for instance, we discern that to cut down on greenhouse emissions in industrialized nations is not enough without a concomitant critical examination of the model of society, and paradigms of development and consumption that continues to champion economic growth. However, with the change of epistemological *locus standi*, is such an outcome still assured? One wonders if this will necessarily lead to fewer victims. If we are to view solidarity as a basic universal law, to whom, when conceivably all things appear equal, do we give the last or preferential say? Is compromise on preserving an ecosystem or local community always necessary?

The relation between humans and the natural world also remains ambiguous in Boff’s ethic. It is true that animals, trees and indeed the whole natural world gain intrinsic worth in Boff’s paradigm. As we saw above, he asserts that everything that exists and lives deserves to exist. In what manner, however, can we really say that a cancer cell has a right to exist? It is doubtful Boff is referring to this; yet, clarification does not appear in his writings. In his analysis of Boff’s ethical vision, Stephen Bede Scharper, arguing along the same lines, asks how the Earth has rights in the same way humans do.\(^ \text{117} \) How does the intrinsic worth of an animal compare to the intrinsic worth of the human? Can the former trump the latter? Such a distinction is not clear in Boff’s analysis. Respectful dialogue on the plethora of choices to be made might not be adequate on a planetary level.

As with the case of Ruether’s ethic, one has to question the extent to which Boff has avoided even some elements of a stronger anthropocentrism. Assigning the human as co-pilot (at times he also says guardian angel or even gardener, like Ruether does) is not precise in this regard, since a pilot is pretty much the most “significant” being on a plane, as far as survival of the whole goes. Despite the hermeneutic of humility, love or care that Boff assigns the human, assigning us the role of pilot carries a rather strong anthropocentric hue. A good pilot needs to know thoroughly how the entire plane functions and be able to control the plane in all circumstances. Even Boff’s qualifications with regard to the anthropic principle mentioned above seem uncertain. In pondering the unquestionable havoc we have wreaked upon the planet, taking countless wrong turns over the course of millennia, Scharper poses the amusing though

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\(^{117}\) Scharper, *Redeeming the Time*, 172.
fundamental question, “If we are co-pilots…what ‘flight school’ did we attend?” In this vein, Boff’s claim that a new planetary consciousness is developing – the noosphere in the form of globalization – presents itself somewhat like an apologetic to Gaia. It is almost as if Boff were saying to those in the camp of deep ecology, “Wait; it’s true we have been demons to the Earth, but don’t dismiss us just yet, we do have a valid and important role on Gaia.”

Related to what I would designate the medium-to-strong anthropocentric nature of his ethical vision, we should also question the assumption that underlines his thinking, which assumes evolution and progress are two sides of the same coin of future development. Granted Boff raises the possibility that humans could fail and that Gaia could be working to actually rid herself of our waywardness, the teleology in Boff’s thinking is, nevertheless, unmistakable. Boff’s ethical vision retains the evolutionary progression that places the human with our consciousness, seemingly as the end of a long process of evolution. Such a stance seems to imply that humans are quantitatively better than other-than-humans. While this is not what Boff would say, it is difficult not to arrive at this conclusion.

Finally, on the spiritual level, we have noted above that St. Francis, the patron saint of ecology in Catholic circles, provides another ideal paradigm for helping us to live well, not better in our world. To be sure, St. Francis embraced a spirituality of radical poverty and abandonment to the will of God; he saw all creation as his brother or sister. Does Boff suggest that our entire world population will need to develop a St. Francis-type spirituality? This would not be so much a problem were it not for the importance of spirituality to Boff’s program. There is no guarantee that all humans can or will spiritually interiorize the new experience before us which, Boff insists, is necessary for any ethic to take hold. To be fair, Boff does stress that since everything has its own interiority – something intuited by Teilhard de Chardin and supported by Prigogine – everything, then, is spiritual. Moreover, Boff’s promotion of a global consciousness, the noosphere, plays a large role in helping to raise the consciousness of our species (and we could surmise by that our spiritual awareness as well). But this premise is not as empirically verifiable as other concepts Boff has put forth. Undoubtedly, the key to understanding Boff’s ethics, then,

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118 Ibid., 174.
119 Boff, Cry of the Earth, 29; although, such a claim runs the risk of devaluing spirituality, the very goal Boff appears to be striving for.
is its evolutionary and spiritual dimension. There is much hope placed on our ability to be creative and to continually evolve our ethics so that while questions persist now, they might be answered down the road as we gain more knowledge from new science.

It is fitting here, as well as significant to understanding Boff’s ethical vision, to end this section, as we did with regard to Ruether’s, by underlining that Boff partly arrived at conclusions of our connectedness and solidarity before his appropriation of science. Unlike past notions of human liberation, though, this person’s conscious participation in the unfolding of her or his life becomes circumscribed by a gestalt of relationships, and therefore of “liberations” – and not solely of the human – each interacting with the other in syntropy. As we saw with Ruether, then, there is an interplay between Boff’s personal biography and what he learns from science. That Boff places relationality at the core of his ethical vision is certainly something that the new science affirms, but it is also something he long-ago knew, following as a monk in the footsteps of St. Francis of Assisi, and journeying with Chico Mendes. With a liberation critique of developmentalism, Boff came to the conclusion long before he penned *Ecology and Liberation* that we need to be in solidarity with the poor based on a knowledge that we are connected politically, socially and economically. It was his introduction of an analysis of social ecology that led him to see that social and economic systems are structured so that resources are appropriated without restraints and that they are distributed unequally or, put another way, we can no longer address the cry of the poor without a concomitant embrace of the cry of the Earth. Like Ruether, ecological sustainability becomes pure nonsense for Boff if it does not take into account the story of the human person scavenging garbage dumps in Brazil for scraps of food: the forces that cause the creation of the dump are the same forces that leave this person little choice in her or his search for sustenance.

2.4 The Epistemology and Methodology Backing Boff’s Ethical Vision

Boff’s epistemological stance lies in stark contrast to the classical scientific paradigm that isolates and controls. The latter can no longer be considered viable, as it denies the legitimacy of

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120 Boff speaks of US economist Kenneth E. Boulding who labels our capitalist system as “the cowboy economy” to denote that it is based on the assumption that resources are unlimited and empty spaces are meant to be filled: Leonardo Boff, “Social Ecology: Poverty and Misery,” 242.
other kinds of dialogue with nature, such as common sense, magic, and alchemy. Ilya Prigogine, whose thinking on this matter heavily influences Boff’s analysis, is quoted by Boff on this point:

We dialogue with the universe not only along experimental path of science and technology but other approaches to conversing with nature. All accounts that cultures have given of how they came into the world can help us better know and preserve ourselves and our habit. Thus it emerges that these are complementary approaches, and the monopoly of the modern way of deciphering the world around us is relinquished.\footnote{Boff, \textit{Cry of the Earth}, 11. We can readily see why ecological thought based on the Earth sciences is so fundamental to Boff’s program. Recall from earlier in this chapter that holistic ecology – the only way ecology can be thought of, continually looks for relationships amongst all things and at all levels and this includes the social and mental processes that shape our environment. We are told that more than any other science, ecology confronts nature as an organic, differentiated, and single whole; ecology integrates other sciences. With the stress Boff places on relationality and intra-universal communication, ecology as a science takes on a political dimension: “All beings in nature are subjects with rights, because, in their own way, they are carriers of information and of subjectivity…” and in a Leopoldian fashion Boff concludes from this, “democracy cannot apply only to human beings and society, it also needs to apply to the cosmos” (Boff, \textit{Global Civilization}, 58).}

Boff maintains that only such an inclusive form of reasoning and communicating is appropriate to the complexities of our current reality.\footnote{Boff, \textit{Global Civilization}, 19.} He puts forth a rich diversity of ways of knowing and understanding the world, each enriching the other: symbolic reason, reason of the heart, use of all bodily and spiritual senses, eros – understood here as passion and desire – pathos, sensitivity, what he calls daimon – nature’s inner voice that speaks to us – and, of course, affect – feelings or sentiments such as fascination, wonder, and admiration at the diversity of cultures, the vitality of animals, or at the majesty of mountains, as well as awe at gazing at a star-filled sky.\footnote{Boff, \textit{Cry of the Earth}, 11-12.} In this way:

We learn from all human experiences and the way they handle nature, whether from those experiences mistakenly called primitive or magical, those using alchemy, shamans, those that are archaic and religious, or from contemporary experiences linked to empirical, analytic, and epistemological discourse. They all reveal the communication of human beings with our surroundings. They all attest to a truth…\footnote{Ibid., 26.}

With so much of Boff’s ethic originating from the cries of the Earth and the cries of the poor, and with his concomitant earthy solidarity with their plights, it becomes clear why Boff says, “The world is one great message,”\footnote{Quoted from Andrew Dawson’s translation of some of Boff’s work found solely in Portuguese (159).} whose divine revelation is knowable to us.
Relationality, then, while playing a key role in Boff’s ethic, plays a similar role in his epistemology. For one, it means we cannot know an entity without knowing its own world of relationships or context:

Beings, organisms, and phenomena cannot be isolated from the totality of the inter(retro)relationships that actually constitute them. Hence, we must distinguish without separating; getting to know a being means comprehending its ecosystem, and its web of relationships.  

But, interacting or entering into communion with the universe is also expressly democratic.

In other words, we are all in a process of dialogue and interaction with the universe; we all produce information and we can all learn from one another, from how viruses are transmitted, from how plankton adapt to changes in the oceans, and from how humans handle in different manners the challenges of extremely varied ecosystems.

To Boff, not only is “our own way of arriving at what is real […] not the only way,” he is also stipulating that it ought not be the only way, for there are many ways of getting to know a being. Boff envisions a multi-directional dialogue happening which he defines as dialogical, an intra-universal way of communicating in communion with all that exists. He believes the logic of the universe itself is dialogical, as “everything interacts with everything at all points and under all circumstances.” This communal dialogue represents, for Boff, a vast process of universal interaction that began at the beginning with the big bang. And while humans as a whole might have lost our understanding of this interaction, Boff contends, “…the current crisis is prompting the development of a new sensitivity to planet as a whole.”

This new sensitivity represents an “attitude of enchantment,” not solely for science – though science appears the primary target – but for all disciplines.

For Boff, arriving at what is real, what is truth, takes on an evolutionary dimension.

Taking another page from Prigogine’s writings, Boff states:

Order-disorder-order constitute the underlying force of reality as maintained by Ilya Prigogine. To get bogged down by the text and by the truth that is said and revealed in
the same text is to fix oneself to a particular moment in the scenario of history and as such it is to lose the open and evolving meaning of this truth.\textsuperscript{132}

Here, Boff is challenging the notion that traditional religious truths are static. He suggests it continually unfolds and no one subject can have more than a partial view of it,\textsuperscript{133} adding “Truth means to capture the sense of the scenario, relative to the totality of reality, and which is itself (reality) characterized by complexity, contradiction, supplementation and evolution.”\textsuperscript{134} Boff is not saying that “everything goes” nor is he denying the possibility of the existence of an absolute truth. However, since “All, in one way or the other, participate in the truth,” the truth we should strive for, a more complete truth, is the one that more and more “relates with others, respectful of their differences.”\textsuperscript{135} Moreover, as we saw above, having exchanged his locus standi amongst the poor for the larger ecological and mystical connectedness, a truth is no longer uniquely justified by whether it facilitates or hinders the poor being agents of their own destiny. Instead truth, and by extension liberation for all creation it would seem, is situated within a larger context by how well it supports or fractures the dynamic equilibrium, or common environmental good of overall ecosystems which, by definition, comprise the human community. As a criterion for truth, Boff presents the following: “The basic question in ecology is this: to what extent do this or that science, technology, institutional or personal activity, ideology, or religion help either to support or fracture the dynamic equilibrium that exists in the overall ecosystems?”\textsuperscript{136}

In order to realize a liberating and sustainable society, therefore, humans have to engage in dialogue with all beings within their larger relational context. To do this, Boff proposes a perichoretic model as the best approach for realizing “the most inclusive stance possible,” and “the one that is least inclined to produce victims,” since everything interacts with everything at all points and under all circumstances.\textsuperscript{137} His perichoretic model is an adaptation of the Greek

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132 Boff, Global Civilization, 17.
133 This idea is supported in Dawson’s work; moreover, the “Tao,” is presented in Hathaway and Boff’s collaborative work, The Tao of Liberation, as the supreme reality, the way the universe works; yet, it is, “a reality that ultimately evades a hard and fast description but can only be intuited on a deeper level,” xxiv.
134 Boff, Ecology and Liberation, 29.
137 Boff, Cry of the Earth, 24.
\end{flushright}
term, *Perichoresis* which, in the Christian tradition, describes the mutual presence and interpenetration of the threefold nature and functioning of the Trinity (God the Father, the Son and the Holy Spirit). He likens it to the ecological model that functions like a “participative democracy”\(^\text{138}\) whose members are spatially and temporarily unconfined, making his perichoretic model “transversal.”\(^\text{139}\) By transversal Boff implies a relation that extends simultaneously in multiple directions and in different manners: epistemologically and ontologically laterally among the ecological community; frontward, toward the future of that community; backward, into the community’s past; and inward, into the complexities of that community with “all [its] experiences and all forms of comprehension as complementary and useful knowledge of the universe, our role within it, and in the cosmic solidarity that unites us to all.”\(^\text{140}\)

To be sure, such a vast process of universal interaction is difficult to envision within a bioregional model. How does Boff see the perichoretic model functioning at this level? The process appears to require a conversation amongst a large quantity of subjects, comprising the human, terrestrial and non-human biological world, all interconnected amidst complex sets of relationships. In *The Tao of Liberation*, Boff does stress that the process necessitates that humans can begin to relate only once they start to dwell in an area. “In the bioregional vision,” Boff states, “we must fit ourselves into the ecosystem and natural economy of the particular place, rather than trying to mold the place to suit our personal taste (albeit, presumably, some mutuality of shaping does occur).”\(^\text{141}\) Dwelling on the land implies we listen to it, comprehending the kinds of soils, rock, and insects it has, as well as its carrying capacities; we do this through the critical reflection, a mutual engagement and, by what seems to be an interiorization of experiences. This inculcating of the natural world as part of one’s inner nature allows us to identify with the land not by force but by letting the “land reclaim us like ivy growing over an old house.”\(^\text{142}\) This interiorization is facilitated through the “spiritual arts,” which include practicing meditation, spiritual dance and movement.

\(^{138}\) Boff, *Global Civilization*, 16.
\(^{139}\) Boff, *Cry of the Earth*, 4.
\(^{140}\) Ibid., 4.
\(^{141}\) Ibid., 355-356.
\(^{142}\) Ibid., 356.
This last matter on spiritual arts requires further explanation, since, as we saw above, they are vital to Boff’s program. Recall, St. Francis of Assisi is held as the quintessential role model of the type of person capable of fostering a new paradigm through the perichoretic model. This is not accidental. Boff avers that spirituality, one grounded in a mystical experience of the sacred, is key to his program. Spirituality complements our way of knowing by demonstrating the truth of the issues at hand. How is this? He theorizes that the human being is of two selves: the “conscious self” and the “deep self,” also understood as the divine within us. In some of his un-translated Portuguese writings, he articulates this duality as being also head and heart. When the two meet through spiritual exercises, they form the “personal centre” of the being, which corresponds to the Jungian notion that human growth comes from a psychic source within.

In his work on Boff, Andrew Dawson explains that for Boff, uniting the “conscious self” and the “deep self” corrects our misguided notions of being separate entities, and puts us in touch with universal values, thus, serving to correct “any false consciousness by disposing the individual self to [in Boff’s words] ‘veracity.’” While undoubtedly Boff does find that knowledge arises from this turn inward, as Dawson suggests, the degree it can claim “universality,” again as Dawson suggests, is questionable given Boff’s democratic understanding of how we arrive at truth outlined above. While it is correct that Boff believes, “The more we know ourselves and know the sun that inhabits us…the more integrated we become, turned to that powerful center we call God,” I do not think Boff is giving superior value to truth found inwardly over truth that is more complete, “to the extent that they open up more and more to each other.” This notion is not in line with the preeminence he assigns to the wisdom of science. It would seem more correct to conclude that Boff sees truth as being facilitated by the spiritual arts, allowing the person to gain more clarity to see things as they really are.

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143 It is also fitting considering, as lore has it, that Francis often spoke with the animals (and they with him), which is certainly perichoretic in essence.
144 Dawson, 161; cf. Hathaway and Boff, Chapter 11, and Boff, Cry of the Earth, Chapter 10.
146 Boff, “On Proper Use of Relativism.”
147 For this reason, we can see why the spiritual arts become vital to Boff’s program: In Hathaway and Boff, 269-391, Boff and Hathaway suggest a fourfold path to liberation based on Matthew Fox’s Vie Positiva, Negativa, Creativa and Transformativa. To these ‘paths’, they adjoin an intricate coupling of prayers (from many religions),
“universal” about truths, partially accessible to the mystic, would come in the form of the principles of diversity, interiority, and communion which, to the scientist, would come in the forms of universal laws: differentiation, autopoiesis and gravitation.

The assumption here is that we discern the common good or welfare of the biotic community not merely through an accumulation of knowledge and wisdom though dialogue, but through a multi-faceted mutual reinvention of who we are, accompanied by a “radical reorientation in the way we live.” By way of an example we have already encountered, we can deepen our identity with the land through science, as Boff posits, by learning that the human body’s proportions of water (71%) is similar to that of the surface of the planet, and the proportion of salt level in our blood (4.3%) is similar to that of the oceans, as we discussed above. Boff seemingly rounds off his method of reorienting ourselves by having us also engage in the continuous cycle of meditation and experiential learning, rooted in place, where mind and body learn together – “not only by seeing and hearing but by tasting, feeling, and smelling” – we also find ourselves referring to the land as “Pacha Mama.” Our relationship to one another (culture) as well as to the land is further deepened through story, the transmitting of history and the sharing of local knowledge. And since the bioregional culture is an open system, it interacts and enriches itself by listening to and mutually sharing with other bioregional cultures.

interspersed with insights from martial arts, quantum physics, chaos theory, Buddhism and Taoism (to name a few), all which represent a path of authentic joy and wonder (Via Positiva), self-emptying (Via Negativa), reconnection to the great cosmic story (Via Creativa) and embodiment of the vision (Via Transformativa). To become agents for change, we need to open ourselves to the guidance already present in the universe, to invoke it.

148 Hathaway and Boff, 356.
149 Hathaway and Boff, 138; see also Boff, Cry of the Earth, 17.
150 Boff, “Calling in Multiple Ecological Debts,” 138.
151 Hathaway and Boff, 361.
152 Boff suggests that within this perichoretic model lies a continuous process of questioning and testing in order to discern the common good or welfare of the biotic community whereby what distinguishes humans from the rest of the natural world is more vague. The act of questioning, testing and arranging things is not solely of the human but of the whole community. In the quote below, Boff seems to imply that there is something primordial to his model. Again, he learns from Ilya Prigogine who asks, “How are we to distinguish the modern man or woman of science from a magician or witch doctor, or even from what is much further from human society, a bacterium, for it also questions itself about the world and is constantly testing the decodification of the chemical signals that guide it?” (Cry of the Earth, 10).
Conclusion

Like Ruether, we began our investigation of Boff’s work by discussing his starting points. Boff is thoroughly concerned with meeting the needs and desires of the entire Earth community. His experience in the slums outside Rio de Janiero and the jungles of the Amazon molded a vision within him whereby liberation for all of creation becomes paramount. Not just the human but the rivers, trees and animals ought to be free to follow their own interiority without the domination from political, economic or social structures. Indeed, his ethical vision fosters a sensitivity for all creation.

Science also gains a normative role in forming Boff’s ethical vision and, again like Ruether, we find that its role is not exclusive, as the indigenous concepts of “Pacha Mama” and his mystical vision inspired by St. Francis also feature prominently. The lines between the scientific and the more mystical ways of knowing become less distinct: on the one hand, science sets guidelines for our actions. On the other hand, science affirms a need to show solidarity with all creation, something that was clear to Boff long ago following in the footsteps of St. Francis. Clearly, Boff assigns great importance to the concept of relationality here and now on Earth. His perichoretic model for how we know the world serves to affirm ostensibly what Ruether also posits, that the universe is widely participatory. Knowing takes on a multidimensional character. In fact, such an inclusive form of reasoning and communicating appears to him as the most appropriate ways to address the complexities of our current reality.

We can account for the similarities between Boff’s and Ruether’s ethical visions, in part, by their starting points. Both were imbued early in their life by a concern for the poor or marginalized, whether through work in the Civil Rights movement or the slums outside Rio de Janiero. Both were also infused with the excitement that surrounded the Church renewal in the early years of Vatican II. And both found within science a powerful means to understand more deeply how grounded we are in Earth realities and therefore requiring our actions to become aligned with the logic of the cosmos. Liberation, each author is emphatic, is meant for all creation.

On this last point, Boff’s ethical vision, like Ruether’s, is not without its difficulties. Boff’s change of view, once decidedly from the view of the poor now takes on a planetary lens.
While this is an important shift in order to foster liberation for all creation, the important question remains: how is this gestalt of relationships or liberations Boff refers to fostered for an entire planet where each subject is granted intrinsic worth? While Boff offers a more specific explanation of the bioregional model where the common good or welfare of the biotic community is of primary concern, the answer to this query is still not clear.
Introduction to O’Murchu

Diarmuid O’Murchu is an Irish-born priest and has been a member of the Sacred Heart Missionary Order for over 35 years. He is also a social psychologist specializing in counseling for couples, the bereaved, and those with AIDS-HIV. O’Murchu has written many books and has contributed articles, essays, poems and blogs for Catholic newspapers, websites – while also developing his own website. O’Murchu facilitates many workshops that focus on adult faith development – in many cases addressing different Catholic religious orders – in Europe, USA, Canada, Australia, The Philippines, Thailand, India, Peru, and in several African countries. And judging by his itinerary openly accessible on his website, he is in much demand. The title “facilitator” seems to describe him well given the energy he places on facilitating workshops, counseling of adults, and writing books and maintaining a website directed toward adult spiritual growth. In fact, O’Murchu might best be understood as an adult faith educator.

Deeply critical of religion as it is practised and configured today, O’Murchu – like Boff, though not to the same degree – has landed himself in trouble with the Congregation for the Doctrine of the Faith of the Vatican for his radical views on the empowering of religious life, encouraging members of religious orders (in some cases), to leave the Catholic Church, thus placing religious life “far beyond” the Catholic Church hierarchical control. O’Murchu was not

1 Much of this information can be found on his website: http://www.diarmuid13.com; accessed July 2011. O’Murchu conducts much of his counseling in London, U.K.
2 A “Doctrinal Note” on O’Murchu’s book Reframing Religious Life was issued by L’Osservatore Romano in March 2006: http://www.zenit.org/article-15804?l=english; accessed, July 2011. There was a subsequent case of the Archbishop of Melbourne, Australia, Denis Hart, withdrawing his permission for O’Murchu to present a series of workshops in his diocese because of such investigations by the Vatican: http://cathnews.acu.edu.au/606/165.php; accessed, July 2011 (The series took place in the end at a different venue, due to popular outcry; see http://www.catholica.com.au/tomstake/033_tt_print.php; accessed, August 2012). I asked O’Murchu his thoughts on why he has escaped censure from the Vatican, given his radical views, and he answered that he sees two reasons: he is “protected” somewhat as he is an ordered priest, and therefore answers directly to his own superiors, and that he, unlike Boff, never claimed official status as a church theologian (personal interview with O’Murchu).
always as critical of the Church as an institution. He grew up and was educated in Ireland within a strict Catholic upbringing\(^3\) where “[a]uthority was absolute and the central doctrines of a ruling, controlling church, representing a harshly demanding God on high, dictated a very clear sense of right and wrong.”\(^4\) O’Murchu states that reading the writings of Pierre Teilhard de Chardin in the 1970s “began to blow apart the inherited tenets of [his] narrow inherited tradition.”\(^5\) O’Murchu writes that when he read Teilhard de Chardin’s *Hymn of the Universe* and *The Divine Milieu*, “Truly, my heart burned within me; everything I read resonated with a depth and conviction I had not known for many years.”\(^6\) O’Murchu attributes his growing up on a farm within a milieu of Celtic spirituality as a main reason why Teilhard de Chardin’s writings resonated so much within him, for the land in the Celtic mind was readily understood as sacred.

Indeed, it was throughout the entire 1960s and 1970s era, O’Murchu tells us, that he experienced a period of “inner and outer turmoil:” the growing Vatican II spirit of ecumenism was throwing the last vestiges of Catholic supremacy into disarray, and British soldiers were battling in Northern Ireland with “[his] fellow-countrymen.”\(^7\) O’Murchu cites a train journey in England when he had a long conversation with two young British soldiers on their way to do service in Northern Ireland; he later found out that one was shot soon after by what he, at that time, understood as his own kinfolk. This experience placed him in religious and personal confusion, as “the insular religiosity that had fuelled [his] spiritual values for over twenty years…” came into doubt.\(^8\) Another incident that put his world into disarray was at an ecumenical service at a Taizé gathering in Southern France. His ecumenism, he confesses, was superficial as he found himself feeling indignant when the group leader, an Anglican priest, invited him to concelebrate Eucharist with him. It was this episode, he states, which “proved to

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\(^5\) Ibid., 2. O’Murchu writes that he had already developed a growing skepticism and growing mistrust, of those “who had sought to protect me form the ‘evil influences of the secular world,’” Diarmuid O’Murchu, *Evolutionary Faith: Rediscovering God in Our Great Story* (Maryknoll, N.Y.: Orbis Books, 2002), 1-2.


\(^8\) O’Murchu, *Religion in Exile*, 5. O’Murchu speaks of no longer feeling he is a citizen of Ireland, as he is more comfortable being a “citizen of the planet;” in fact, the concept of the nation state, as we will learn in his ethical vision, is a construct that is no longer viable, as it runs counter to the bioregional model of existence: O’Murchu, *Evolutionary Faith*, 2, 189.
be a major turning-point in [his] life,” for even the ecumenism he embraced smelled of imperialist claims of the Catholic Church.⁹

On closer examination, it seems like a blend of life experiences was instrumental in opening O’Murchu up to multiple worldviews. To this array of experiences, we must add his working so long as a psychologist, counselling believers and non-believers alike. O’Murchu claims he could no longer ignore the feeling that a spiritual hunger imbues the psyche of all humans and not just “church goers.”¹⁰ This feeling will guide him in his writings.

3.1 The Target of O’Murchu’s Critique

Like Boff, Diarmuid O’Murchu is concerned with a spiritual malaise which, he maintains, is profoundly afflicting humanity at this point in history. In fact, humanity’s spiritual malaise is O’Murchu’s chief concern. At our deepest core, we desire wholeness, freedom, relationality and creativity, which are features, as we will see, that O’Murchu maintains are inherent to the cosmos itself. However, these desires have been corrupted or frustrated by patriarchal, strong anthropocentric and dualist thinking, which seek to divide and control, leaving us alienated from ourselves, one another and the world we live in. The result is that a mature adult faith fails to develop, leaving us with a distorted picture of who we are and what our role ought to be as a species.¹¹

For O’Murchu, desire is the most fundamental trait that makes us human; it is a capacity humans have inherited from the universe and, as such, there is something primordial to it. The denial of our primordial desires, such as the desire for relationship with other humans and other than-humans, has led us to objectify people and nature, leading, ultimately, to social injustice, to speciesism, and to ecological degradation.¹² O’Murchu likens this state of feeling separate from

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⁹ O’Murchu, Religion in Exile, 5. His eventual shift in what he believed to be an insular worldview was further impelled by the introduction of television into Ireland in the 1960s, which opened him up to other ways of seeing the world, and the increased exposure to other cultures, which contextualized his own limited world.

¹⁰ O’Murchu speaks of this connection between spirituality and his work as a psychologist in Religion in Exile, 7, as well as in personal interview with him.

¹¹ O’Murchu, Adult Faith, 7-9. O’Murchu defines adulthood in a psychological sense: he eschews rigid, timeless categories in favour of viewing the whole life cycle of the person in its social, intellectual, emotional and spiritual dimensions.

¹² Diarmuid O’Murchu, Quantum Theology: Spiritual Implications of the New Physics (New York: Crossroad Publishing Company, 2004), 153, 26. O’Murchu points to reductionist science which sees all elements in the
the other to living in exile from our planet and the larger, and now forgotten, evolutionary impulse.\textsuperscript{13} Much along the same lines of ecofeminist thinking, as we saw with Ruether, this sense of separation, even from our own bodies, is responsible for our refusal to accept death as a necessary good in evolution, instead of an evil as postulated by mainline Christian theology.\textsuperscript{14} Death, he contends, is not a punishment for our sins, as mainline Christian theology states. Yet, this misconception about death only contributes to our spiritual malaise, as he posits, “We cannot learn to live better for the future until we also learn to die better.”\textsuperscript{15} It might seem odd to advocate that we need to learn to die better, but O’Murchu seems to be restating what Ruether refers to as the denial of our anthropological vulnerability. He captures here a truism of contemporary Western society: we employ our technology, build our cities, and gear our economic and social systems in ways that shun suffering (simply taking a pill to lose weight, for instance) and deny limits (building our homes on a flood plain). In this manner, learning to “to die better” is really a means for learning “to live better.”

It would be fair to say that the primary target of O’Murchu’s critique is aimed at religion,\textsuperscript{16} but the science that excludes other ways of knowing and tries to dominate what can be considered as truth in the universe – which feeds a person’s spirituality – comes equally under fire from O’Murchu. He writes, “Science tends to exclude God, while religion often brings in God prematurely. In both cases we are in danger of bypassing the challenge to the human imagination to engage more directly with the meaning of life.”\textsuperscript{17} In this regard, O’Murchu finds parallels between religion that dominates and science that controls: each treats inner human desire as a negative force. As the quote above suggests, science debases desire by explaining it in...
terms of genetic forces seeking survival for one’s own genes, while religion seeks to eradicate it, as it is the cause of sin. O’Murchu also maintains that both religion and science assume a generally pessimistic attitude toward human nature which, he suggests, contributes to many of our ecological and social problems. He points to the narrow scope of historical research on the human as a species, for instance, which concentrates exclusively on the past eight thousand years (as opposed to millions of years), as portraying our species solely as domineering, aggressive and competitive.

What is needed in order to recover from patriarchal control, pessimism, and our sense of exile is knowledge of how our living systems, our world, and the cosmos operate and evolve. Ultimately, O’Murchu is advocating for a spiritual maturation as a species, or a mature faith that will allow humans to “embrace the grandeur, complexity, and paradox that characterizes evolution at every stage…” Liberation, for O’Murchu, then, is tightly aligned with the extent to which humans and all living beings live out evolutionary impulses that desire wholeness, freedom, relationality and creativity; for humans, it can be considered a process of maturation. And since “today science often outpaces religions in reawakening access to mystery and deeper meaning,” he advocates turning to science to cultivate a true understanding of who we are really meant to be as humans on Earth and to provide us with guidelines to direct our behaviour so that we relate to the planet in a more harmonious way. In this sense, a new ethical vision, and indeed, liberation, can come about by listening and aligning ourselves with the larger cosmic story.

3.2 The Science Authoring O’Murchu’s Ethical Vision

O’Murchu’s engagement with new science is arguably the most prolific among the Christian authors I am investigating. In 1986, his book *The God Who Becomes Redundant,*

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19 O’Murchu, *Evolutionary Faith,* 23.
20 Ibid., 81.
21 O’Murchu began his exploration of science in the seventies after reading the works of Teilhard de Chardin and later, in the eighties, Fritjof Capra’s *The Tao of Physics* had him want to dig deeper. In a conversation I had with O’Murchu, he stated, “*The Tao of Physics* was the book that really brought me to make the connections with physics in the more explicit sense. I think Teilhard de Chardin put me in touch more with evolution, cosmology and anthropology, but it was the work of Capra, who would be considered very much a maverick in the scientific world, that inspired me into making the deeper links with science.”
O’Murchu deals with new physics and ecology, which includes the Gaia hypothesis. He expands on this initial exploration in subsequent writings, paying particular attention to quantum physics, chaos theory, Gaian theory, paleoanthropology, biology and cosmology. Throughout his writings he has incorporated findings from a wide range of scientists: physicists David Bohm, David Peat, Lee Smolin, Stephen Hawking, Brian Greene, Fritjof Capra, Erich Jantsch, Paul Davies; chemists Ilya Prigogine, James Lovelock, Giuseppe Del Re; biologists Elisabet Sahtouris, Lynn Margulis, Rupert Sheldrake; cosmologist Brian Swimme; primatologists Frans De Waal, Jane Goodall; and, certainly, paleontologist Pierre Teilhard de Chardin. More could be added to this list if we include the scientists whose work he consults only once or twice and in one book, such as neuroscientist Karl Pribram, paleontologist Michael Brunet, biologists John Davidson, H.R. Maturana, Evan Eisenberg, paleoanthropologist Richard Leaky, anthropologist and science writer Roger Lewin, physicists Mishio Kaku, and zoologist and ethologist Lyall Watson. Like Boff, O’Murchu also relies much on scholars with backgrounds in science, such as Danah Zohar and those heavily engaged in science, such as complexity theorist James Gardener, historian Theodore Rozak, philosopher of science evolution and systems theory, Ervin Lazlo, and science writers such as Kitty Ferguson and writer for the journal Science, Ann Gibbons. In a few writings, he also consults the works of author, inventor and futurist, Ray Kurzweil who writes on the subject of science and technology in the future.

As the numbers and scope of scientist/scholars are extensive, it is, therefore, difficult to pinpoint one field of science that receives more consideration. While O’Murchu’s employment of quantum physics is arguably the field for which he is best known, he emphasizes other fields of science depending on the purpose of a particular work. In Quantum Theology, for instance, while he looks primarily at quantum physics, he also explores the Gaia theory to understand the whole and dynamic reality of the universe so as to shed light on how theology should be done; in Ancestral Grace he relies much upon recent findings in paleoanthropology and biology to

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emphasize deep time, which helps us look differently at who we are as a species; in Religion in Exile and Evolutionary Faith he gives considerable attention to chaos theory within a cosmo logical framework to help us come to terms with natural processes with all their paradoxes and to reclaim our identity as a cosmic and planetary species on an evolving Earth; and in The Transformation of Desire he turns to his psychological roots and examines desire in its planetary and cosmic essence and introduces bioregionalism as a means to help humans to align our desires with that of the whole planet. To be sure, these themes and scientific theories are not unique to each book and reappear in his other books. Accordingly, I shall divide my assessment of his use of science by the various themes that comprise what he means by maturing as a species.

Much as we saw with Boff’s analysis of quantum physics, O’Murchu sees quantum physics as evoking a new and profound way of understanding reality, one known to mystics for several thousand years.\(^\text{24}\) The discovery that subatomic particles are really vibrating wave packets invites us to see everyday objects as “living energy.”\(^\text{25}\) O’Murchu likes to use the example of a wooden desk, which to the naked eye seems to be a dead, inert material object. Yet, were it placed under a powerful microscope, it would appear as a “sea-bed of minute ‘moving’ particles” which, “at very fine and sensitive levels, [are] affecting my psyche, just as I am affecting [them].”\(^\text{26}\) He takes the metaphor of dance that Giuseppe Del Re, Brian Greene and Brian Swimme each use to illustrate how everything interacts with everything else, a world of “rhythm, synchronized motion, and continual change.”\(^\text{27}\) Dance as a metaphor not only demonstrates the movement and dynamic nature of the universe, but it ties ancient wisdom to what new science is telling, since dance, he points out, “is the first, most ancient, and most enduring form of religion.”\(^\text{28}\)

Where O’Murchu seems to part company with Boff’s reading of quantum physics, is the degree to which humans determine reality. While O’Murchu acknowledges the historical

\(^{24}\) O’Murchu, Quantum Theology, 29.
\(^{25}\) Ibid., 30.
\(^{26}\) Ibid., 30.
\(^{27}\) Ibid., 51.
\(^{28}\) Ibid., 47.
significance of the Copenhagen interpretation of quantum physics\textsuperscript{29} as well as the Teilhardian notion of noogenesis (though not without qualification),\textsuperscript{30} two understandings of our world that Boff uses to support his claim that the human’s role is like that of a co-pilot, O’Murchu downplays its anthropomorphic import. He states, “We humans do not and cannot determine the final outcome, except by quality of interference and control that is often deleterious than beneficial to progress and growth.”\textsuperscript{31} Placing us more as mere participators in a co-creative process, than co-pilots, O’Murchu eschews the strong anthropic conviction, “which claims that the highest possible levels of intelligence, information, and consciousness are those developed, or due to be developed, by human beings, \textit{in their presently evolved state} [original italics].”\textsuperscript{32} We are not the final goal of evolution, O’Murchu stresses, taking his cue here from Elisabet Sahtouris and James Lovelock: “In Gaian terms, we are just another species, neither the owners nor the stewards of the planet. Our future depends much more on a right relationship with Gaia than on enforcing our self-righteous claim to be masters of creation.”\textsuperscript{33} Indeed, the lessons from quantum physics lead O’Murchu to take this notion even further and conclude:

That our only real hope for ‘salvation’ and new life is to humbly acknowledge how little we are in it all, let go of our masculine will-to-power, and allow ourselves to become the co-creative beneficiaries of an evolutionary process that far outstretches anything we ever

\textsuperscript{29} The Copenhagen interpretation (early 1920s) – named so as its principle architect, Niels Bohr, a Danish based in Copenhagen – is one of the earliest and most commonly taught interpretations of quantum mechanics. Comprising various contemporaneous understandings in quantum theory, such as Werner Heisenberg’s uncertainty principle, the interpretation speaks to the wave function collapse (as discussed in the last chapter) as depending on which manifestation the observer is seeking, that is, there is no objective quantum reality beyond what is revealed by an act of measurement or observation. It is significant to O’Murchu and Boff as it demonstrates the great role the observer plays in influencing the experiment ultimately. See Manjit Kumar, \textit{Quantum: Einstein, Bohr, and the Great Debate about the Nature of Reality} (New York: W.W. Norton, 2009), 376.

\textsuperscript{30} O’Murchu, \textit{Evolutionary Faith}, 49-50; he describes Teilhard de Chardin’s biogenesis as the unfolding of life in biological terms, and psychogenesis as the mental dimension that enhances life’s evolution and, finally, noogenesis as “that innate intelligence, not necessarily divine,” that governs life’s unfolding; cf. Teilhard de Chardin (\textit{The Phenomenon of Man}, 200-203), where Teilhard de Chardin’s take is far more anthropocentric than O’Murchu puts it: “Psychogenesis has led to man. Now it effaces itself, relieved or absorbed by another and a higher function – the engendering and subsequent development of the mind, in one word noogenesis.” Recall, as we saw in the chapter with Ruether, that the noosphere, the mind of the human in Teilhard de Chardin’s framework, is Earth getting “a new skin,” the human thinking mind. Teilhard de Chardin, however, sees it as the “crowning” domain surrounding Earth and its other spheres.

\textsuperscript{31} O’Murchu, \textit{Quantum Theology}, 36.

\textsuperscript{32} Ibid., 113. Note the emphasis on human levels of intelligence, information, and consciousness not being the highest in its present evolved state. O’Murchu, as we will discuss later, speaks of the transhuman and posthuman, both of which could be understood as a being that co-evolves with technology.

\textsuperscript{33} Ibid., 114.
dreamed of. In that sublime and poignant moment of letting go, and letting ‘God’, we will rediscover who we really are.”

While quantum physics prescribes a diminished role for us as humans, it underlines the relational character of the universe. For O’Murchu, it also serves to demonstrate that the whole is greater than the sum of the parts. Quoting Lee Smolin, he states that radical atomism has failed:

Instead, if we want to give a complete description of an elementary particle we must include in the description every particle it may have interacted with in the past. This means that we can only give a complete description of any part of the universe to the extent that we describe the whole universe.

This concept of whole (also referred to as holism), he believes, is made nowhere more vivid or concrete than with an illustration of how the hologram works. The work of David Bohm, who proposed in 1971 that a hologram describes how the universe functions, is helpful in this regard. A hologram is a special type of optical storage system that uses laser beams. O’Murchu explains how it works:

If you take a holographic photo, say, of a dog, and cut out one section of it, e.g., the dog’s leg, and then enlarge that section to the original size, you will get, not an enlarged leg, but a picture of the whole dog. We are dealing with a method of lensless photography in which the wave field of light scattered by an object is recorded on a plate as an interference pattern. If we look at it with our ordinary eyesight, we see a meaningless pattern of swirls, but when the photographic record – the hologram – is placed in a coherent light beam like a laser, the original wave pattern is regenerated; a three-dimensional image appears, and any piece of the hologram will reconstruct the entire image.

In this sense, the whole is not only greater than the sum of its parts, but it is contained in each part as well. O’Murchu notes that Karl Pribram has suggested that the brain also functions like a hologram. But this detail seems secondary to O’Murchu’s program, for, ultimately, he aims to show how the universe is relational: “Everything in the cosmos is made out of the seamless,

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34 O’Murchu, *Quantum Theology*, 197. There is more to this than a mere sentiment of humility: O’Murchu is being consistent in his thinking. In *Evolutionary Faith* (102), he notes that the anthropic principle, by suggesting that we are the final outcome, “with nothing else of a higher nature to evolve,” insinuates that we must therefore be endowed with the wisdom and resources to resolve all of life’s mysteries and riddles, especially the puzzle of meaningless suffering.” This, he maintains is not true; moreover, such thinking causes more suffering and angst, as we naively attempt to diminish suffering.


36 Ibid., 61.
holographic fabric of the implicate order.” From this, O’Murchu concludes that no whole is ever complete in itself.

Unpacking how this relational aspect of the universe might impact on our daily lives and our ethics, he quotes from Danah Zohar:

Quantum holism may be telling us, for example, that power relations are not the only, or perhaps even the most effective, way that people and events can be linked in society. The politician or the manager who tries to influence or control events may be less effective than one who can be sensitive to the spontaneous emergence of social or political trends. The individual who realizes that parts of his or her identity emerge through relationship with others may be less guarded and defensive.

In addition, contrary to an individualistic morality that assumes the power to respond to ethical situations comes from the individual person, O’Murchu states that morality, in the quantum context, attends first to the whole and only secondarily to the parts composing the whole. He states:

The values in themselves are not fundamentally different from those of traditional morality – honesty, truth, peace, justice, love, liberty etc. How these values are contextualized, how they are incarnated in human social, and political structures, is what concerns quantum theologians.

Finally, he quotes business consultant Margaret Wheatley, who takes concrete lessons from quantum physics to guide her in her daily actions, worth repeating, at least in part, here:

My growing sensibility of a quantum universe has affected my organizational life in several ways. First, I try hard to discipline myself to remain aware of the whole and to

37 Ibid., 63; Of interest here is the work of philosopher and quantum physicist Henri Bortoft, though it was not consulted by O’Murchu, as far as I know. Having worked under David Bohm, Bortoft became fascinated with the concept of whole and how we experience the world. Bortoft links hermeneutics to the understanding of holograms described by Bohm and finds that a reciprocal relationship of part and whole explains well how we learn meaning in a text: “The whole is not the totality, but the whole emerges most fully and completely through the totality. Thus we can say the meaning is hologrammatical.” In this way, the meaning of the text is present in any region of the text, which is why he can conclude, “Indeed, we can sometimes find that it is just the understanding of a single passage that suddenly illuminates for us the whole meaning of the text.” As such, we learn, says Bortoft, not by “standing back” to get the whole picture – which would give us only a generalization – but by actually going into the parts where we find the authentic whole: Henri Bortoft, “Counterfeit and Authentic Wholes: Finding a Means for Dwelling in Nature,” in Goethe’s Way of Science: A Phenomenology of Nature, eds. David Seamon, Arthur Zajonc (Albany, N.Y.: State University of New York Press, 1998), 292.

38 O’Murchu, Religion in Exile, 136.

39 This phrase is not unproblematic and demonstrates an ambiguity in O’Murchu’s thinking as he obviously does care about individuals. I return to discuss this in Chapter 5.

40 O’Murchu, Quantum Theology, 151. While not a formal theologian nor calling himself one, O’Murchu democratizes theology by defining it as, “faith seeking understanding,” which “belongs to the primal and primordial aspiration that underpin the search for meaning, predating religion by thousands of years” (14-15).
resist my well-trained desire to analyze the parts to death. I now look for patterns of movement over time and focus on qualities like rhythm, flow, direction and shape…And last, I realize more and more that the universe will not cooperate with my desires for determinism.41

In short, morality in the quantum framework seeks to address the context, the system and the larger forces that impact upon individual and interpersonal behaviours: “The integrity, dignity, and rights of every ‘part’ (people included) can be promoted only within the relational context from which it emerges.”42 For O’Murchu, then, it is not our solipsistic individuality that matters; our independence and autonomy matter even less for that matter, for all of these are meaningless apart from the relationships that sustain us. For this reason, he prefers to speak of personhood with relationality at its core.43

Relationality receives an added import from O’Murchu with the work of Rupert Sheldrake, whose hypothesis on morphic resonance highlights our capacity to relate through fields.44 Much as gravitational or electromagnetic fields influence the world around us, Sheldrake posits that there are fields of influence, hidden to us and endowed with memory that influence our behavior and thoughts. These fields are pooled memories, not unlike the collective memory-unconscious in the Jungian sense. Sheldrake himself likens morphic resonances to Carl Jung’s theory.45 O’Murchu uses the often-cited example of monkeys on Koshima Island in Southern Japan found in 1954 to have adopted a new mode of eating potatoes. By 1958, monkeys all over Japan had adopted this new behavior even though there was no physical contact between the two groups. The hypothesis Sheldrake puts forth suggests the monkeys communicated through the

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41 Ibid., 37.
42 Ibid., 151.
43 In my interview with O’Murchu, he elaborates what he means by personhood. He turns to Jungian psychology and the notion of the transpersonal, which means growing into fuller sense of who one is by developing an awareness of his/her relationship with everything that constitutes the wider web of life. It is from that relational context that a person gets his/her deeper identity as a human being. O’Murchu puts it this way: “So, for example, in humanistic psychology…we use the phrase, ‘I am at all times the sum of my relationships and that is what gives me identity’; and that is what I am challenging [in using personhood]. Ultimately our true identity as people is a relational identity even for us as individuals rather than an isolated separated identity.”
44 Boff also explores Sheldrake’s hypothesis in Hathaway and Boff, The Tao of Liberation.
45 See Rupert Sheldrake, The Presence of the Past: Morphic Resonance and the Habits of Nature (New York: Times Books, 1988), 250ff. Within the collective memory of humanity people are more tuned into members of their own family and race and social and cultural group, yet there is also the presence of a background resonance from all humanity.
field of influence particular to their species.\textsuperscript{46} How could this occur? Sheldrake suggests that the form and behaviour of organisms do not arise merely from mechanistic interactions within their immediate environment. The morphic fields are like the signals from a TV set which are tuned to particular channels. Unlike TV signals, however, the communication is two way: between the morphic field and organism and back. He uses his hypothesis as a means to explain why flocks of birds show such remarkable coordination and why termites building columns, which are adjacent yet separate, know how to build arches so that the two sides meet at precisely the right place in the middle.\textsuperscript{47} From this – and in keeping with the holographic notion above – O’Murchu concludes that groups, our communities, and societies have a far greater influence on our lives than our individualistic culture acknowledges.

The relational whole, which we are being asked to befriend, for O’Murchu, refers not just to the psychic-material dimension of the universe but to time as well. He takes insights from paleontology and ethology to demonstrate that our present model of being is more of an aberration of who we are as a species. To support this claim, he employs the work of Michael Brunet, who discovered in Central Africa the skull and jaw remains of a late Miocene hominid nicknamed Toumai (whose remains are believed to predate the earliest previously known hominid remains, Lucy, by over three million years). O’Murchu concludes that the findings show us that human life began not recently, but 7 million years ago.\textsuperscript{48} The resultant “bigger picture” of human evolution determines that the relational model has prevailed throughout most of our “human” history and not the model whereby the human is seen as autonomous, atomistic, rational and self-reliant. O’Murchu contends that such discoveries must lead us to different anthropological conclusions about ourselves: we become a far more convivial species than presumed.

Along the same line of reasoning, O’Murchu also looks at the work of Frans de Waal whose study of bonobo life and culture led de Waal to claim: “Had the bonobo been known to science first and the chimpanzee second […] we might today have different ideas about the inevitability of violence in human society, about male dominance and male bonding in hunting

\textsuperscript{46} O’Murchu, \textit{The God Who Becomes Redundant} 132; cf. \textit{Quantum Theology}, 75.
\textsuperscript{47} Sheldrake, 111, 136 and 233.
\textsuperscript{48} O’Murchu, \textit{Ancestral Grace}, 50.
Bonobos, de Waal asserts, are peace-loving and generally egalitarian apes, which distinguish them from chimpanzees, who have received more scholarly attention and too often are used as prototypes of human behaviour. It is just such new exemplars that O’Murchu claims will help humans see themselves as more convivial beings: “The wisdom to realize that there are other prototypes we could use and adopt, some of which are far more congruent with our deeper story as human species.”

This more optimistic understanding of human nature is not the only lesson garnered here. Within this same deep time outlook, our understanding of religion alters as well. Based on his study of paleoanthropology, O’Murchu posits that our spiritual journey began some six hundred thousand years ago, not simply a few millennia ago; consequently, the major religions of our day, which came into being only between 3000 B.C.E. and 1500 C.E., represent only a fraction of humanity’s overall spiritual development. The conclusion he draws from this becomes clear: changing and even abandoning previously thought sacred eternal teachings and practices from religion becomes less problematic and, in fact, is a necessary step in our spiritual maturation.

This openness to change is taken up again in his investigation of chaos theory through the writings of Prigogine, Sahtouris and Lewin. Chaos theory is an attempt to explain the random components of systems. Popularly known as the butterfly effect, the theory posits that small differences in conditions of any system produce widely diverging outcomes. As a result, long-term predictions become impossible: “Chaos is a science of pattern, not predictability,” he writes, “It reminds us that in nature an exact replication of behavior may lead to disaster rather than to progress.” Similar to his conclusion on sacred eternal teachings above, to O’Murchu, chaos theory suggests that truths “will not be found within traditional religious institutions […]” To find truth, we need to look to the peripheries of the fields of religion and science, and

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49 Ibid., 23.
50 Ibid., 23.
often well beyond them where ecological, New Age and feminist movements, alternative medicines and technologies are created.\textsuperscript{54}

O’Murchu is not suggesting we abandon all past wisdoms, though: only those that are not congruent with the larger wisdom contained in the cosmos. O’Murchu speculates that early hominids would have had the intimate awareness of cycles of birth-death-rebirth through intuition, adding, “Baffling and bewildering it may have been at times, but intuitively our ancestors recognized a fundamental paradox characterizing not merely human life but creation at every level.”\textsuperscript{55} In this sense, he is advocating for a re-embrace of a wisdom about the nature of the universe intuited long ago by our ancestors. *Homo ergaster*, he suggests, did not need a rational explanation for everything we do today, suffering, death along with birth and joy would have been reflected in the human cycle and viewed not as a contradiction, which current patriarchal religion does, but as a paradox accepted. He states, “Humans at that time would not have been happy about paradox, and like ourselves may have performed rituals (magic) to resolve it, but they would not have been caught up in the compulsive urge to control as evidenced in the anthropocentric world of our time.”\textsuperscript{56}

The ultimate lesson O’Murchu is suggesting here is that instead of trying to control destruction, pain and suffering at all costs, or trying to keep them at bay by defensive tactics of denial and scapegoating, we are to engage with them, listen to them, and learn from them. This is

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\item \textsuperscript{54} Diarmuid O’Murchu, *Our World in Transition: Making Sense of a Changing World* (New York: The Book Guild Ltd., 1992), 74: here O’Murchu suggests a more ominous import to chaos: “It is as if chaos is the precondition for launching the entire system into a whole new way of being.”
\item \textsuperscript{55} O’Murchu, *Ancestral Grace*, 56. It is not clear how such claims can be known by science. A more thorough discussion of O’Murchu’s employment of science will occur in Chapter 7. From a scientific point of view, O’Murchu does suggest that death, the ultimate human fear, should be looked upon more as a transformation: as demonstrated in the subatomic world where a particle is never destroyed, only transformed. Taking a page from Ruether, O’Murchu suggests that after dying we simply return to creative “cosmic matrix” where our unique energy constellation (personal identity) will now serve other enlivening possibilities (227-8); cf. *Quantum Theology*, 182: life, he assures, will go on: “one does not need to invoke theological or religious argument to defend the case for life after biological death. In the world of particle physics, all annihilation means transformation, not into nihilism, but into something radically new and vibrant.”
\item \textsuperscript{56} O’Murchu, *Ancestral Grace*, 57. He adds in a footnote: “It seems to me that all these scholars [referring to a list of them who see humans as fundamentally aggressive, flawed or who view paradox as sin] operate out of a conceptual confusion between the fundamental paradox and the fundamental flaw. They tend to interpret creation’s foundational paradox (of creation-and-destruction) as basically flawed, tragic, not meant to be this way” (237).
\end{itemize}
what he means when he says – as we saw above – we need to learn to live better by learning to die better: we come to terms with natural processes, as we once did.\footnote{O’Murchu, \textit{The Transformation of Desire}, 78-81; while the subject of paradox is very important to O’Murchu’s program, it warrants further investigation, which I do later in this chapter. Of note, O’Murchu tips his hat to Brian Swimme and Thomas Berry whom he considers to be the best contemporary scholars to have understood the paradox of creation and destruction as being part of life: “Contrary to other theorists, they do not seek to get rid of the violence, and neither do they accept it as a fait accompli, in the face of which we feel powerless and all seems helpless (79). O’Murchu here is keeping in line with Berry’s own conclusions on the subject. Like Berry, O’Murchu references Aquinas who said if we do not understand creation correctly we can never understand God correctly; cf. \textit{Evolutionary Faith}, 105: O’Murchu says, “God does not seem to have a problem with suffering and destruction that are innate to the unfolding processes.”}

### 3.3 An Analysis of O’Murchu’s Ethical Vision

O’Murchu suggests a metaphor of homecoming to denote our coming back from exile to our true selves, replete with the more optimistic understanding of our convivial nature, here on Earth as part of a wider community of beings.\footnote{O’Murchu, \textit{Ancestral Grace}, 121.} Homecoming, as a way of being in the world, not only embraces the relational nature of our universe but it incorporates the paradoxes, ambiguities, uncertainties, messiness and struggles of life. And he suggests that bioregionalism – much in the way that Ruether and Boff do – can serve as a viable model for how a grounding or homecoming can take place.

Bioregionalism represents the bigger picture so important to O’Murchu’s ethic whereby the human import is significantly limited. To this end, O’Murchu maintains “The nation state has outlived its usefulness. Evolution is calling forth something quite different in our time.”\footnote{Ibid., 186.} In keeping with a holarchical (as opposed to hierarchical), collaborative and empowering model, he suggests that at the local level bioregionalism can replace the nation state as a model for governance. It also represents “a construct small enough to facilitate familiarity and complex enough” to honour the tenets of mutuality, participation, subsidiarity, cooperation and diversity.\footnote{Ibid., 187; O’Murchu bases his claim on governance on the success of NGOs and their networking ability throughout the globe. We will discuss this more later in this chapter. O’Murchu suggests bioregions are far more integral to the biotic structure than the present paradigm of nation states. Bioregionalism also captures the dynamic realities of life where change is part of life; see O’Murchu, \textit{Transformation of Desire}, 89-92, where he relates bioregionalism with the principle of subsidiarity; and 121, 127, where he adds bioregion is appropriate as everything there thrives through relationality.} Our cycle of production and exchange will be determined by the quality and quantity of local resources, power will be diffused and decentralized, with nothing done at a higher level
than necessary. The actual decision making bodies will follow cellular principles, “in which families operate within neighborhoods, neighborhoods within communities, communities within cities.”\footnote{O’Murchu, \textit{Ancestral Grace}, 188.} O’Murchu concludes that with a bioregional grounding we are more likely to satisfy both our survival needs and our more enduring desires, as it will assist us in relating as the natural world relates, not in unrestricted competition but with intense co-operation.

In the end, he is suggesting that a more mature adult faith develops when we align our desires to those of the larger cosmic whole, most aptly modeled – at the planetary level – by bioregionalism.\footnote{O’Murchu bases his assertion, in large measure, on the principles underscoring cosmogenesis of differentiation, communion and subjectivity as outlined by Berry. We will discuss these more in Chapter 4.} Not unlike Ruether who suggests we convert our minds to nature’s logic, then, O’Murchu is suggesting that by learning through science how living systems operate within the process of evolution, we can ascertain who we are and how we should conduct ourselves. Within O’Murchu’s framework, we are told to trust these cosmic processes or desires and to “attend first to the whole and only secondarily to the parts composing the whole,” since, as he posits, new science shows us that, “Creation has desires far more elegant and sophisticated than ours.”\footnote{O’Murchu, \textit{Evolutionary Faith}, 82.}

Thus, science, for O’Murchu, provides both guidelines and a vision of life and how we ought to approach it.

Trusting these “more sophisticated” cosmic processes or desires, and indeed looking first at the bigger picture, might seem contradictory to what we might expect from a liberationist ethic, especially if we are asking this, for example, of a poor and destitute Indigenous \textit{campesina} from Guatemala, walking long and far for water.\footnote{As discussed in the Introduction, the \textit{campesina} serves as a symbolic benchmark to discern how our interlocutors deal with liberation. I adapt this particular situation of our \textit{campesina} gathering water, in part, from a query made by Heather Eaton who originally spoke about an African woman carrying water for days. Eaton applied this scenario to a critique on Berry: Heather Eaton, “Cosmological Ethics? The Great Work,” \textit{Worldviews: Environment, Culture, Religion} 5, no. 2/3 (2001): 157 -169, doi.org/10.1163/15685350152908228. This scenario is not fanciful but based on a reality I experienced when working as a Research and Materials Officer for the Canadian Catholic Organization for Development and Peace. The justice campaign at the time focused on the privatization of water of communities in the global South. The reality was that once privatized, water companies raised prices forcing the majority of impoverished people in those communities to seek water sources which were unclean and far away. This actually happened in Guatemala. See Food and Water Watch: \url{http://www.foodandwaterwatch.org/pressreleases/idb-stop-pushing-water-privatization-in-latin-america/}, accessed June, 2013.} On this issue of the whole, O’Murchu is not very clear how we might attend to the needs of our Guatemalan \textit{campesina} if her needs conflict
with those of the biotic whole. But O’Murchu – not unlike what Ruether does in distinguishing between the planes of reality of the human and the natural world – is clearer about what he means by trusting cosmic processes. He makes a distinction here between cosmic and human processes, between meaningful and meaningless suffering. As we have little control over the paradoxes within the cosmic processes, we ought to learn to befriend them. Human processes, however, are often marred by wrong human intervention or human ignorance and, for this reason, any suffering that arises from it is meaningless and, according to O’Murchu, must be avoided or eased. By way of example to help clarify this point, O’Murchu compares the January 2010 earthquake in Haiti, which registered 7.0 in magnitude, while a month later in Chile that country experienced its most severe earthquake ever recorded, registering at 8.8 on the Richter scale. Though the earthquake in Haiti was nowhere near as strong as the one in Chile, far more people died in Haiti than in Chile as a result of the quake: the former resulting in some 230,000 deaths while in Chile – even though the quake struck during the early hours of the morning when the population was much more vulnerable – only 1,000 died. Comparing the two incidents, O’Murchu determines that the main factor explaining why Haitians suffered more from its earthquake was the quality of its buildings. Wishing away earthquakes will not help: were we somehow able to succeed in stopping earthquakes through advanced technology, it would be counterproductive, as earthquakes are essentially to the flourishing of life on our planet. Yet, were technology used to construct earthquake resistant buildings in Haiti – as was the case in Chile – that would be productive and just.

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65 I will return to this point specifically the ambiguity surrounding O’Murchu’s understanding of the whole in Chapter 5.
66 O’Murchu, Adult Faith, 134-5. The irony, O’Murchu avers, is that in befriending creation’s cosmic paradoxes, we are less likely to go wrong in our interventions. Contrarily, our desire for a pain-free world, devoid of depletion and destruction sets in motion our attempt to control life processes which, lies at the root of wrong intervention.

Both Haiti and Chile are strongly religious countries, in which people turn to religion for answers when faced with calamity. Why is God doing this to us? Is God punishing us for some sin or waywardness (voiced by Indonesian Muslims after the 2004 Tsunami)? Or is it more a case of God allowing the earthquake without intentionally wishing it? In which case, why couldn’t an all-powerful, omnipotent God choose another option? What kind of God are we dealing with? A strangely capricious Divine figurehead?

Scientifically, an earthquake is described as a shifting of the tectonic plates. These are large plates of rock, beneath the earth’s mantle, forever changing, and in that process, shaping (and reshaping) the earth we know today. Tectonic literally means “pertaining to building.” The shaping or building however has implications for the evolution of every life-form that exists on earth today.
With this distinction between meaningful and meaningless destruction in mind, we cannot always make sense of the apparent destruction and suffering O’Murchu says. Nor should we always attempt to get rid of suffering, as there is a quality of suffering which is innate and essential to human evolution.\(^{68}\) If we try to avoid it, he points out, “we get rid of life itself.”\(^{69}\) This is the paradox: something that does not make sense to our mind, a “surplus of meaning that cannot be contained within the structure of rational discourse.” O’Murchu likens it to, “a contradiction, with meaning written underneath it.”\(^{70}\) In this way, paradox should be approached much like we approach Zen Buddhist koans: we accept them without trying to “solve” them, and in doing so, gain insights.

In the course of distinguishing between the human and natural processes, we learn where to place our energies. This discernment process – which will be discussed in more detail shortly – becomes crucial to understanding O’Murchu’s ethical vision. He puts it this way:

> Before we address these big questions, let’s get our own house in order. Let’s begin by resolving and dissolving all the meaningless suffering that we ourselves cause either directly or indirectly. Then the chances are that the other paradoxes that baffle us will not seem that irrational anymore…then too, we are likely to be more at peace with the paradoxical enigmas of each day.\(^{71}\)

Our task, then, becomes not so much one of removal or avoidance of suffering but the discernment of which forms of suffering are needed for evolutionary development. Presumably with regard to our Guatemalan indigenous woman walking long and far for water, trusting the more sophisticated cosmic processes should not deter us from giving immediate attention to her plight and addressing the social, political and economic forces that created her situation in the

As the plates move, they clear way cluttered debris and reconfigure earth’s potential for new possibilities of creative evolution. Earthquakes are ESSENTIAL [upper case original] to the healthy functioning of the earth body. In fact, without earthquakes (destruction) no life at all would exist on earth; ours would be a dead inert planet.

Cf. O’Murchu, *Evolutionary Faith*, 102-103, where he cites several similar examples, such as the earthquake in El Salvador in 2000.

\(^{68}\) From personal interview.

\(^{69}\) O’Murchu, *Evolutionary Faith*, 103.

\(^{70}\) O’Murchu, *Adult Faith*, 129.

\(^{71}\) O’Murchu, *Evolutionary Faith*, 108. This process of getting our own house in order applies especially to the suffering of the poor in Africa, which is a continent dear to O’Murchu.
first place. And similarly, in the earthquake example above, we realize that Chile has far more resources and money to ensure that its buildings are earthquake resistant. This is not the case with Haiti. The difference is made more apparent if we compare Haiti to Japan, which experiences frequent earthquakes, yet with relatively few casualties. In Chile’s case – and more so with regard to earthquake-prone Japan – it has far more technology, money and resources to implement legal directives for building codes and indeed to build such buildings. The central problem, O’Murchu concludes, “is that our world-system is fundamentally corrupt when it comes to justice and equality,” adding that only indirectly did the planet kill 230,000 Haitians. Ultimately, “greedy human beings” who refuse to share justly and equally (and certainly not God) are the culprits.  

Notwithstanding the importance of discernment, the actual distinguishing between meaningful and meaningless suffering remains somewhat ambiguous. Is it always possible to distinguish between human and natural processes? While the occurrence of earthquakes is clearly non-anthropogenic, scientists are pointing to anthropogenic origins of climate change with its effects on ecosystems, flora and fauna, and on the planetary hydrological cycle. Distinguishing between human and natural processes, therefore, becomes less clear. In this light, a good proportion of suffering on the planet – the suffering of amphibians who lose their habitat to sprawl or the demise of an insect species in the Amazon forest due to clear cutting, and arguably the reason why our campesina cannot readily find water nearby – runs the risk of becoming meaningless. O’Murchu responds to this difficulty by stressing, along the same reasoning of the French philosopher Paul Ricoeur, that most of the suffering in the world is actually created by humans directly or indirectly. O’Murchu points to the Hurricane Katrina in New Orleans in 2005. In reading the numerous commentaries made on the disaster, he found a common thread of
conclusions: that in all probability the problems that came about from the hurricane stem from wrong interventions that contribute to the destructive impact of the hurricane.

With this line of reasoning in mind, O’Murchu underlines that Leonardo Boff was quite correct when he posited that the issues of the poor can only be legitimately addressed when the ecological dimensions of people’s lives are also embraced. O’Murchu concurs with Boff and Ruether, then, in saying that poverty arises when we mistreat the planet and other species. O’Murchu concludes from this that ethics can no longer be solely about the human being, but must encompass planetary life, and the rights of other species. He concludes, “Humans cannot hope for any kind of a meaningful liberation unless we are also seeking for some kind of liberation for a living Earth and the creatures that share the planet. In other words, liberation is not just a human project but an equal thing we desire.” He explains that liberation must apply beyond the human or the goal of homecoming – our coming back from exile to our true selves as being part of a wider community of beings – cannot occur:

As long as we keep the word liberation at just the human level, I think we are in danger of staying at the anthropocentric level, and in danger of colluding more with our fierce cultural competition by where we compete all the time to dominate and control reality [which are the] complete opposite of befriending.

By “some kind” of liberation, O’Murchu is not specific, other than to say that a big part of seeking liberation for Earth entails letting Earth systems do what they are meant to do, letting swamps be, for example. Liberation for an animal necessitates it being free to follow its evolutionary impulses. Recall earlier in our discussion on quantum physics, O’Murchu believes that “in letting go and letting God, we will rediscover who we really are.” That same principle applies to how we deal with the natural world. O’Murchu likens this to a proverb he once heard:

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75 Ibid.
76 Personal interview.
77 This is a specific example he affirmed in our interview.
78 Animals do not receive much attention in O’Murchu’s writings, though in my interview with him, he certainly does not exclude them from ethical consideration. All factory farming, for instance, would fall under meaningless suffering. O’Murchu, a vegetarian himself for 30 years, finds evidence that for humans, the eating of meat and killing of animals is a recent phenomenon in our history. He cites Man the Hunted: Primates, Predators, and Human Evolution, by Donna Hart, Robert W. Sussman (Boulder, Colo.: Westview Press, 2009), as recent research, which challenges the notion that we are meat eaters and hunters, as this characteristic came into being only in a relatively short time ago (500,000 years ago; not 7 million years ago, which is where O’Murchu starts our ancestry). O’Murchu notes that there is probably no evidence for hunting before even 30,000 years ago, concluding that for most of our time we were a horticultural and vegetarian species.
“A man is rich in proportion to the number of things he can leave alone.” He clarifies this adding, framing the issue spiritually: “In other words, he doesn’t interfere; to me that’s the heart of mysticism in one sense. I don’t understand this to mean we don’t engage in any way with creation; I think we are meant to engage, but how to engage in a more benign eco-friendly way?”

O’Murchu points out, for example, that the lioness chasing a little gazelle in Africa is killing only for food. Liberation to both animals, while paradoxical to our reasoning, entails allowing them to carry out this prey-predator relationship. O’Murchu is less clear on how we reconcile conflicts that arise between the human and the non-human when, even in a “benign eco-friendly” approach to fostering liberation, the evolutionary impulses of one or both might have to be curtailed.

In the end, liberation does not imply the absence of suffering, whether for the human or non-human. In fact, full liberation, for the human at least, occurs when we transcend the delusion about suffering and “choose to honor the prerogative and creativity of the divine as seen from within the evolutionary story in its total context.” It becomes a long-term endeavor, and not an instantaneous release from suffering, and it begins by allowing ourselves to be vulnerable, which for O’Murchu ostensibly means being human.

This openness to vulnerability is important to O’Murchu’s vision, but if not understood properly, it could understandably seem discomforting. As servants to a bigger process, he says, we cannot hope, let alone try to control it. But has not our desire to control pain and suffering

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79 Personal interview.
81 In an interview O’Murchu had with Michael Dowd (“Meeting God in Our Evolutionary Story”), O’Murchu links suffering, which he views as innate and essential to all evolution, to the process of becoming liberated, accessed December 29, 2010 [http://evolutionarychristianity.com](http://evolutionarychristianity.com). When O’Murchu facilitated couples counseling, he found that when the people knew they were being fully listened to, they developed a sense of liberation: “It was sacred time; they told their story, not being judged and fully listened to. The sense of liberation that comes from that is so empowering you feel that you are on holy ground; so evolution means being more open-ended, flowing, evolving; a story is being told. Can we honour it, enhance it…rather than falling back on doctrine that does not liberate or empower?”
82 In my interview with him he adds, “The compulsion of being in control very often forces us to cover over the fragility, vulnerability the weaknesses that we all carry as human beings, and it also sets a set of expectations whereby anyone with a handicap is a liability for our society; so it’s an attempt on my part to acknowledge that…well over 50% of the human race tragically that are suffering intensely…. This is just a hard true fact of reality and I think that our patriarchal Western culture particularly is quick to dismiss this saying it’s their own fault or in the opposite extreme [respond] with charity.”
in the past led to major medical breakthroughs, which have saved countless lives? I do not think O’Murchu denies such a benefit that comes out of this desire. O’Murchu is more concerned with the current world order that cannot tolerate our anthropological vulnerability. He takes an example from his psychotherapeutic work which often deals with cases of depression. The “flipside of depression,” he states, “is frozen anger;” hence, instead of prescribing people Prozac or some other medication, he explores with the patients some ways in which they can ventilate and articulate their anger. He finds that in this process of befriending their fragility or vulnerability, they find ways of releasing the pain. But this process could not have occurred if his clients tried to transcend their suffering, denying that it exists. O’Murchu also uses the example of our catching a cold or flu for which we end up in bed for three days. This is because our body needs to be in bed for three days. He suggests such rest is better for us than forcing antibiotics into our bodies. In this manner, the heavy weight of the illness becomes less of a burden, as it also opens up for us a viable way to better health. O’Murchu believes this process empowers humans to live in more healthy ways. This is what O’Murchu means by saying, “Vulnerability is a graced gift:” by befriending our anthropological fragility, we are actually a healthier people; moreover, it keeps us close to the tenderness and fragility of all living things.

Ironically, O’Murchu’s optimism for technology would seem to challenge this process of befriending our fragility or vulnerability. Like Boff, O’Murchu’s ethical vision is infused with the Teilhardian notion that we exist in a time of massive evolutionary change. While acknowledging the possibility that humans might be the cause of their own destruction, O’Murchu is also optimistic about the possible future of humanity. Again like Boff, he associates our own evolution with technological progress. He states, for instance, “In the billions of years of future evolution, we humans will be surpassed by other more highly developed

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83 I am grateful to Ingrid Stefanovic for this query and suggestions for helping to clarify O’Murchu’s claim here.
84 My interview with him.
85 In my interview with O’Murchu he mentioned John Harrison, an Australian doctor who wrote Love Your Disease: It Is Keeping You Healthy (now out of print). Harrison left the medical profession because he felt “he couldn’t honour the paradox and he wrote the long book which I often use on my own psychotherapeutic work. This idea of embracing disease helps him help others deal with depression, as the story above suggests.
86 O’Murchu, Adult Faith, 47.
87 This attitude, he maintains is contrary to religion in general which, he avers, reflects a pessimism about the human condition and our inability to modify it; see Evolutionary Faith, 104, for example: “The notion highly developed in Christianity that God had to intervene in a dramatic once-and-for-all reversal of humanity’s plight says a great deal more about humans than about God.”
creatures.” O’Murchu, however, gives technology a greater import to our own evolution. Prompted by the writings of Ray Kurzweil and James Gardener, he envisions – due to a human hybridity with technology – the development of the “transhuman” or “posthuman.” He posits, for instance, that the nano-technological shift (with its impact on human brain activity) will prove beneficial in the long-term. While this could possibly be the case, it is certainly not assured. One has to wonder whether a posthuman being, highly advanced in biological functions – due to technological implants – will be able to share pain with lesser “naturally-evolved” biological creatures. Put another way, will our hybridity with technology help us befriend vulnerability and “keep us close to the tenderness and fragility of all living things?” Moreover, will a bigger gap arise between the rich humans who can afford the technology and the poor who never can? These questions remain unsatisfactorily addressed.

Similar to the shortcomings regarding his discussion of technology, O’Murchu’s vision lacks a clear political economy approach which leaves some other elements under-developed: the case of our Indigenous woman seeking water, for instance. O’Murchu’s ethical vision certainly incorporates her liberation and the injustices surrounding her predicament are denounced. However, the political, social and economic forces underlying the perpetuation of such injustices are not dealt with in depth. To be fair, given O’Murchu’s starting points and the target of his critique, this is understandable. He is a psychological counsellor concerned about the narrow and insular religiosity and institutional power structures that control our thinking.

And this role of his as a psychological counsellor might explain why O’Murchu is less concerned with our physical or cognitive evolution and more with our spiritual maturation. And

88 O’Murchu, *Quantum Theology*, 113.
90 One need only consider a truism known to most teachers: that naturally talented students – whether in sport, art or ratio-mathematical reasoning – sometimes have difficulty in understanding why others with less talent in that field cannot do what they do with relative ease. The same reasoning could apply to wealthy and healthy people who sometimes have difficulty understanding why a poor person suffering from a mental disease cannot “just get a job.”
91 O’Murchu did respond to this query by underlining by email (Tuesday 6 December 2011): whether technology could prove deleterious, he maintains, largely depends on what kind of ethical safeguards we put in place. Suitably, he counters my claim by asking whether the Industrial Revolution of the seventeenth and eighteenth centuries, or the technological revolution of the nineteenth and twentieth centuries diminished or altered the human capacity for empathy, concluding, “We cannot say they necessarily did.” This is a valid point; but, as he concedes – thus giving my point credence, “thus far movements in that direction are not very impressive and concludes, “We can only hope that the wisdom inherent in evolution will direct things in a benign direction rather than in a destructive one. Time alone will tell whether that optimism was wise or not.”
as much as science is employed to author its formation, Jungian psychology also plays an important role. We have mentioned how Jung’s notion of the collective unconscious resembles Sheldrake’s morphic fields. But it is also Jung’s notions on consciousness and unconsciousness that often come into play – the latter which “represents the mysterious, suprarational within humanity and within creation.” Simply put, Jung’s psychology, mentioned in a number of O’Murchu’s books, resonates deeply with the spiritual and mystical elements found within new science or postnormal science. It is sometimes difficult to distinguish where insights from psychology begin and where insights from science end; the two are closely integrated. There is a marked similarity to the evolutionary processes O’Murchu speaks about and Jung’s notion of individuation, which denotes a lifelong process, which, O’Murchu explains “is the openness and receptivity to a larger reality: social, ecological, spiritual, cosmic [which] in its most highly developed stages, it merges with mysticism, and the boundaries of ‘me’ and ‘not me’ begin to melt away.”

Finally, and perhaps not surprisingly given his receptivity to a larger reality, we notice that O’Murchu’s ethical vision appears to be the least anthropocentric of the three interlocutors we have discussed thus far. While he accords a qualitative uniqueness to the human – and not discounting his view that the human could evolve into something post-human – O’Murchu nevertheless, acknowledges that in our current state, “how little we are in it all.”

3.4 The Epistemology and Methodology Backing O’Murchu’s Ethical Vision

Knowing, O’Murchu emphasizes, is rather elusive. Recall that for O’Murchu some things are forever obscure to our comprehension, such as the paradox of destruction and suffering. “Our universe is so vastly complex and mysterious,” he writes, “that no one species (no matter how enlightened) and no one religious system (no matter how sophisticated) could comprehend and understand its totality.” In particular, for O’Murchu, it is illusory to think we can view (and

\[\text{\textsuperscript{92}} \text{O’Murchu, } \textit{Quantum Theology}, 146.\]
\[\text{\textsuperscript{93}} \text{Ibid., 147. O’Murchu suggests these elements are precisely why “many colleagues of orthodox psychiatry and academic psychology part company with Jung,” as his taste for the spiritual is “unscientific.”}\]
\[\text{\textsuperscript{94}} \text{Ibid., 92-93.}\]
\[\text{\textsuperscript{95}} \text{O’Murchu, } \textit{Quantum Theology}, 64.\]
understand) things in isolation. And while rational evaluation is incapable of capturing the inclusive whole which is always greater than the sum of its parts, there are still limits to how we know, what we can know and when we can know something. O’Murchu suggests that even seemingly straightforward scientific notions like “autopoiesis” evade easy comprehension, citing its sophistication and complexity; hence, “The process never can be comprehended purely on the level of rational thought or analysis.”

It is not merely science that is limited in fully knowing things for O’Murchu. The lessons of quantum physics have O’Murchu assigning a certain vagueness to all reality:

The truth of the stories [of the evolving universe] rests not in whether or not we can verify the facts, because often we do not have the relevant information with which to do that; we access their truth more through intuition and imagination than through rational discourse and logical argument.

While O’Murchu assigns a slightly downgraded role to rational analysis (compared to other ways of knowing, such as intuition), it is not merely the quality of knowing that concerns him, but the quantity as well. O’Murchu points to knowledge doubling at so rapid a pace no one could be held accountable for it all, unlike one hundred or thousands of years ago.

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96 O’Murchu, *Evolutionary Faith*, 103; perhaps this is why O’Murchu places much emphasis on metaphors as the most viable way of understanding our present moment.


98 O’Murchu, *Evolutionary Faith*, 18. O’Murchu quotes at length Ervin Lazlo speaking about story of self-renewal understood through science to make his point. To truly comprehend the meaning of autopoiesis and the organization of systems from lower to higher, the rational-analytic processes fail to capture the sophistication and complexity of the moment. It is worth repeating it in part:

> We find a truly elegant continuum. As we move from microscopic systems on a basic level of organization to macroscopic systems on higher organizational levels, we move from systems that are strongly and rigidly bonded to those with weaker and more flexible binding energies. Relatively small units with strong binding forces act as building blocks in the formation of larger and less strongly bound systems on higher levels of organization....


100 Ibid., 176. O’Murchu is not trying to promote relativism, just limitations regarding knowing. He states, “The ‘quantity’ of knowledge doubled that of the previous three to five thousand years; between 1600 and 1900 it doubled again. It took only fifty years for another cumulative leap (up to 1950), and thereafter it began to accelerate in leaps and bounds to the present time, when we estimate that the information content of our world is doubling in terms of months rather than years.” He is not exaggerating when he concludes that we no longer are able to control information as we have done for several centuries. Much of this information O’Murchu gains from Peter Russell, *The White Hole in Time* (London: Aquarian Press, 1992). This sentiment is supported by James Lovelock (*Gaia*, xii), who talks about there being too much information in the world today for anyone to comprehend: “While no one could understand the whole book [of knowledge], at least with the top-down holistic look, we can see the table of contents.”
With such limitations assigned to our knowing, what and how much does O’Murchu state we can know? Remarkably, O’Murchu maintains that there is nevertheless much we can know when we integrate rational thinking with intuition and imagination. Like Ruether and Boff, accompanying these cognitive approaches are more embodied ways of knowing such as dance, song and drumming. There are inner and outer dimensions to knowledge for O’Murchu. The desires of the cosmos, such as creativity, wholeness and aliveness, O’Murchu seems to imply, can be found within us. Carl Jung’s notion of a collective unconsciousness, for instance, suggests that human growth comes from a psychic source within. And while the collective unconsciousness plays a large role in O’Murchu’s epistemology, so does Sheldrake’s morphic fields. Recall that morphic fields link globally human imaginations and insights, which, O’Murchu concludes, grant “group thought” far more impact on us than contemporary culture recognizes. With this interiority of the collective consciousness and exteriority of the psychic fields – traditionally understood as Holy Spirit, according to O’Murchu – O’Murchu can speak about the mythic quality of the scientific endeavor, a mystical way of knowing that impels the

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101 O’Murchu, *Evolutionary Faith*, 8; also O’Murchu, *Quantum Theology*, 12. How he defines imagination is worth noting. He sees it as being more than a mere processing of perceptions or fantasy. Taking his cue from French scholar Henri Corbin, O’Murchu states that things are real in the sense that they “are images that have a quality of integrity and existence in their own right.” These “images” are thoughts of the heart, not something a person necessarily sees but rather a perspective from which we comprehend reality. Imagination, in this sense, represents a continuous pursuit of meaning by interacting “with the creative energies of the universe,” incorporating mind and body. It would appear, then, that the main distinction between imagination and intuition for O’Murchu rests on the former stemming from a desire for something in order to grow: Diarmuid O’Murchu, *Ancestral Grace*, 15.

102 O’Murchu, *Quantum Theology*, Chapter 4 especially. O’Murchu speaks much about embodied ways of knowing. He notes, “Dance emerged as a primary medium to make sense and meaning out of life…the medium used to establish archetypal communication with the heart of reality” (47). He adds, “The desire to dance is deeply ingrained in the human psyche. It is also woven into the tapestry of evolution itself and has become a powerful metaphor to understand and explain the nature of planetary and human life” (46). Dance as a form for knowing, he underlines, is eschewed. In the passage below, while its message is directed at religion, it is safe to say O’Murchu applies it to the sciences as well:

Perhaps the greatest disservice that formal religion has rendered to our world is its tendency to disrupt the dance. It tried to project God out of creation into the “divine” realms of the church (on earth) and heaven (in the world beyond). It has led us into a speculative, cerebral mode (of thought and action), which ultimately was not about devotion and worship, but an insatiable desire to control the capricious power of the Deity. We tried to sever the divine connection with the heart and with the imagination and substituted the head and soul in their place. Faithful to the spirit of the Agricultural Revolution, we fragmented the spiritual realm of human experience, just as we had begun to fragment the one planet into nations, races, and ethnic groups. Instead of the dance, we invented formal rituals that, in time, became structures without a spirit, insipid formalities devoid of feeling and imagination (48).

See also O’Murchu, *Evolutionary Faith*, 14, 46-47). And finally, in *Evolutionary Faith* 203, he speaks of extrasensory capabilities as another means and how research into this has been suppressed.

103 O’Murchu, *The Transformation of Desire*, 76.
work of scientists at the subconscious level. In fact, O’Murchu concludes, “what is driving the scientific imagination […] is not rational logic, but a powerful subconscious mystical energy. The dreamer is outwitting the rationalist, the mystic outstripping the scientist.”

Like Boff and Ruether, then, O’Murchu promotes an integrated epistemology that begins with people’s experience, only the human imagination plays a far greater role for O’Murchu in the creation of his ethical vision. O’Murchu also places far more emphasis on participation from “non-specialists” which, for O’Murchu, means the protean adult actor. He states, “In a sense, we are all intellectuals and ask intellectual questions,” and underlines, “this interface between science and spirituality [for the past twenty years or so] is happening outside the academy and not within it.” O’Murchu insists “People’s wisdom is outpacing institutional knowing.” Accordingly, O’Murchu maintains that our dialogue must include non-academics; though the academe is not always obliging. The essence of O’Murchu’s epistemological program, therefore, is captured by an image of breaking down barriers that currently fragment our ability to know the world, while empowering hitherto silenced voices. O’Murchu seeks to

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105 Ibid., 120. To be fair, O’Murchu is not really promoting competition between ways of thinking in lieu of integration, as O’Murchu speaks of the scientist him/herself integrating the dream. On his website, O’Murchu writes in an article entitled, “Cutting-edge Science:”

Science is born initially out of a spiritual, mystical hunger, and it characterizes the pursuit of human meaning into the dim past of prehistoric times. It is manifested in ancient art, ritual, music and in the skill and craft through which we managed the natural world over several thousands of years. …Finally, comes the modern scientist well indoctrinated in the so-called scientific method, yet every day confronted with what is rapidly becoming an inescapable sense of mystery. Several years ago, the British physicist, Paul Davies (author of *God and the New Physics*) claimed that science was becoming spiritually more compelling than religion….

O’Murchu (*The God Who Becomes Redundant*), refers to physicist David Bohm’s work stating, “An increasing amount of scientists find themselves on the threshold of mysticism and those who take the leap find their scientific vision affirmed rather than undermined” (137). This explains why O’Murchu is comfortable relying on theories of evolution from a wide assortment of thinkers: Henri Bergson with his élan vital, John Baptiste Lamark with his notion of spontaneous generation, of course Teilhard de Chardin with his unceasing process of becoming and with greater complexity, and Sri Aurobindo who, like Teilhard de Chardin, speaks about a spiritual unfolding (12). In our search for answers, nevertheless, O’Murchu does prescribe much weight to the dreamer, saying that we must at times continue down scientific inquiry even “despite the paucity of facts” (O’Murchu, *Ancestral Grace*, 17).

106 He says as much in *Evolutionary Faith*, 47: “The unfolding cosmology of our time requires the complementary insights of both science and religion.”

107 From interview with the author; indeed, O’Murchu makes a point of distinguishing himself from academics.

108 O’Murchu, *Evolutionary Faith*, 203; and he speaks similarly in *Religion in Exile*, 83.

109 There is a danger here in that O’Murchu seems to be relegating the value of academic research. He tends to emphasize the darker side of research that looks down upon the non-academic work. O’Murchu is concerned primarily with the present “fragmented mind-set” that undergirds our patriarchal thinking (O’Murchu, *God who Becomes Redundant*, 136). In my interview with him, he puts it this way:
bridge the rationalism associated with both science and religions with more imaginative and inclusive approaches to seeing and understanding our universe.\textsuperscript{110}

O’Murchu’s understanding of truth follows a similar contour to how his integrated epistemology unfolds. We have already seen how truth receives a far greater evolutionary import for O’Murchu. Truth is always before us, rather than being based on the certainties from behind. But truth is also found in the whole, in all of creation, “rather than in human brains,” he posits, thus suggesting a critical realist approach.\textsuperscript{111} I use critical realism to describe the philosophical view of knowledge, which incorporates the following characteristics: on the one hand it holds that it is possible to acquire knowledge about the external world as it really is, independently of the human mind or subjectivity – realism. On the other hand it rejects the view of naïve realism that posits that the external world is as it is perceived. Recognizing that perception is a function of, and thus fundamentally marked by, the human mind, critical realism holds that one can only acquire knowledge of the external world by critical reflection on perception and its world – hence, critical.\textsuperscript{112}

If you just take that term like alive, for example, your typical professional scientist would want that word very clearly and rigorously defined, to some extent, because of the conditioning and training and because they [sic] feel they have to do it to hold their place within the academic world. Whereas they might concede that there is a value in what I am doing, they would say, fine as long as you keep it outside … of mainline science. So I think someone like the late Stephen J Gould was an interesting character in that regard since he battled a lot of his life with the whole idea of purpose and teleology, that there was a goal to evolution, and he ended up with the position in the latter part of his life saying something along the lines that he would never use the word purpose but he would be prepared to concede that there is a preferred sense of direction to evolution; and that’s as far as he would go. In other words, he’d never use the word purpose, but he would use the words ‘preferred sense of direction’; it is the same with more biological scientists: they would not use the word alive in terms of the material creation…they might use a word like ‘organicity’ or some word like that…for a lot of biologists support the Gaia Hypothesis [sic], this work of James Lovelock suggesting that we refer to Earth as an alive organism. There are a lot of biologists that broadly support it and some explicitly support it. And that in itself is expanding the whole meaning of alive.

\textsuperscript{110} O’Murchu, Ancestral Grace, 16. O’Murchu believes that while some scientists might be doing this already, they are confined by professional rigors and conditioning. Nevertheless, he maintains, science and religion are embarking upon a new dialogue but in a strange and unprecedented way: it is not planned or organized. O’Murchu, (God who Becomes Redundant, 140), says, “the impetus is coming from scientists who have been so gripped by a global vision of reality that they have instinctively coupled with believers of a similar orientation.”

\textsuperscript{111} O’Murchu, Adult Faith, 90.

\textsuperscript{112} I borrow from Anne Marie Dalton’s description for critical realism: Anne Marie Dalton, A Theology for the Earth: The Contributions of Thomas Berry and Bernard Lonergan (Ottawa: University of Ottawa Press, 1999), 158, 176-7.
What concerns O’Murchu most about truth, however, is how it is arrived at and contextualized. Perhaps because of his training in psychology, O’Murchu sees truth arising from our unfolding stories: “We bring with us a deep inherited wisdom empowering us not merely to cope with the exigencies of daily life, but to grapple with the great mysteries that characterize our global embodied experience.” On the one level, then, the authenticity of what we know to be true is judged by how closely it conforms to the desires of the universe, as we saw earlier, a task for which the wisdom of science is crucial; hence, what matters is whether a truth liberates or empowers and fosters connectedness among individuals and communities, and “a convivial relationships with all sentient beings.” But how truth is arrived at matters too: does it come rehearsed from the past through the musings of a relative few, or is “coming from a deep intuitive place,” inclined toward the whole, and assimilated without trying to shun paradoxes?

While not explicit on how he envisions a dialogue taking place amongst the various players and their ways of knowing, or how imagination and intuition can “unlock the deeper wisdom behind and within the scientific research,” O’Murchu does put forth a “contemplative discernment process,” which draws on a wide spectrum of experience, including insight, intuition, imagination, understanding, analysis, dialogue and spiritual apprehension. Perhaps such a process is not surprising considering what we discussed about truth above. “Discernment” as a model, he says, “provides a more reliable pathway to truth than rationality or the rigor of the scientific inquiry.” O’Murchu’s model requires listening and being receptive to “the life-giving energy of the divine logos,” which could be through something as simple as regular contact with poor and suffering people. Certainly, given the significance he places on adult faith, we can surmise that the communal discernment among the human participants be

113 Ibid., 90. So that there is no misunderstanding about his truth being personal or relative, he states, in Adult Faith, 93, “The collective wisdom of the dialogical process provides the context to differentiate truth from falsity.”

114 In this line of reasoning, a false knowing, it would seem, is that which is not congruent with the larger wisdom contained in the cosmos and felt deep within us, and one that is not integrated into the heart or the life experiences and stories of an individual or community; see O’Murchu, Transforming Desire, 173.

115 O’Murchu, Ancestral Grace, xvii.

116 O’Murchu, Adult Faith, 82; as O’Murchu continues: “Discerning wisdom draws on a wide spectrum of experience including insight, intuition, imagination, understanding, analysis, dialogue, and spiritual apprehension.”

117 O’Murchu, Quantum Theology, 12. In Adult Faith, 196, footnote no. 5, he explains it in more detail, going beyond merely the spiritual or intellectual faculties to, “… every dimension of our human engagement with life…rooted in community; regular contact with poor and suffering people; daily prayer and contemplation; regular community worship; spiritual accompaniment; a simple lifestyle; physical exercise and a moderate concern for health; regular rest and recreation; study, especially of social reality; a sense of humor.”
underscored by a sense of mutuality, transparency through open dialogue and a concern for “sharing power with” instead of “enforcing power over” others, where adult learners can trust their intuition, take risks and have their horizons of understanding continually stretched.\textsuperscript{118} We can assume, as well, that with an adult faith approach, life experiences and paradox are honoured, our anthropological vulnerability is accepted, questions are respected and dogmatism gives way to trust.

Along with listening, dialogue, he stresses, is key for a communal discernment process where a critical vigilance is maintained in face of excessive rationalism and dogmatic impositions.\textsuperscript{119} To be sure, the dialogue he envisions is not just between humans. He asserts that like the mystics of every age, we need to converse also with creation itself, which he maintains is possible because “creation itself is a narrative experience, telling its own story across the aeons of evolutionary unfolding.”\textsuperscript{120} Specific to the bioregional context, he does assert that any dialogue amongst subjects must be more focused on values, exploring commonalities (not differences) relational, holarchic and inclusive and open to context.\textsuperscript{121} As a more concrete example of how this dialogue ensues, O’Murchu suggests that the process of networking as practiced by NGOs throughout the globe.\textsuperscript{122} Here, the principle of subsidiarity, which seeks to foster decisions at the local level where possible, is meant to mimic biological processes. In this way, there is less a need for one “leader” such as the scientist-poet envisioned by Ruether, except to serve as a resource person who “facilitates” adult discernment.

To remain open and receptive to what is going on around and within us, O’Murchu recommends the practice of meditation, “a type of tuning-up process,” he says, “facilitating

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\item Diarmuid O’Murchu, \textit{Catching up with Jesus: Reflections of a Social Scientist} (New York: Crossroad, 2005), ix.
\item O’Murchu, \textit{Evolutionary Faith}, 13.
\item Ibid., 13.
\item Personal interview.
\item Paul Hawken (\textit{Blessed Unrest: How the Largest Movement in the World Came into Being, and Why No One Saw It Coming} [New York: Viking, 2007]), presents a good representation of the present movement of networks around the globe, comprising indigenous, women, local and international environmental groups that speak for the poor, the trees and rivers. According to Hawken, they represent “an awakening” within human consciousness that has a “refined understanding of biology, ecology, physiology, quantum physics, and cosmology” (185). The list Hawken puts forth is extensive and worth repeating: “People trying to keep the game going are activists, conservationists, biophiles, nuns, immigrants, outsiders, green architects, doctors without borders, engineers without borders, reformers, healers, poets, environmental educators, organic farmers, Buddhists, rainwater harvesters, meddlers, meditators, agitators, schoolchildren, ecofeminists, biomimics, Muslims, and social entrepreneurs.”
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communication between my being and the ‘being’ of life in the world around me (God if you wish).” It helps us to focus thinking, clarify perception, deepen intuition, and enhance insight.” Meditation for O’Murchu is a turn within, going from our conscious, through our unconscious, “into the experience of pure truth or God.”

Likening the conscious and subconscious to the image of an iceberg, he states that the conscious mind represents only the tip of the iceberg, that one-eighth that appears above water while the remaining unseen seven-eighths are the subconscious. Beyond the subconscious is the collective unconscious, the noosphere, universal consciousness, or the total Godhead. The ocean in which the iceberg floats is not only the means of communication between all the icebergs, but it is the collection of total truth to which we, as individual icebergs, have access, “Through meditation, we contact that total truth; we transcend our finite limitations and we communicate with each other.”

While the above exploration of method is arguably vague and lacks a precise framework, we get a slightly more tangible glimpse of how O’Murchu envisions such a communal dialogue or discernment process might work. The story below that O’Murchu narrates is about the Morgan fisher-folk, living on the South West coast of Thailand. It reveals O’Murchu’s concern for how truth is arrived at, ultimately allowing the Morgan fisher-folk to avoid meaningless suffering from occurring. On the morning of December 26, 2004, the people noticed that the familiar sea-waters had receded far beyond their usual limits. O’Murchu goes on:

"Things felt off kilter. Nature was not at ease…These primitive people – with no formal schooling or education – spend their entire time fishing and live in simple hovels along the coastline. Fish is their daily diet; fishing their life-long occupation. They looked intently upon those receding waters and upon the fishes leaping anxiously. They consulted their elders and in union with them quickly reached a collective decision: within hours they intuitively knew that massive waves would break upon their shoreline. They gathered their meagre possessions and headed for the hills. On the way they met a group of Western tourists, some of whom ridiculed their story. But a few took them seriously and accompanied them to further heights. Thanks to those Westerners, we have inherited this amazing story. Those who dismissed and ridiculed their silly tale walked..."
right into the eye of the storm and lost their lives. The fisher-folk and their accompanying
visitors were totally safe!127

In this narrative, O’Murchu sums up a process that is less about the facts before us, and more
about trusting what we feel within. He concludes from this story, “By any set of standards this
was a brilliant piece of discernment – and I use the term discernment in its full Ignatian meaning.
What a different world it would be if more people would use this gift of the contemplative
gaze!”128

Conclusion

If we return to O’Murchu’s starting points, where we began this investigation, we find
within him, as we did within Boff and Ruether, a deep reverence for all of creation. The writings
of Pierre Teilhard de Chardin seemed to have played a pivotal role in changing how O’Murchu
viewed his faith, the world and indeed the universe. In fact, Teilhard de Chardin’s writings play a
pivotal role in how all three thinkers – and, as we will soon see, Berry as well – seek a view both
their faith and science. Like Ruether and Boff, O’Murchu also views the universe as deeply
relational and science, which gains a prescriptive role in forming his ethical vision, attests to this
truth. Knowing, for O’Murchu is vastly democratic and comes to us in many ways: at times
embodied, at other times through reason or intuition, which is why we find the epistemological
lines between his faith and science somewhat blurred. Again, like the other two, his is a mature
faith, fashioned after the vision espoused by Vatican II.

A reason for the similarities we are finding amongst our interlocutors can be explained by
their common utilization of the works of at least five scientists: Hawking, Lovelock, Margulis,
Swimme, and Teilhard de Chardin. But there appears something more profound at work here, as
will become more evident in subsequent chapters. A convergence of sorts between their faith and
science is occurring, and the epistemological frameworks underpinning their ethical visions
appear to facilitate this. With such a convergence, we are finding that uncertainties and
ambiguities are not dispensed with, but embraced.

128 From web site; discernment in St Ignatius’s sense has a clear experiential character and as such it can also
properly be viewed in relation to normal and abnormal psychological experience.
Despite the many similarities amongst their ethical visions, divergences can be found in the degree to which importance is assigned to the whole and on role assigned to the human. O’Murchu assigns less import to the human, eschewing any role to the human that carries with it even the remotest sense of importance, such as gardener or co-pilot. His ethical vision also lacks some of the deeper reflections on the roots of poverty and injustice that we find in Ruether’s and Boff’s works. Nevertheless, all three are all in agreement that liberation cannot be found within a paradigm of domination and control. The import O’Murchu assigns to liberation for all creation, as do Boff and Ruether, entails aligning ourselves with, and/or allowing the other-than-human to follow, the evolutionary impulses within creation. We are to engage less in understanding paradoxes and more in changing those situations in our world that we can change.

O’Murchu appears no more successful than Boff or Ruether in addressing how we might foster liberation for the human in chorus with the liberation of all creation, other than recognizing the liberation can never be realized outside the larger relationality. However, the emphasis on accepting and even befriending our anthropological fragility, as we shall see presently, is an important step in that direction. Thomas Berry, to whose work we shall turn our attention, is perhaps most emphatic in this regard, demonstrating to us that if we are fully to take the liberation of all creation seriously, we must first take our human anthropological condition, our vulnerability seriously.
Chapter 4
Thomas Berry

Introduction to Berry

Thomas Berry was born in Greensboro, North Carolina in 1914. He joined the Roman Catholic Passionist Order and was ordained a priest in 1942. It was actually upon his ordination that he took on the name “Thomas” (originally named William Nathan after his father), after Thomas Aquinas whose thinking he admired. He obtained a PhD in Western history at The Catholic University of America, later studied and became proficient in Asian traditions, learning Chinese and Sanskrit, indigenous traditions and – eventually in the last thirty or so years of his life – Earth history, its systems, science and cosmology. Interestingly, Berry completed his most significant writings in the field of evolutionary cosmology after he retired from teaching at the age of sixty-three.

Berry’s embrace of the study of Earth’s history through science and cosmology was not due simply to interest or fascination. As Mary Evelyn Tucker – a former student of Berry – puts it,

The movement from human history to cosmological history has been a necessary progression for Berry. He has witnessed in his own life time the emergence of a planetary civilization as cultures have come in contact around the globe, often for the first time. At the same time, the very resources for sustaining such a planetary civilization are being undermined by massive environmental destruction.

This progression from cultural historian to Earth historian was indeed necessary for Berry, as Tucker suggests since, from an early age, he experienced a deep reverence for Earth. Berry
speaks of the “magic” moments when he was eleven years old wandering through a meadow that, as he explains, “gave to my life something that seems to explain my thinking at a more profound level than almost any other experience I can remember.” Filled with white lilies, carved by a creek, and announced by the “singing of the crickets,” this early experience, he believes, helped develop within him a sensitivity to nature, such that he could conclude, in an almost Leopoldian manner: “Whatever preserves and enhances this meadow in the natural cycles of its transformation is good; whatever opposes this meadow or negates it is not good.”

Berry’s early background as a cultural historian and his teaching career in the area of world religions, then, was valuable to his later writings that addressed Earth-human relations, as it permitted him to integrate skillfully the human story with the larger cosmic story. The writings of Teilhard de Chardin, however, were very influential to Berry’s thinking in this regard, as they helped him in his formulation of a New Story. Berry derived from Teilhard de Chardin a deep understanding of developmental time and an appreciation for his law of complexity-consciousness. As Mary Evelyn Tucker points out, Giambattista Vico’s philosophy also influenced Berry’s thinking in this regard, as “Vico wished to show that providence was at work not only in sacred history but also in ‘profane’ history. Consequently, pattern and order are operative and discernible in history.” Moreover, she adds, “Vico emphasized the poetic wisdom and creative imagination needed for the future.”

Berry did not consider nor label himself a theologian, preferring to call himself a geologist – a scholar of the Earth. This choice is arguably a reason why he did not receive formal approbation from Church hierarchy for his writings. This does not mean he escaped

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4 Thomas Berry, *The Great Work: Our Way into the Future* (New York: Bell Tower Publishing Group, 1999), 12; Berry devotes an entire chapter “The Meadow across the Creek,” to this experience in this book. According to Los Angeles Times Obituary for Berry, June 13, 2009; [http://www.latimes.com/news/obituaries/la-me-thomas-berry13-2009jun13,0,2546836.story](http://www.latimes.com/news/obituaries/la-me-thomas-berry13-2009jun13,0,2546836.story), his thinking was also shaped when he learned the names of trees during a Boy Scout trip: “That was a great event in my life…I learned what names mean and what the capacity to name something means. It’s the human dimension of life that establishes a world of experience.”

5 Berry, *Great Work*, 12.

6 Ibid., 13.

7 Most of his teaching on world religions was at Fordham University in New York.

8 Tucker, “Biography of Thomas Berry.” Tucker notes that Berry developed this appreciation for developmental time also from other writers such as Loren Eiseley. Berry has also obtained from Teilhard de Chardin an understanding of the psychic-physical character of the unfolding universe.

9 Ibid.
rebuke or disapproval from conservative Catholics or mainstream Christians who feared he was not “Christ focused and human focused.”

In fact, despite his popularity among many people, Christian and non, some Christians concerned with the environment distanced themselves from Berry when he suggested that we shelve the Bible for twenty years or so. Berry proposed this to challenge the exaggerated attention granted to verbal sources by Christians – in this case biblical sources – as a means for encountering the divine, to the point that they seldom notice how extensively they have lost contact with revelation of the divine in nature.

Of interest here are not solely the influences upon Berry’s thinking but the extent to which Berry’s thinking has imbued a generation. Described by Newsweek magazine in the 1989 issue as, “the most provocative figure among the new breed of eco-theologians,” whether through his writings, video dialogues, talks or audio-recordings, his ideas have inspired many scientists, environmentalists, spiritualists, theologians and, notably, an extraordinary number of Catholic nuns concerned with the spiritual and material dimensions of the ecological crisis. Berry is indirectly responsible for the formation of environmental-spiritual periodicals, community-supported sustainable farms, ecological institutes, academic research, conferences, films and even musical compositions.

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10 Sarah McFarland Taylor, Green Sisters: A Spiritual Ecology (Cambridge Mass.: Harvard University Press, 2007), 47-49. Taylor recounts a negative article by a reporter who questions Berry’s credentials as a Christian thinker. The reporter “suggests that many of these pantheistic, naturalistic dynamics may have crept into the environmental movement precisely because the Church’s absence has left the door open to ideas and philosophies not guided by appropriate Christian beliefs” (47).

11 I shall return to this subject of shelving the Bible in Chapter 7. Thomas Berry, The Dream of the Earth (San Francisco: Sierra Club Books, 1988), 245. He also faults the Bible as being so preoccupied with redemptive healing of a flawed world that it tends to ignore creation, as it is experienced in our lives. See also, Marjorie Hope and James Young, “A Prophetic Voice: Thomas Berry,” Trumpeter 11, no. 1 (1994):1-19, accessed June 2012, http://www.icaap.org/iuicode?6.11.1.1.


13 Mary Evelyn Tucker, encyclopedia entry on Thomas Berry, in The Encyclopedia of Religion and Nature, ed. Bron Taylor (London: Thoemmes Continuum, 2005), 165. For an in-depth portrayal of how Berry influenced Catholic nuns, see Taylor, Green Sisters. See also Dennis Patrick O’Hara (“The Implications of Thomas Berry’s Cosmology for an Understanding of the Spiritual Dimension of Human Health” [Doctoral Dissertation, Faculty of Theology, University of St. Michael’s College, 1998]). http://www.collectionscanada.ca/obj/s4/f2/dsk2/tape15/PQDD_0013/NQ36598.pdf, who explores Berry’s work from a health dimension (of both the human and of ecosystems), and suggests that Berry’s cosmological perspective compels us to revise our understanding of spirituality and, ultimately, to re-conceptualize our understanding of suffering and death within a universe defined by cosmogenesis.
formation of their ethical visions, and while arguably less so for Ruether, his cosmology nevertheless pervades her cosmological vision and she even attributes Berry as being, “The guru of the Catholic ecological movement.”

His importance to the religion-science-environment-ethics nexus, therefore, cannot be overstated. When Berry died at age 94 in 2009, Author Richard Louv, whose book *Last Child in the Woods* was a favorite of Berry late in his life, wrote a fitting accolade to this geologian:

Thomas Berry was the earliest and most important voice to describe the profound importance of the disconnection between humans and the natural world, and what that could mean for the future of our species. He often said that his own experience in nature as a boy transformed him and shaped all of his work….To spend time with him was like getting a soul transfusion.

4.1 The Target of Berry’s Critique

As indicated by Louv in the passage above, Berry maintains that the human has become disconnected from the natural world, adding, “We have forgotten our primordial capacity for language at the elementary level of song and dance, wherein we share our existence with the animals and with all natural phenomena.” Berry uses the metaphor of autism to describe this state of being. Just as autistic people are “so locked up in themselves that no one and nothing else can get in,” so too the human community is talking to itself, cutting itself off from the natural world. Still, more than just isolating ourselves, Berry says that we have transcended, in

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14 Diarmuid O’Murchu, “A Tribute to Thomas Berry (1914-2009)” found on Berry’s website: [http://www.thomasberry.org/tributes_and_photos/Tribute_by_Diarmuid_O%27Murchu.html](http://www.thomasberry.org/tributes_and_photos/Tribute_by_Diarmuid_O%27Murchu.html); accessed, November 2011. O’Murchu states that while he was involved with the Teilhardian Association of the UK from the 1980s, it was in the 1990s, when he began reading Berry, that the marriage between Teilhard de Chardin and the contemporary world took place. It was Berry, in other words, who helped push the Teilhardian vision into the broader horizons of environmental concern, while nevertheless being able to critique the anthropocentric and Christocentric underpinnings of his writings.


17 Berry, *Dream*, 2.

18 Thomas Berry, *Befriending the Earth: A Theology of Reconciliation between Humans and the Earth*, eds. Stephen Dunn, C.P. and Anne Lonergan (Mystic Conn.: Twenty-Third Publications, 1995), 20. While Berry’s analogy has been helpful in explaining how humans have become disconnected to the Earth, a recent experience in a lecture I gave at University of Toronto in Mississauga on Berry makes me doubt whether it is a fitting metaphor. Having made reference to Berry’s analogy of autism, as described above, I later received an email from one of the students in the class who was autistic herself. She writes:
spirit and mind, the material world, relegating our corporeal existence to a mere stepping stone to an ultimate afterlife.

It was the Black Death, the devastating plague in the fourteenth century, that prompted such escapist thinking, according to Berry. With the plague killing off nearly one-third of Europe’s population in a short-span of time, the human aspired “toward greater control of the physical world to escape its pain and to increase its utility to human society.” Such a deep estrangement from the world leaves it desacralized; it becomes an object or resource to be exploited and no longer a place for encounter with a divine or numinous being. By the Enlightenment period, the human became the exalted spiritual being set apart and above a mechanistic non-human world. Berry concludes that we have created a dysfunctional cosmology in which the purpose of life and our existence is meaningless.

One could say that Berry primarily targets the pathological aversion against the human condition that has developed in Western culture. He states:

There seems to be in the western psyche a deep hidden rage against the human condition, an unwillingness to accept life under the conditions that life granted us, a feeling of oppression by the normal human condition, a feeling that the pains of life and ultimately death are something that should not be, something that must be defeated.

I have a few disagreements with your assessment of autism and your choice of quotation to describe man’s understanding of the universe (relating it to that of an autistic child)...I don’t suppose my understanding of the universe is any more special than that of the person sitting next to me, but to be told that I am blind and deaf to the world around me is a bit of a stretch. Autistic people aren’t either of those things – on the contrary. We usually experience the world louder, stronger, sharper to the point of pain or pleasure at the simplest things. The tags on my clothes scratch and cut, the sound of someone whistling hurts my ears and the smell of fresh rain is the most beautiful thing in the world. We rock and wave our arms in a constant communication with our environment – a language so alien that it is assumed to not exist at all. Ironically, if I stop these behaviors I’m seen as opening up to true and proper interaction with the world.

The student offered this video link to explain that autistic people are not “locked up in themselves,” but merely communicated and interact with the world differently: [http://www.youtube.com/watch?v=JnylM1hl2jc](http://www.youtube.com/watch?v=JnylM1hl2jc), accessed October 2012.

19 Berry, *Dream,* 125.

20 Ibid., Chapter 10; see also *Befriending,* 115, where he develops notion of “transcendencies:” a world of transcendent deity, human, redemption, mind and technology; Berry adds that the transcendence of the divine has led to a compulsion to use and consume, having us find peace and joy in heightened consumption.

21 Thomas Berry, “Ethics and Ecology,” paper delivered to the *Harvard Seminar on Environmental Values,* Harvard University, April 9, 1996.
It is not surprising, then, as Berry points out, that in recent centuries we have embraced a powerful myth of “wonderland” that denies our vulnerability while employing technology and science to snub entropy and magnify our own desires.22 He concludes, “So completely are we at odds with the planet that brought us into being that we have become strange beings indeed,”23 adding with more force elsewhere: “We are the affliction of the world, its demonic presence.”24

This last point requires explanation. Berry is not assigning a demonic essence to human nature, but to the present human intent which is part of a larger cultural paradigm. He explains,

The difficulty is that the assault on the natural world has been carried out by good persons for the best of purposes, the betterment of life for this generation and especially for our children. It was not bad people, it was the good people acting for good purposes within the ethical perspectives of our cultural traditions that have brought such ruin on this continent and on the entire planet.25

As such, Berry’s critique of modernity is a cultural one.26 He writes that while we all share a genetic coding with the natural world, an organic bond we have with the larger universe, we are “genetically coded toward a further transgenetic cultural coding whereby we invent ourselves in the human expression of our being.”27 The problem, then, is that our cultural coding, which is handed down by educational processes at both the familial and societal level, is no longer integrally related to our genetic coding.28 Our genetic coding, for Berry, is more comprehensive than our cultural coding: “It is integral with the whole complex of species codings whereby the earth system remains coherent within itself and capable of continuing the evolutionary process.”29 Yet, our cultural coding has led us to deny or trivialize our cosmic or biotic imperatives, even though, ultimately, we cannot evade them.30 This is why, Berry concludes, for

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22 Swimme and Berry, 219. This is the same kind of wonderland that characterizes “the Disney World ideal of the human in a nonthreatening world of fabricated imitations, or caricatures of the universe and all its living manifestations.”
23 Berry, Great Work, 15.
24 Berry, Dream, 209; he adds, we are “driving the Earth into a termination of the Cenozoic Era.”
25 Berry, “Ethics and Ecology.”
26 Dalton, 112; this does not mean Berry did not deal with the economic or political realms; he merely concentrated on the underlying myths of economic and political institutions and how they operated and changed, as Anne Marie Dalton explains.
27 Berry, Dream, 200.
28 Ibid., 199-200.
29 Berry, “Ethics and Ecology.”
30 According to Dalton (115-117), Berry distinguishes humans from other animals here. Both are genetically coded, that is the DNA inheritance that directs our way of being in the world, but humans have as well a cultural coding, handed on to subsequent generations. It is the latter coding that has become distorted.
our species to remain viable we must go back to the genetic imperative from which human
cultures emerge, reinventing “a sustainable human culture by descent into our pre-rational, our
instinctive, resources.”

Because Berry targets the problem at the cultural level, our institutions – church,
education, political and economic – are themselves inadequate and cannot deal with our abuse of
the natural world. The same applies to our ethics. He writes, “[T]he devastation taking place
cannot be critiqued effectively from within the traditional religions or humanist ethics.” Such
ethical traditions know how to deal with suicide, homicide, and genocide, but they cannot deal
with biocide or geocide. The problem, then, speaks not simply to our ethics but to something
deeper: our relationship with the planet, indeed the universe. In this light, one could say the
problem is a spiritual one. As we saw with Boff, who maintains we are living amidst a change
of eras, it was Berry who first coined the idea that we are moving from the Cenozoic era, the
period of biological development that has taken place during these past 65 million years, into
either a Technozoic era, one defined by its increased exploitation of Earth as a resource, or into
the Ecozoic era, “when humans would be present to the planet in a mutually enhancing
manner.”

If the above, which describes our dysfunctional cosmology, is the problem, then a
functional cosmology is in order. This entails reinventing the human, as he says, “at the species
level” which itself entails restoring the relationship between our cultural and genetic coding, so
that we regain an intimacy with the planet. “That future,” he stresses, “can exist only when we
understand the universe as composed of subjects to be communed with, not as objects to be

31 Berry, Dream, 208.
32 Berry, Great Work, 104.
33 Ibid., 104; see also Dream, 77.
36 Berry, Great Work, 159.
exploited.” Liberation, as we will see, while he does not employ the term, is implied in his stress that all creation must be treated as subjects. That understanding will be realized primarily through the wisdom of science, which comes to us primarily in the form of a “New Story” of the universe, a cosmological narrative that provides us with a context in which life and our role on Earth can have meaning.

4.2 The Science Authoring Berry’s Ethical Vision

The scientists whose work Berry employs to help create a new story with a functional cosmology can fall broadly into three categories: those who deal with cosmology directly: mathematical cosmologist Brian Swimme, physicists Nigel Calder, Freeman Dyson, Paul Davies, David Bohm and David Peat. We can include here the work of paleontologist Teilhard de Chardin who approaches cosmology from an evolutionary geology and biology point of view. There are those who deal with transdisciplinary theories such as systems theory and the Gaia theory: physicist Erich Jantsch, chemists Ilya Prigogine, James Lovelock and biologist Lynn Margulis. And those who deal with ecology: geneticist Theodosius Dobzhansky, microbiologist René Dubos, biologists Paul Ehrlich, Anne Ehrlich and Ursula Goodenough. We might include the work of biologists E.O. Wilson and Rachel Carson and forester Aldo Leopold in this latter category, although these three fit better under a fourth category of writers Berry borrows upon: nature writers. These people are not all scientists such as Loren Eiseley, Henry Thoreau and Wendell Berry, and their contributions are often used to determine the state of our environmental crisis. While Berry does single out some authors’ work, delineating the exact influence of any of these authors is not always straightforward, as he tends to synthesize the findings of various writers and traditions; moreover, in much of his work, Berry does not incorporate footnotes or citations, but prefers to leave annotated biographies at the end of his books.

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37 Ibid., xiii.
38 I am indebted to Dalton for this grouping, 96.
39 Dalton notes this herself (17), concluding that it makes determining the precise influence of an author difficult. It should be added here that Berry does include an annotated bibliography on the authors he uses in four of his books, which has been helpful in this regard.
Berry depends most notably on Brian Swimme, with whom he co-authored *The Universe Story*, to help describe a comprehensive picture of the universe.\(^{40}\) Basing their findings on the cosmological principle which assumes that the universe appears the same from all directions from which we look at it\(^{41}\) they adapt Teilhard de Chardin’s evolutionary perspective for understanding the universe as a cosmogenesis – a changing developing universe. Berry and Swimme take the cosmological principle one step further and assume that the form-producing dynamics of evolution are also the same at every place in the universe.\(^{42}\) With this in mind, and from what scientists have experienced and studied, they suggest that three principles or intensions govern the universe, which Berry and Swimme identify as differentiation, communion and subjectivity. Only when we understand these three governing principles, they maintain, can we begin to understand the story of the universe.

Differentiation, also known as increasing diversity, complexity, or in biological terms as mutation, refers to the extraordinary variety and distinctiveness of everything in the universe. When the universe burst out in every direction some 13 billion years ago – as we have seen with the work of Ruether – there was an expansive and differentiating force at work.\(^ {43}\) This force embodied the pervasive insistence to create anew, which means no two things are completely alike. “To be,” say Swimme and Berry, “is to be different.”\(^ {44}\) Diversity in all its forms becomes important, for, “Were there no differentiation, the universe would collapse into homogeneous smudge.”\(^ {45}\)

\(^{40}\) The idea of the need for a new story came much earlier to Berry expressed in his 1978 article, “The New Story;” see Mary Evelyn Tucker and John Grim’s Introduction, *The Sacred Universe: Earth Spirituality, and Religion in the Twenty-First Century*, ed. Mary Evelyn Tucker (New York: Columbia University Press, 2009), xxiv-xxv; see also Dalton, 79-81: this idea also came to Berry in reading Ilya Prigogine along with philosopher Isabelle Stengers who point to time as an essential feature to be reckoned with in the sciences. With their writings, the entire universe could be seen as having a history; change becomes an undeniable quality of nature. Dalton states that, “For Berry, the acceptance of time as a datum by science made a scientific story possible” (81).

\(^{41}\) They establish their basis for knowing the universe by looking at what scientists call the cosmological principle, which posits that while the universe can never be known fully from our Earth-based perspective, it is reasonable to state that the universe appears the same from all directions from which we look at it.

\(^{42}\) Swimme and Berry, 52; they present cosmogenesis as a complement to the second law of thermo dynamics, which states that constructive activity needs energy and inevitably produces entropy or waste or, in both authors’ words, “a price must be paid for creativity.”

\(^{43}\) This scientific account comes mainly from *The Universe Story*.

\(^{44}\) Swimme and Berry, 74.

\(^{45}\) Ibid., 73. Berry paraphrases Thomas Aquinas, on the value of diversity: Because the divine goodness ‘could not be adequately represented by one creature alone, he produced many and diverse creatures, that what was wanting to one in the representation of the divine goodness
The principle of communion immediately came into play when the universe began, as gravitation pulled the primordial particles together. Communion, also referred to as interrelatedness, interdependence or kinship, and biologically as natural selection, is the ability to relate to other realities. Because of its relational underpinnings, communion receives much import from Berry who maintains that the universe is bonded. This bonding enabled the first atomic beings of hydrogen and helium to form. Within these first billions of years, galaxies also began to form – over one hundred billion galaxies in all. This process continued and, eventually, as Berry likes to say, because of communion, the music of Beethoven also came into being. Gravity, then, plays an important physical, if not poetic and, as we will see, an almost normative role, for, “without the gravitational attraction experienced throughout the physical world, there would be no emotional attraction of humans to one another.”

Additionally, as we saw with Ruether, Boff and O’Murchu, with the principle of communion in mind, the universe can no longer be understood as being “out there,” but as a mode of being of everything: all within it are intimately related to all else. In this way, Berry views anthropocentrism largely as a result of our failure to think of ourselves as a species amongst other species: without a sense of communion, we see ourselves as “an addendum or intrusion” and, eventually, as a superior intrusion. Finally, since all living beings, including humans, emerge out of this single community, Berry maintains in the Teilhardian sense – as we

might be supplied by another. For goodness which in God is simple and uniform, in creatures is manifold and divided; and hence the whole universe together participates the divine goodness more perfectly, and represents it better than any single creature whatever’ (Dream, 79).

We can therefore learn from Aquinas, as Berry suggests, that our primary need for the lifeforms of the planet is a psychic, and not simply a physical need: “To destroy a living species is to silence forever a divine voice” (Dream, 46); cf. Thomas Aquinas (Summa Theologica, Prima Pars, Question 105 & 109).

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46 Swimme and Berry, 7, 77.
47 Berry, Great Work, 162.
48 Ibid., 52-55.
49 Berry, Dream, 46.
50 Ibid., 52-55.
51 Berry, Dream, 21-29.
saw with Ruether – that there must have been a consciousness component of the universe even in primitive form from the beginning.\footnote{Berry, \textit{Great Work}, 189-193; Berry and Swimme present three immediate lessons from the story of the universe that are beneficial to us at this time. I have interspersed these throughout my discussion of the three principles though: we perceive the unity of the universe and its processes, we recognize its emergent nature, and we include the existence of human intelligence as an integral component of the universe.}

Consciousness here refers to the interior numinous component that Berry posits is present in all reality, which is the basis of subjectivity, also known as autopoiesis, self-organization, self-articulation, biologically as niche creation, and also as complexification as Teilhard de Chardin referred to it, as already discussed with Ruether.\footnote{Swimme and Berry, 72; cf. Dalton, 85; Dalton notes correctly that Berry’s particular articulation of subjectivity changes from when he wrote \textit{Dream of the Earth} where it operated along the lines of a development that led to the human to when he uses it in \textit{The Universe Story} where it primarily takes on the notion of autopoiesis as understood by Jantsch. Dalton concludes, however, the continuity of meaning between the two remains.} We find the universe filled with structures that exhibit self-organizing dynamics, a power or spontaneity that each thing has to participate directly in cosmogenesis, as we saw in discussing the work of Prigogine and Jantsch with Boff and O’Murchu. While Prigogine and Jantsch employed autopoiesis more in terms of self-preservation, certainly Jantsch does not exclude the idea of a primitive consciousness at play even in the pre-living world. Jantsch writes, “An \textit{autopoietic} system is characterized by a certain autonomy \textit{vis-à-vis} the environment which may be understood as a primitive form of the consciousness corresponding to the level of existence of the system.”\footnote{Dalton, 85-6; Dalton quoting Jantsch (\textit{The Self Organizing Universe}, 10).}

With these three principles in mind, we can readily see how the Gaia theory, as put forth by Lovelock and Margulis – approached both in its mythic and mathematical-scientific form – fits appositely into the story of the universe. Berry maintains that Gaia provides a larger pattern of interpretation for understanding the self-organizational processes or subjectivity of our planet as well as the primordial expression of communion. It helps us understand “the dynamics of the earth as self-emerging, self-sustaining, self-educating, self-governing, self-healing, and self-fulfilling community of all the living and nonliving beings of the planet...”\footnote{Berry, \textit{Dream}, 107. See also Thomas Berry, “An Ecologically Sensitive Spirituality,” in \textit{The Sacred Universe: Earth Spirituality, and Religion in the Twenty-First Century}, ed. Mary Evelyn Tucker (New York: Columbia University Press, 2009), 138; to understand what Berry means by this consider what he says: “Nothing bestows existence on itself, Nothing survives by itself, Nothing is fulfilled in itself. Nothing has existence or meaning or fulfillment except in union with the larger community of existence.” In this light, not even Gaia is truly self-emerging or self-sustaining, only the universe is.}
however, that to be truly comprehensive, Gaia must be understood within the larger universal context, explaining, “This provides us with a way of dealing with the special role of the Earth as revealing the deepest realms of existence with a perfection unequalled in any other mode of being we know of.”

For Berry, it is not just a matter that these principles organize the ever-evolving universe, or cosmogenesis, to be more precise. It is the manner in which they do this that matters too. Taking his cue from geneticist Theodosius Dobzhansky, Berry maintains these three principles continue to work together in the evolutionary process in neither a random nor a determined manner. In fact, Berry prefers the word creative. Thus, just as the early single cells, Prokaryotes, mutated, showing novel depths of differentiation by eating wastes and decay of other single-celled organisms, thereby “side-stepp[ing] disaster,” so too did a constant creative differentiation amongst the human species bring forth different languages and religions, each with its own inner articulations.

These three principles, then – understood within the broader context of the story of the universe – serve as the foundation of human ethics for Berry. Mary Evelyn Tucker, writing on this subject, suggests they “become the basis of a more comprehensive ecological and social ethics that recognizes the human community as dependent upon and interactive with the Earth community.” In fact, Berry’s whole universe story, as she maintains, helps us to nurture “reciprocity between humans” and foster “reverence between humans and earth.”

Nurturing reciprocity and fostering reverence appropriately sum up what Berry’s ethical vision aims to do, as the universe story is meant to become our sacred story. The wonders that science brings forth to us through this story and indeed the sheer awe of watching a sunset serve to help us value the natural world. The assumption is that when we change our worldview to see

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57 Ibid., 110.
58 Swimme and Berry, 89.
59 Swimme and Berry, “Prologue.”
60 Mary Evelyn Tucker, encyclopedia entry on Thomas Berry, 165.
the beauty and understand our interrelatedness of all within the universe, our ethics likewise will
be transformed. Some specific imperatives come out of this view. For instance, given that we
are part of a single evolutionary process imbedded within a larger Earth community, an
important ethical criterion for Berry is that our human ethics be derivative from the ecological
imperative. In this way, our technology must integrate within the technology and principles of
the natural world: the human economy must subsume itself under the Earth economy, and our
democracy must yield to biocracy. “To advance the human economy,” we learn, “by subverting
the earth economy is an obvious absurdity…there exists a governance too subtle for us to
understand.” When it comes to dealing with specific other-than-human beings in the world,
then, their subjectivity prescribes them rights. Thus, rivers, plants, and birds all have rights.
These rights are inherent and must be respected by humans. Thus, Berry would say a river has
a right to flow, but because the value of the river is determined in relation to the larger biotic
community (communion), its waters must also circulate throughout the planet so that they can
benefit other lifeforms on the planet.

Ascertaining specific human rights within the framework of the three principles of the
universe is not well defined in Berry’s writings. We can, however, with the concept of
reciprocity in mind, take the example of a river’s right to flow above and explore how the human
might then use its waters, whether for farming or energy. A brief illustration of the evolution of
two animals, as given by Berry and Swimme, will show how this process of reciprocity might
work. The bison created its niche by butting heads for self-protection whereas the horse, which
shared the same environment, chose to gallop. Why? Berry and Swimme say it was their self-
articulations or evolutionary choices that made them that way. But at the same time, these
animals were made within the context of their broader community of beings, or bioregion. In a
biological sense, these animals did not enter into a fixed rigid external environment. Berry and

62 Tucker, “Thomas Berry and the New Story.”
63 Berry, Dream, 65-69, xiii.
64 Thomas Berry, “The Universe Story: Its Religious Significance,” in The Greening of Faith: God, the
65 I will return to this issue of rights for the non-human later in this chapter and in Chapter 5. For now, we can
consider that there is a spiritual dimension to this statement which seems, however, to temper the tone on why we
ought to respect these rights: cf. Berry Dream, 46, where he states “Our primary need for the lifeforms of the planet
is a psychic, rather than a physical need,” since to silence a living species is to silence forever a divine voice.
66 Berry, “Ethics and Ecology.”
Swimme conclude that the animals worked out their existence in relationship with its larger environment. In another sense, the community said to the horse that “you may be a galloping energy,” and to the bison that “you may be a ramming energy, but only if you include all of us and all of our concerns and realities in your life project.”

In this manner, just like O’Murchu states that the rights of every “part” can be promoted only within the relational context from which it emerges, if any animal, human or non-human, enters into a community, Berry is saying it must “pay attention” to the community and remain attentive to the needs of each member of the community. Returning to our example of the river, then, we can surmise from this illustration, that if we are seeking access to the water from the river, we must listen in a quasi-Leopoldian fashion – as just plain members and citizens of a larger biotic community, to the negotiations taking place amongst the river and the whole biotic community. Evident in the bison and horse illustration above, then, is a theme that runs through Berry’s writings: microphase concerns need to give way to macrophase concerns. Here, the total community and not any single mode of being is where most value is placed.

A prominent motif underscoring Berry’s ethical vision – one evident in the ethical visions of all our Christian thinkers, most notably that of O’Murchu – is the inescapable and necessary

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67 Swimme and Berry, 138. A similar story is given on page 133 where a population of woodpeckers wandering into a mountain community is confronted everywhere by “demands shouted at them, ‘your wings are too stubby…your beaks are too fat,’” and so on. The birds are told that if they are interested in entering the new community, they must pay attention to the whole community and live in an awareness of the needs of each member of the community.

68 While this story does not turn up in any other of Berry’s writings, we recall these biological principles underlining the story are congruent with the principles of subjectivity, differentiation and communion, which Tucker stresses serve as the foundation of values for Berry; hence, the illustration represents Berry’s ethical vision appropriately.

69 Cf. Berry, Great Work, 51; Berry gives a good example of what listening implies from day to day when discussing how a woman in Florida, by listening to a hurricane, was able to learn things such as how to build a house in that area. Recall, as stated at the beginning of this section, Berry asserts that we have “forgotten our primordial capacity for language at the elementary level of song and dance, wherein we share our existence with the animals and with all natural phenomena.” we therefore have to re-learn how to do much of this listening, something Indigenous cultures can teach us to do, Berry says.

70 I am envisioning a scenario incorporating Aldo Leopold’s Land Ethic in this instance which, although Berry speaks highly of in his writings nevertheless does not employ them to this end. The term negotiation is my choice, one that imagines what kind of mutual ethical discussion and arrangement of terms might be at play. Since the bison-horse scenario is employed by Berry only in the one book he co-writes with Swimme, I do not present it here as a de facto illustration of Berry’s ethical vision; nevertheless, within Berry’s bioregional model and his larger ethical framework, the scenario serves to proffer a viable example of how his ethical program might play out.

71 Berry, “Ethics and Ecology.”
interconnection between destruction and creativity, between the basic ordering process (such as gravitation – “the primary discipline in the large-scale structure of the universe”\textsuperscript{72}), and disorder (such as the flaring forth after the big bang – the “wild, senseless deed that wells up from some infinite abyss in the expansive differentiating process of those first moments when all the energy that would ever exist flared forth in a radiation...”\textsuperscript{73}). For the universe to exist, there cannot be one without the other, the wild without the discipline, creativity without destruction. There is an inescapable cost to creativity, and conversely, “Many of the inventions of the natural world arose out of beings meeting the constraints of the universe with creative responses.\textsuperscript{74} In *The Universe Story*, the science behind this conclusion is supported by Wolfgang Pauli and his Exclusion Principle – which states that no two particles can occupy the same quantum state\textsuperscript{75} – and the second law of thermodynamics – which states that useful energy deteriorates into waste or entropy over time. If we include with this the notion of autopoiesis – the tendency of all things toward fulfillment of their nature or potential – Berry and Swimme present an account of violence and destruction as being fundamental to reality. Moreover, destruction and creativity exist in “creative disequilibrium.”\textsuperscript{76}

We have learned from systems theory, discussed with Boff, that any system closed off from new energy will eventually decline and suffer entropy. Whether an ecosystem, civilization or a single pair of aphids, each requires an influx of energy so as to sustain itself. But that energy, which is constant in the universe (first law of thermodynamics) must come from somewhere; hence, there is an energy payment (a cost) in order to maintain creativity. Berry and Swimme give the example of a single pair of aphids. If their desires were fully satisfied, after only one year they would generate over half a trillion offspring. Yet, this does not happen as their desires are held in a “fecund balance of tensions.”\textsuperscript{77} Such a creative disequilibrium means that constraints on creativity are fundamental:

Potentially infinite desire finds itself within a woven fabric of finite energy. This condition holds at every level of reality. The mollusk in the sand of the ocean, the

\textsuperscript{72} Berry, *Great Work*, 52.
\textsuperscript{73} Ibid., 51.
\textsuperscript{74} Swimme and Berry, 56; see also *Great Work*, 165.
\textsuperscript{75} Swimme and Berry, 52.
\textsuperscript{76} Berry, *Great Work*, 52; see also *Dream*, 217; Berry associates creativity with disequilibrium, a tension of forces, whether in a physical, biological or consciousness context, which can be transformed into something creative.
\textsuperscript{77} Swimme and Berry, 54.
bacteria in the rotting redwood tree in the forest the tornado in the winds currents of the summer drought, the black hole in the center of the galaxy- each exists with demands in a world tight with constraints on the very energies necessary to satisfy these demands.  

In short, the universe functions with imposed limitations – a star could not come into being without ever meeting resistance. And destruction is an inescapable part of creativity – our entire solar system could not have come into existence without the destruction of the supernova, Tiamat. Despite this, humans, with our reflexive mode of being, have denied hardships, avoided the intrinsic costs involved in creativity, while simultaneously magnifying the intensity of our desires.

The ethical dimensions of this are apparent. Berry is speaking of sacrifice. We see this embedded within reciprocity itself: if there is taking, then there must be a giving. This is not some pursuit of pain for its own sake, however, which Berry together with Swimme dismiss as pathological. It is, rather, a type of surrender of one’s well-being for the sake of others, akin to the effort of a shaman who might sacrifice his or her security to assist in the empowerment of others. Linking an intuitive understanding of this scientific-based lesson, Berry and Swimme write, “The primal human insistence upon sacrifice can be understood as an early intuitive grasp of the essential truth in the second law of thermodynamics.” To refuse our inherent vulnerability in what Berry assigns as legitimate suffering, “is to opt for a reduced existence.” We must deal with this hidden rage against the human condition that is finite and limited, then, not solely because it is self-defeating but, because it thwarts the creativity, as Prigogine’s theory of dissipative structures demonstrates, that emerges out of tension: “to eliminate the tension would be to eliminate the beauty.”

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78 Ibid., 54-55.
79 Swimme and Berry, 61.
80 Ibid., 60.
81 Ibid., 60.
82 Ibid., 59.
83 Swimme and Berry, 60; they speak of the hidden rage, 57, 248; cf. Berry, Dream, 217, Berry states this lesson also comes to us from Teilhard de Chardin and Prigogine (but also Hegel, Marx, Jung, Heraclitus, Nicholas of Cusa).
4.3 An Analysis of Berry’s Ethical Vision

Berry assigns a preeminent position to the wisdom of science in creating his ethical vision. Science, he maintains, provides the epic evolution story toward the future.\(^{84}\) In fact, he avers, “We cannot resolve the difficulties we face in this new situation by setting aside the scientific venture. … If interpreted properly, it could even be one of the most significant spiritual disciplines of these times.”\(^{85}\) While Berry’s New Story is primarily descriptive, Anne Marie Dalton explains how he interconnects story with myth, dream and cosmology to serve as a “meaning-giver and driver of action.”\(^{86}\) The discoveries of science, Dalton suggests, serve as the primary authoritative voice to support the integral relationship of the human to the natural world. Hence, we find the story telling us of concrete events in time, while also expressing a numinous quality of the universe that has been “present to the psyche of humankind for ages and expressed in the traditional myths.”\(^{87}\) The new intimacy humans are to discover with the universe means we must embrace both its creative and darker side of destruction. While Berry does not say, as O’Murchu does, that we must befriend the dark, he nevertheless believes we should accept it.\(^{88}\) Thus, we find within his ethical vision – much like with our other interlocutors – a hermeneutic on how we are to approach the world. Moreover, we find within the New Story, with its governing principles, indications of what our human role might be: with our self-reflective consciousness, we are the universe reflecting on itself, enjoying and celebrating its grandeur and its mysteries, both the dark and creative.\(^{89}\) We are, as Dalton says, mandated to tell the story and live out the Ecozoic era.\(^{90}\)

As we have done with our other Christian thinkers, we should ask whether Berry has avoided even a weak anthropocentrism. Berry, like Boff and O’Murchu, certainly steers away from using “levels” to distinguish intelligences between the human and the non-human animal. Berry prefers to speak of qualitative differences and not quantitative differences, whereby

\(^{84}\) Berry, *Great Work*, 195.
\(^{86}\) Dalton, 111; see also 108, 125.
\(^{87}\) Dalton, 111; she gives a good account of how myth, cosmology and story have in the past served to denigrate the natural world.
\(^{88}\) Berry, *Great Work*, 67.
\(^{89}\) Berry, *Great Work*, 170; and *Dream* 16.
\(^{90}\) Dalton, 121.
concepts of higher or lower intelligence are rejected in favour of modality of functioning. Thus, he can say: “So in the world of the honey bee, the peregrine falcon, the rainbow trout, the dolphin, and the human – in each case the intelligence is appropriate to its function; each is perfect in its own order.” This would seem to eschew even a weak notion of anthropocentrism. Yet, as Scharper points out, Berry’s notion that we are the “self-consciousness of the universe,” nevertheless keeps the human at the centre of all thought, as it is we who are making sense out of reality. Does this assign a weak anthropocentric character to Berry’s ethical vision? Recall I described weak anthropocentrism to be a view that reality can only be interpreted from a human point of view, thereby still according some centrality to the human. Berry, however, does not claim such interpretation can come only from the human: self-consciousness, is qualitatively and not quantitatively different from other means of knowing. If there is any claim to anthropocentrism in Berry’s ethical vision, then, as it is with O’Murchu, it would have to be of a very weak kind.

Again, as we have seen with Ruether, Boff and O’Murchu, while much of Berry’s ethical vision comes in the forms of norms and models and not as a precise system of actions or oughts, we can nevertheless gather from Berry’s vision some specific imperatives; for example, the principle of differentiation tells us that our modern world’s increasing employment of monocultures and standardized industry is misguided, and as we learned above, the human economy must subsume itself under the Earth economy, and our democracy must yield to biocracy. Not surprisingly, in the same manner of our other interlocutors, bioregionalism is offered as a viable model for nurturing reciprocity and fostering reverence for all life. Berry, however, devotes far more energy to explaining its import and function within the broader planetary framework. He states, “A bioregion is an identifiable geographical area of interacting life systems that is relatively self-sustaining in the ever-renewing processes of nature.” But he underlines that bioregions are the quintessential communities that, as we saw earlier in regards to Gaia, are self-sustaining, self-educating, self-governing, self-healing, and self-fulfilling. Berry’s vision, therefore, places the onus on changing the human and all our cultural institutions to suit Earth and its processes, not the other way around. For this reason, our cultural coding

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91 Berry, *Befriending*, 22-23.
92 Scharper, *Redeeming*, 186-188.
93 Berry, *Dream*, 166, 107.
must integrate with its organic base. With this point in mind, Dalton asks whether Berry is suggesting a return to the romantic concept of some kind of primitive paradisal existence. She reasons, though, that Berry’s insistence in his writings on proper scale and appropriate technologies that respect Earth contradict any idealistic notions.  

Where Berry’s ethical vision does lack clear guidelines is on human-to-human social interactions. Indeed, as Dalton correctly points out, Berry demonstrates an impatience with our preoccupations with human concerns about social problems of the human community to the exclusion of problems in the natural world. Dalton is not alone in her observation. Scharper puts the human-to-human issue into perspective with the Catholic principle of the preferential option for the poor. He asks, for example, how is it that the poor, the marginalized subjects in the universe, can receive no preference? As we saw above, the second law states that each development has a cost. Scharper asks, then, whether this means a multinational corporation is justified in cutting down forests to serve its development needs. Does the principle of creative disequilibrium, this knife’s edge on which we live, mean we should value the poor being caught between the wildness of free markets and the discipline of social economics? The above questions point out how, without a political economy approach or certainly a principle like the preferential option for the poor, someone could appropriate the story to his or her advantage. While seemingly adhering to the ethic of self-limiting as implied by Berry and Swimme, they could be simultaneously exploiting the vulnerable. In short, the new story, as comprehensive as it may be, cannot stand alone.

In a similar vein, Heather Eaton speaks of the “ambiguous dialectic” that exists between the micro and the macro ethical perspectives implied in this new story. Using the example of a sinking ship – the Titanic, in fact – Berry suggests we have appreciation for the daily concerns of the ship – its micro concerns, which include the welfare of individuals – in conjunction with the immediate concerns of saving the ship – the macro dimension. In this way, “our concerns for

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94 Ibid., 117. In fact, in Dream, 8, Berry, in fact, says we should not over-romantisize primitivism.  
97 This idea of the Titanic can be found in Berry, Great Work, Chapter 9.
the human community can only be fulfilled by a concern for the integrity of the natural world.”

Unfortunately, the human community has never had to consider such ethical demands on this grand scale before. This is why Berry contends that we have developed ethical responses to homicide, suicide and even genocide, but not for geocide or biocide. Eaton feels, however, that Berry places greater concern upon the macro rather than the micro ethical dimensions. Indeed Berry says, “Our human ethics are derivative from the ecological imperative.”

Much in keeping with Scharper’s caution, then, Eaton looks at how this approach could be interpreted by others and points out that, “One can experience great pleasure in rethinking the cosmological horizon, and avoid addressing the urgent, difficult and entangled problems as seen from the ground.” Poignantly, Eaton – returning to our Indigenous woman we discussed in chapter three, walking far and long for water – underlines that, “Obviously it is not those who are walking for days for water who are researching cosmological questions.”

To look for such a promotion of a preferential option for the poor human in Berry’s writings, I suggest, is misguided. From his early life, Berry, having developed a keen sensitivity to Earth and all its subjects, was focused on that which will preserve and enhance the “meadow.” But does this mean Berry ignores the plight of those most vulnerable? No. Dalton points out that in certain sections of his writings, Berry nevertheless reflects “a sensitivity to the plight of poor nations” and “a pathology that leads the Western world to think it is helping the poor while it devastates their natural environments.”

Certainly when Berry says we ought to pay attention to the community and remain attentive to the needs of each member of the community, as we saw with the story of the horse and bison above, he is underlining how individuals and a community ought to behave if they are to “stay” in a larger community. While this illustration primarily

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98 Berry, Great Work, 100.
99 Cf. Eaton, “Cosmological Ethics? The Great Work,” footnotes 2, p. 167; of note, Eaton makes a good point when she muses whether humans are even able to deal with suicide, homicide or genocide.
101 Eaton, “Cosmological Ethics? The Great Work,” 164. Both Scharper and Eaton’s cautions are well heeded by Berry himself (in responses to the essays within the same volume), as they “deepen and expand what The Great Work seeks to communicate” (198).
102 Dalton, 135; cf. Swimme and Berry, 217-218.
103 John Grim provides us with some deeper insights on this matter. He explains how historical thought for Berry involves a deep pathos, indicating that this understanding of the human condition, in some form, preceded his research of the science:
explains niche creation, mutation and natural selection in *The Universe Story*, as Dalton points out – and correctly I would say – it is not difficult to see the illustration as an indictment of the human species.\(^{104}\) Mary Evelyn Tucker and John Grim affirm this argument. They attest that Berry was “a person of immense feeling for the suffering dimensions of life.”\(^{105}\) In his earlier life, Berry would make visits to meet Dorothy Day and Peter Maurin at the Catholic Worker in New York. Tucker and Grim point out this to demonstrate his “firm support” of social justice issues.\(^{106}\) In his essay entitled, “Economics as a Religious Issue” Berry points out that a moral-religious critique of the capitalist market system demonstrates its limits with regard to social justice and he underlines we must have a special concern for the well-being of the society shared by all, “especially that the basic life necessities be available to the less privileged.”\(^{107}\) Might we adapt this same illustration to the human-to-human situation as Tucker appears to do with her label of reciprocity?

It is true, then, that Berry does not employ a political economy approach to his work. His forte lies in demonstrating the macro imperative: “A degraded habitat will produce degraded humans. An enhanced habitat supports an elevated mode of the human.” Nevertheless, it is apparent that he recognizes the value of a political economy approach.\(^{108}\) As we will see in the following section, Berry’s epistemology and the methodology which he puts forth, assure that the wisdoms from liberationist thinking are an integral and integrated part of a larger ethical vision.

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\(^{104}\) Dalton, 126.

\(^{105}\) Tucker and Grim, Introduction to *Christian Future and Fate of the Earth*, xiii.

\(^{106}\) Ibid., ix; they also note in their discussions with Berry over the many years they worked with him, that “he would often comment on the suffering the environmental crisis is inflicting on these most vulnerable,” citing how the 1978 experience of the toxicity level of Love Canal near Buffalo, New York, raised his understanding of how disproportionately the poor bear the burden of environmental destruction.

\(^{107}\) Berry, *Dream*, 70-71.

\(^{108}\) Ibid., 165.
4.4 The Epistemology and Methodology Backing Berry’s Ethical Vision

At the core of his epistemology, Berry conceives a universe that is knowable. And in the process of knowing something, Berry contends, there is a communication occurring between subjects, between the person who wants to know a being and that being itself.\(^\text{109}\) In keeping with his emphasis on relationality, he states, “Everything tells the story of the universe. The winds tell the story, literally, not just imaginatively.”\(^\text{110}\) Hence, on one epistemological level, he can say, “The mathematically formulated designs of scientists are not the unrestrained fantasies of humans; they refer to something ultimately real,”\(^\text{111}\) implying that there is a definite interaction between reality and the knower.

Nevertheless, on another epistemological level, Berry maintains that we can never know parts of the universe separate from the whole any more than we can understand the theme of a musical piece by listening to a musical phrase where the earlier notes are gone.\(^\text{112}\) It is not just the whole but the mysteries within the whole that concern Berry. With the rational-empirical approach alone, he contends, “we often lack deep feeling for or understanding of the mysteries of the Earth.”\(^\text{113}\) Such experiences overwhelm us and cannot be expressed in human words:

People generally experience an awesome, stupendous presence that cannot be expressed adequately in human words. Since it cannot be expressed in language, people often dance this experience, they express it in music, in art, in the pervasive of the beautiful throughout the whole of daily life, in the laughter of children, in the taste of bread, in the sweetness of

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\(^{110}\) Berry, Befriending, 7. See also Berry, “The Cosmology of Religions,”118, where Berry states, “We are listening to Earth tell its story through the signals that it sends to us from outer space, through its geological formations, and through the vast amount of data that the biosystems of Earth give us.” The sense one gets from this, which I will speak about later, is that, as Berry insists, revelation is there all the time; it is not necessarily a supernatural event; we need only be receptive to it.

\(^{111}\) Brian Swimme and Thomas Berry, 39; Berry, together with Swimme points out the mathematically formulated designs do not exist except for consciousness, suggesting the human participates in the creation of these designs. To demonstrate this, he asks why we have such a wonderful idea of God and suggests it is because we live in such a gorgeous world. Were we to live on the moon, he surmises, our ideas would change, as “Our sensitivities would be dull because our inner world would reflect the outer world;” see Berry, Befriending, 9.

\(^{112}\) Berry contends that we cannot even know particles and their power, for instance, until we see the wholes they bring into being. He gives the example of getting to know carbon entails having to know it is more than one of the 117 elements; we need to know its role in molecules, in cellular life, know its sense, “because carbon in a transformed context lives and functions in the wide display of all the gorgeous plants and animals of the earth as well as in the most profound component to our highest spiritual experience.” Berry concludes from this that there is a latent spirituality capacity in carbon.

\(^{113}\) Berry, “The Gaia Hypothesis,” 104.
an apple. At every moment we are experiencing the overwhelming mystery of existence. It is that simple but that ineffable.\textsuperscript{114}

The communication occurring between subjects, it would seem, occurs not only at the verbal level but at the intuitive, aesthetic and affective level as well.

The entire range of our poetry, music, and art resonate with the deep mysteries of existence experienced in the world about us. We are moved in the depths of our being by the serenity of the sea on a quiet evening or by the terrifying wintry storms that sweep across the North Atlantic. So too is the sharp aesthetic – even physical pain – we feel as we stand on some mountain height and look out over distant hills.\textsuperscript{115}

It is important to note what Berry is saying here. It is not just that we cannot know the world fully through science. Science, he maintains, is inadequate in certain aspects of understanding and, therefore, ought not be the only way of knowing the world.\textsuperscript{116}

The main epistemological issue for Berry is that our scientific preoccupations have left us with a diminished sensitivity to the natural world. He is often quoted, “We have forgotten our primordial capacity for language at the elementary level of song and dance, wherein we share our existence with the animals and with all natural phenomena.”\textsuperscript{117} So while the story that we receive from the universe is “awakening in the depth of human psychic awareness a sense of ultimate mystery and how ultimate mystery communicates itself,”\textsuperscript{118} we are having difficulties in hearing

\begin{footnotes}
\item[114] Berry, Befriending, 11.
\item[115] Berry, “The Gaia Hypothesis,” 104.
\item[116] This is the case even if science is approached with post-enlightenment sensibilities that eschew reductionist methodologies, mechanistic interpretations of the world, and deterministic interpretations of processes. The sense of a self-organizing universe and the more recent chaos theories have taken us beyond a mechanistic understanding of an objective world. He states, “We now know that there is a subjectivity in all our knowledge and that we ourselves, precisely as intelligent beings, activate one of the deepest dimensions of the universe” (Berry, Great Work, 25). Elsewhere in an interview on science, Berry states, “Science has given us the power to use the planet, but it doesn’t explain how to use the power and it is the use of power that is the critical issue. If science thinks it is a cosmology (an understanding of the universe), science will destroy the planet…If science functions within an appropriate cosmology, science becomes a wisdom. We need science; we cannot do without it, and in a sense, the more the better. But to know how to use it is a completely different question. And the type of understanding needed is not exactly the scientific understanding. He then speaks of how religion has lost its power. See http://www.youtube.com/watch?v=FOdw0eoX9gM. Accessed on February 1, 2012. And to know how to use it, Again in The Great Work, 55, Berry states,
    All these phenomena of the natural world fling forth to the human a challenge to be responded to in literature, in architecture, ritual, and in art, in music and dance and poetry. The natural world demands a response beyond that of rational calculation, beyond philosophical reasoning, beyond scientific insight. The natural world demands a response that arises from the wild unconscious depths of the human soul, a response that artists seek to provide in color and music movement.
\item[117] Berry, Dream, 2.
\item[118] Berry, Befriending, 7
\end{footnotes}
and listening to it. Other wisdoms, however, have not forgotten the “languages” that Berry maintains we need in order to listen to and hear what is, ostensibly for him, revelation. This is why Berry proposes that humans integrate a four-fold wisdom into their ways of knowing the world: the wisdoms of women, the indigenous and of the many ancient traditions, along with the wisdom of science.\textsuperscript{119} While no single wisdom is sufficient to address the needs of our times, given its limitations and distortions, each enriches the other. But it is primarily indigenous wisdoms that Berry invokes in order to help us regain our primordial capacity for “language at the elementary level of song and dance” so as to hear and understand the rivers, trees and birds.

It is also important to note that while these wisdoms all enrich one another, Berry is not saying that the intuitive, aesthetic and affective ways of knowing – certainly endemic to the wisdoms of women, indigenous and ancient traditions – pertain to these wisdoms alone, restricting the wisdom of science to the rational-empirical method. For Berry these epistemologies work as an integrated whole and, therefore, apply to all wisdoms. This means, of course, he maintains, that the driving forces behind the scientific effort are nonscientific. He says, “The excessive analytical phase of science is over. A countermovement toward integration and interior subjective processes is taking place within a more comprehensive vision of the entire universe….”\textsuperscript{120} To help us understand this integration, Berry speaks of a visionary experience, not unlike that which a shaman would experience, an experience that imbues the scientific process:

- It can hardly be repeated often enough that the driving force of the scientific effort is nonscientific…a far-reaching transforming vision is sought that is not far from the spiritual vision sought by the ancient tribal cultures, as well as by the great traditional civilizations of the past.\textsuperscript{121}

This is why Berry can claim that science is ultimately mythic in nature. The scientific endeavor is both impelled by myths and – especially when recounted as the universe story – serves as the progenitor of a new mythic structure that can help redirect human attitudes and actions to more congenial ways of being. It is for this reason that Berry can conclude that it is \textit{within} and not
from outside the scientific tradition that a “new intimacy with the universe has begun...science is providing some of our most powerful poetic references and metaphoric expressions.”

This seemingly trans-rational-empirical epistemology Berry assigns to the wisdom of science can also be looked upon as a belief component. He points, for instance, to physicist Wolfgang Pauli, who attributed his discoveries to “archetypal dream experiences,” and to Isaac Newton, who explored the mysteries of things through alchemy. The importance of dream – which he sees as the awakening in us of a sense of ultimate mystery and how that ultimate mystery communicates itself – becomes key to Berry’s entire epistemological framework. The term “dream” is used by Berry as both the psychic processes that take place when we are physically asleep and the “way of indicating an intuitive, nonrational process that occurs when we awaken to the numinous powers ever present in the phenomenal world about us, powers that possess us in our high creative moments.” We see this in the passage below:

Every scientific formula is as much myth and mystery as it is rational understanding. What is it that unifies the formula? The formula is nothing without its interpretation, so the understanding is not in the formula. (No formula is self-interpreting.) Scientists think it is there because they can make the equation work. I am not exactly arguing that the rational scientific process is a dream process, but it functions in the context of an even deeper mystery that many scientists are beginning to recognize. Our science does not reduce the mystery, it enhances the mystery.

In short, Berry is describing a more unified way of knowing and hence, a new way of entering into a conversation with the world and certainly between religion and science; while we need the

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122 Berry, *Dream*, 16; see also Berry, *Great Work*, 201, where he combines vision and myths.
123 Berry, *Befriending*, 8; Berry adds “The ultimates of science are trans-scientific.”
124 Ibid., 26.
125 Berry, *Dream*, 211; dream is, of course, the same power that poets and artists invoke. Berry writes (“The Universe Story: Its Religious Significance, 216): “We need the story and the dream. We need the story to understand where we are in the unfolding reality of the universe. But we also need the dream, for the dream drives the action; the dream creates the future.”
126 Berry, *Befriending*, 26. The reader should not think that science becomes all subjective for Berry. While science remains revelatory, the integrity of rational analysis is not lessened. For instance, when speaking about God, prophets and revelation, Berry does not ignore the empirical analysis:

Surely no one can see or hear God. In reality, they did not hear anything audible or see anything visible, but they did become aware in the depths of their being of a special type of divine communication. This came from a depth beyond anything that they could envisage as coming from a created origin. And so, ‘God sayeth’ is a special interior depth of awareness. The same is true within our situation. When I call our new knowledge of the universe a new revelatory experience, it is qualitatively different, just as all revelatory experiences are qualitatively different” (7).
story, we also need the dream, which drives our action. In fact, the unity of the entire complex of galactic systems is among the most basic experience of contemporary physics. Although this comprehensive unity of the universe was perceived by primitive peoples, affirmed by great civilizations, explained in creation myths the world over, outlined by Plato in his *Timaeus*, and given extensive presentation by Newton in his *Principia*, nowhere was the full genetic relatedness of the universe presented with such clarity as by the scientists of the twentieth century.

The outcome of this unification cannot be overlooked. While Berry can assign a preeminent position to the wisdom of science in moving from a democracy to biocracy, underlining that we cannot resolve our problems without science, the epistemological boundaries between science and religion are no longer distinct. This is why we find Berry – not unlike Ruether – invoking the way of the poet or artist with reference to his appropriation of science: “We might think of a viable future for the planet less as the result of some scientific insight or as dependent on some socioeconomic arrangements than as participation in a symphony or as renewed presence to some numinous presence manifested in the wonderworld about us.”

With this multidimensional epistemology with its emphasis on a dream process in mind, it might seem that Berry espouses some form of idealism as a way of understanding truth-claims in science, religion and other wisdoms. But this is not the case. While he does draw from the

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127 It should not be surprising to learn that Berry understands science as being both a cultural and spiritual activity. See Dalton, 95; on the one hand it plays an authoritative role by “confirming what humans had in a sense known all along in the primal expressions and the archetypal spiritual images that survived in the unconscious.”

128 Berry, *Dream*, 46. See Dalton 81, where she says, this epistemology “opened the way for a unification of nature and human experience, and of science and the rest of culture.” She also quotes this of Berry from a paper I do not have, a version of “The Gaia Hypothesis,” to which I do have access, but here called “The Gaia Theory: “Our scientific inquiry establishes a basis for a new type of religious experience differentiated from, but profoundly related to, the religious-spiritual experience of the early shamanic period of human history” (95). It is interesting to note with regard to this unification, what Berry highlights of Thomas Aquinas who [see footnote 45], without the benefit of modern science, already intuited the salient features of the principles of differentiation, subjectivity and communion, as we understand them through science. In reading Aquinas, for instance, we get the sense that he knew that each articulation is “unrepeatable and irreplaceable” (differentiation), has an “inner depth” (subjectivity), and “finds its fulfillment in this mutual presence” (communion) (*Dream*, 106. 79).

129 This term is coined in *Dream*, xiii.

130 Berry, *Great Work*, 20. Perhaps this convergence amongst ways of knowing, explains why Berry, when speaking about how we experience the world, often cites within the same sentence an array of hitherto unconnected thinkers from scientists like Ilya Prigogine to theologians like Thomas Aquinas, philosophers such as the Cambridge Platonists, philosopher-mathematician-astronomer Giordano Bruno, and psychiatrists like Carl Jung; see, for example, *Dream* 198.
romantics and transcendentalists, Anne Marie Dalton points out that Berry also criticizes Teilhard de Chardin for overstressing spirit at the expense of the concrete universe itself. She suggests, and correctly in my estimation, that Berry follows more of a critical realist approach, asserting that we comprehend the truth as a result of experiencing, understanding and judging. We can see this clearly in his collaborative venture with mathematical cosmologist Brian Swimme, where a more nuanced approach to objectivity is put forward.131

With this multidimensional critical realist epistemology in mind, how does Berry justify truths? In The Great Work, as we discussed above, he speaks of his meadow experience in his youth as being normative for him, an experience he returns to, as he states, “throughout the entire range of my thinking.” Berry states that the impact the meadow experience has had on his “feeling for what is real and worthwhile in life,” is enormous. He concludes,

Whatever preserves and enhances this meadow in the natural cycles of its transformation is good; whatever opposes this meadow or negates it is not good. My life orientation is that simple. It is also pervasive. It applies to economics and political orientation as well as in education and religion.132

Implicitly, then, it seems like Berry employs the three principles or intensions governing the universe to serve as criteria for arriving at truth. Referring to the meadow, he presents a more concrete example of how we can judge the veracity of these principles in the form of liberation for the meadow when he says: “Yet these evolving biosystems deserve the opportunity to be themselves and to express their own inner qualities.”133 In this regard, much like we have seen with our other theorists, there is a pragmatic bent to Berry’s criteria.

131 Dalton, 158, 176-7; on objectivity, Dalton states, “The change in perception regarding the nature of scientific knowing, at least, and in the meaning of objectivity, is certainly alluded to many times in The Universe Story, 177. In fact, one might perceive objectivity to mean – at least in part – in the mind of Berry, as philosopher and biologist, Kristen Shrader-Frechette puts it, avoiding bias values, giving even-handed representation of the situation, and being open to debate. She concludes this is especially the case when science and ethics interplay in the forming of social policy: Kristen Shrader-Frechette, “Reading the Riddle of Nuclear Waste: Idealized Geological Models and Positivist Epistemology,” in Earth Matters: The Earth Sciences, Philosophy, and The Claims of Community, ed. Robert Frodeman (Upper Saddle River, N.J.: Prentice-Hall Inc., 2000), 21. By way of one more example, Mary Midgley (Evolution as Religion: Strange Hopes and Stranger Fears [New York: Routledge, 2002], 4), underscores the same approach: “Like those who argue usefully on any other subject, they do their best work not by being neutral but by having strong preferences, being aware of them, critiquing them carefully, expressing them plainly and then leaving their readers to decide how far to share them.”
132 Berry, Great Work, 13.
133 Ibid., 13.
With Berry’s epistemological framework in hand, we can turn our attention to understanding how he envisions the necessary and challenging dialogue between religion and science to occur by looking at Berry’s concept of bioregionalism. Berry refers to the “voices” one hears in the winds over the Hudson River Valley – voices that “identify the distortions in our relations with the land and its inhabitants.” In what manner do the voices of these winds converse with the voices of scientists who tell us our chemicals might be forcing the soil to produce beyond its natural rhythms? To answer these questions, it will be helpful first to understand more clearly what Berry means when he says we ought to pursue the way of the poet or artist in our appropriation of science.

Berry maintains that the task of bringing together the four-fold wisdoms, with their perspectives and epistemologies, into conversation goes to the “integral ecologist.” Berry describes such a person as the new spiritual guide for our times, one who is ecologically sensitive, a spokesperson or normative guide for the planet, a St. Francis to the Pedro Bernadones of our time, and a person “who would understand the numinous aspect of a universe emergent from the beginning.” The integral ecologist provides leadership beyond what we can get from the traditional prophet, priest, yogi, monk, philosopher of the past and present and certainly beyond any leadership that comes from the corporate leaders, engineers and scientists who are the new guides of our era.

While the manner in which the integral ecologist might pursue a dialogue is not specifically laid out by Berry, Stephen Bede Scharper provides us with an overall framework for understanding Berry’s approach, which he describes aptly as “listening.” The approach involves, as it declares, listening and paying attention to nature. The bison-horse-grasslands example Berry gives to demonstrate how his three principles work is a good example of subjects listening to one another. If any subject, be it plant, animal or human, enters into a community, it must “pay attention” to the community and remain attentive to the needs of each member of the community. There can be no reciprocity, mutuality or exchange without the subjects involved.

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134 Berry Dream, 173.
136 Ibid., Berry notes that the integral ecologist concerns him/herself with tactics, strategies and principles, dealing with the powerful institutions of our time: education, government, corporations and religions.
137 Scharper, Redeeming the Time, 46. Scharper assigns this approach to John Carmody and Albert Fritsch as well.
first and foremost listening to one another. And given Berry’s epistemology, our listening may come in many forms or languages: through dance, song, poetry, and intuition, by the use of our ears, eyes, with or without scientific equipment.

In this way, we can get an idea how a biologist might tell us about the life systems and carrying capacity of bioregions and the effects of human development on the bison, the horses, the waters, the air and indeed all species. Berry finds that increasingly scientists are embracing a larger epistemological paradigm and beginning to experience a personal rapport with the Earth in their work. This explains why we see biologists giving names to the whales and gorillas they study.\textsuperscript{138} This is happening not through some analytic process, but through an absorption of their experiences with the natural world into their very being. In other words, our biologist is listening not solely to what her instruments are telling her, but to what she is being told through the very structure and functioning of her being. At the same time, this biologist listens to the indigenous peoples, who arguably have not altogether lost the capacity of the mythic, imaginative dream experience; they perceive a numinous presence within that same bioregion and thereby recognize that each aspect of creation has its own inner life or subjectivity.\textsuperscript{139} Expanding the conversation to include economists, this person might learn how a market system within a bioregion ought to operate. For example, Berry states,

\begin{quote}
Within this pattern the expansion of each species is limited by opposed lifeforms or conditions that no one lifeform or group of lifeforms should overwhelm the others. In this function of the community we include, for humans, the entire world of food gathering, of agriculture, of commerce, and of economics. …Even in the natural world there is a constant interchange of values, the laying up of capital, the quest for more economic ways of doing things. The earth is our best model for any commercial venture.\textsuperscript{140}
\end{quote}

And while Berry does not explicitly address the plight of the woman walking long and far for water as we discussed previously, he does explicitly incorporate the wisdom of women into the conversation; such wisdom, he maintains, “join[s] the knowing of the body to that of mind, to join soul to spirit, intuition to reasoning, feeling consciousness to intellectual analysis, intimacy

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\footnote{Berry, Dream, 4. Indeed it is not just Dian Fossey who named her special gorilla Digit, but Jane Goodall who was a pioneer in giving her chimpanzees names.}
\footnote{I do not wish to suggest a romantic view of indigenous peoples, and I do not believe Berry does either. However, it is not overstating the truth when to suggest that an Andean indigenous campesino would more likely see the mountain that towers over his village is an \textit{apu}, a mountain spirit that protects his peoples, while a business person from the global North might look at that same mountain and see it as a resource for copper.}
\footnote{Berry, Dream, 167.}
\end{footnotes}
to detachment, subjective presence to objective distance.”

In this light, it is fair to assume that there would be a strong call within the larger conversation for a preference to be assigned to this woman’s voice. As we saw with Ruether, in assigning such a preference, we would direct our energies toward correcting the “destructive option for the rich” within the parameters of maintaining the “well-being of the whole community of life.”

Finally, given that Berry’s framework has us listening to (and presumably understanding) what the river and trees are telling us, it is important to mention his method for reconciling the inevitable clash of the rights of a river to flow free and fresh, with the rights to water and housing for our Guatemalan indigenous woman carrying water and indeed her whole human community. To do this, Berry suggests we think analogically. He contends, “Each being has rights according to its mode of being.” When we normally speak of the “rights” of a human and the rights of the other-than-human, we have trouble assessing the two because of their apparent differences, and too often end with human rights trumping the rights of the non-human. However, if we employ the term “rights” as an analogous term, we see similarities and differences. In this way, we can say “a river has rights.” The river, however, does not have human rights because human rights would be no good for a river. A river needs river rights, such as the right to flow.

Conclusion

A simple meadow in North Carolina formed early within Thomas Berry a deep reverence for Earth, a love that would later embrace the entire cosmos. The universe is not solely a subject of reverence. The story of the universe, deeply informed by science, influences how he, and the other three interlocutors, understand liberation: it broadly entails following the larger evolutionary impulses, described by Berry as three principles: subjectivity, differentiation and communion. These form the basis for Berry’s ethical vision, as does the need to embrace our anthropological vulnerability.

141 Berry, Great Work, 180; I am cognizant that Berry does not himself connect the dots, so to speak, and demonstrate how the wisdom of women actually interplays with the wisdom of science; nevertheless, the connections I am making, I maintain, are well in keeping with what he would understand by how the four-fold wisdom operates.


143 This issue on river rights in relation to human right will be taken up in the next chapter.
As with our other theorists, relationality lies at the core of Berry’s ethical vision. As Ruether states, it invites us to stand back and consider how all subjects interconnect and cooperate rather than simply compete. Even the act of liberation itself defers to the larger context of relationality, as one’s own liberation is inextricably tied to the liberation of all subjects. Berry introduces a process of negotiation in order to reconcile desires and needs. This makes sense, since, for Berry, as well as for O’Murchu, Boff and Ruether, the larger context of relationality speaks to the “holarchy” of the community – one where relationship is the core dynamic whereby no subject is considered in isolation from the whole and a mutuality of responsibility (amongst humans) is required if the liberation of all subjects is to be realized. A pre-eminence, then, is given by all our thinkers not so much to rational argumentation, but to a vast and communal discussion and negotiation through a democratic conversation for arriving at truths. The conversation includes a plurality of voices encompassing their past, present and future, myriad points of view, and multiple ways of knowing the world. In fact, we see evidence of a blurring of the traditional epistemological boundaries between religion and science.

We also find evidence within the writings of all four of our Christian thinkers that each has embarked upon a self-reflective process that denies any claim to seeing or understanding things from “God’s perspective.” There appears a hermeneutic of humility present in their approach, which accounts for the concern they place on listening, forming a conversation, and learning from the other subjects in the cosmos. Ruether and Boff stress that that “other” be our campesina who is excluded for participating in her own history.

What accounts for the many similarities amongst our four thinkers? We have discussed some points: apart from their shared faith tradition, each author is aware of the others’ writings and, in many instances – especially with regard to the work of Thomas Berry – each author borrows from the others’ thinking. Moreover, in many instances, albeit to varying degrees, they employ the works of the same scientists, including those of Teilhard de Chardin. There is

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144 It is interesting to note how little Ruether mentions Berry in her writings, though she is well aware of his work and that of Brian Swimme. This stands in contrast to Boff and O’Murchu who make reference to his work often. Nevertheless, Ruether, as we have seen, does label Berry “The guru of the Catholic ecological movement” (Ruether, “Ecological Theology,” 229). That such a reference occurs in her later writings could be explained, perhaps, by her increased affiliation with women religious for whom Berry’s seminars at the Riverdale Center, the distribution of his tapes and papers, became “musts for their continuing education” (229).
much at play here, including the common Catholic faith they share, which we will discuss in Chapter 7.

I suggest that our investigation has demonstrated that it is possible to pursue the works of these four Christian thinkers as one communal conversation. Emphasizing the merits of pursuing such a communal conversation, however, does not mean – again, as we discussed in the Introduction – that I wish to ignore those differences among their collective ethical visions, nor to overlook points where their arguments come across as weak. In regards to their individual ethical visions, it is true, for instance, that Ruether and Boff have divergent views on the value of population growth. Ruether eschews the universal propensities of Boff’s epistemology. And Ruether, Boff and O’Murchu all take a process view to our evolving ethics, while Berry, taking a more substance and providential view, finds that the three basic principles governing the universe were present from the beginning. We have discussed Berry’s underdeveloped socio-political framework and raised flags on the cogency of some of O’Murchu’s claims, such as his belief and seeming enthusiasm for “people’s wisdom outpacing institutional knowledge,” and the creation of the “transhuman.” However, these differences, I contend, are either a matter of degree rather than essence, or the problems they raise with respect to their larger communal vision are minimal.

The larger question, one to which I have touched upon in the previous three chapters, remains to be addressed: how, then, can we argue that all four Christian thinkers take the environment and liberation of the human seriously? Put another way, in the parlance of our four thinkers, have they taken the liberation of all creation seriously? Answering this question is muddied in part due to the fact that individually, each interlocutor fails to adequately address how we are to reconcile advocating liberation for both the human and the non-human when conflicts arise. Can some sense of this matter be arrived at if we bring all four ethical visions into a communal conversation?
Chapter 5
Toward a Serious and Sustained Reflection on the Liberation of All Creation

Introduction

Having individually identified and analyzed the ethical visions of our four Christian thinkers along with the epistemological framework and methodologies that guide their work, we can turn our attention to investigating the larger epistemological dialogue that these theorists are pursuing with science and their religion collectively. We will do so in this and the following chapters. Our four Christian thinkers, engaging science, their faith, the environment and liberation have crafted a vision that integrates environment and liberation in such a way that it is a liberation for all creation that they seek. Specifically in this chapter, then, I wish to look at their collective ethical vision with a view to describing how our four authors deal with the environmental and liberation issues of our time, and assessing whether they are approaching these two domains, as well as their integration, seriously.

Recall, as discussed in the introduction to this dissertation, that in the course of trying to integrate ecology and justice and the Christian faith, a debate amongst Christian theorists, theologians, biblical scholars, philosophers and ethicists has ensued. This debate is marked by a struggle of various proponents to have others consider their particular issue, concern or perspective with thoughtfulness, constructive resolve and critical attention. Not doing so risks the continuation of the destruction of either ecosystems or human communities or, as is the thinking of our four Christian theorists, both. Moreover, merely “grafting” environmental concerns onto social-liberationist concerns, as we have also discussed, will not do either. In the integration of these two domains, we should find, therefore, some evidence that our theorists have allowed the dynamics and concerns surrounding the issues of environmental degradation and the marginalization of the majority of humankind to inform and qualify as well as clarify and affirm each other.

Since we are looking specifically at the domains of the environment and liberation in this chapter, we can be more particular in our query and ask the following two questions: is the focus
of their attention placed on the entire creation and the current logic of domination that marginalizes both the human and the other-than-human? Do we find within their ethical visions evidence of a thorough and thoughtful examination of what is required to unite a liberationist agenda with an environmental ethic, as well as a commitment to see this occur? Apart from critically examining their approach to, and integration of these two domains, the ultimate test of whether our four Christian thinkers have taken the liberation of all of creation seriously, I suggest, will rest on the feasibility of their ethical vision. Put another way, we will have to see whether their ethical vision can “fly,” so to speak.

I contend that in the course of approaching these two domains and their integration, our four Christian thinkers do so with much thoughtfulness and care, but not without a qualification. It is chiefly when I bring all four interlocutors into a communal conversation, one in large measure realized by them and in part critically elaborated by me – allowing each of their visions not only to clarify and affirm but to qualify and inform the visions of the others – that we are presented with a more robust ethical vision. Such a vision addresses the challenges and/or weaknesses found within their individual ethical visions.

There is much within their communal ethical vision that supports my claim: concerned about the inadequacies of conventional modes of ethical thought, our four interlocutors have focused on forming not simply a new ethical vision, but a new ethical paradigm for our planet; we find that they place a loving relationship with all of creation as the starting point of their ethical vision; we also find that they do not trivialize what is needed in order to change our present economic, social and political structures, by stressing that we must embrace our anthropological vulnerability; we find that they are adamant that all subjects in creation participate in their own liberation, which, by definition, necessitates a vast communal conversation when ethical decisions are made; we find that in acknowledging the authority that science has in describing the world, our four Christian thinkers grant even greater power to this domain by allowing it to author their ethical visions; and finally, embracing the ecological necessity of granting vital significance to the whole, while not placing it morally above its constitutive parts, we find our four theorists espousing a dialogic between the whole and its parts, offering new insights into what liberation might mean in the anthropocene.
To substantiate my claim, I will need to subject the above features of their ethical vision to critical analysis. The ethical vision put forth by our four Christian thinkers is demanding and unconventional in certain ways. In fact, we can confer onto their ethical vision what I call a “messy” character. I do not apply this term in a derogatory sense to imply careless reasoning, though. Nor do I suggest “messy” conveys a system that is chaotic, where “anything goes.” Yet, if we understand messy with its other meanings to convey a process that is complicated and difficult to work with, and lacking in precision, in many ways this characterization is not entirely inaccurate. Moreover, “messy” is used not so much to define the problems (where the term “wicked” is more than adequate for the task, as we discussed in the Introduction), but to describe the ethical responses to the problems.

I will begin by inquiring whether indeed conventional modes of ethical thought are as inadequate for the purpose of arriving at a liberationist ethic as our four interlocutors claim. I will discuss claims raised by philosopher David E. Cooper that question the feasibility of an ethic that exhort us to revere nature or the environment, arguing that we cannot revere what we are not engaged with. Indeed, is it naïve for our four interlocutors to be placing such emphasis on a loving relationship with all of creation as the starting point of their ethical vision? I will then inquire about the feasibility of an ethical vision that has us embrace our anthropological vulnerability, when that vision purports to serve the needs of the majority of humankind that is, in many ways, already socially and economically marginalized. The question of what a vast communal conversation with all creation that our four theorists propose must also be addressed: is such a conversation necessary or even feasible? And if the conversation is to include the natural world, how, for instance, can we know what rights a river ought to receive? Many authors have argued, and still do, that it is wrong to derive oughts from what is empirically observed. In granting such preeminence to science as normative, I will have to determine whether our four interlocutors have committed the naturalistic fallacy. And finally, philosopher Ingrid Stefanovic presents a critique of ethical visions that accord the biotic whole greater reverence, thereby grouping complex phenomena within a “totalizing paradigm.”

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to questionable ethics which would have us sacrifice the individual for the good of the biotic whole. Is this the case with the model of liberation put forth by our four thinkers?

It will become evident throughout this chapter that their ethical vision is indeed viable and not in spite of the “messy” character to it, but because of it. Current approaches to ethics are proving ineffective in addressing the deepening poverty of countless human beings, the extinction of countless species, the acidification of our oceans, and the warming of our atmosphere. What appears “messy” and, therefore, supposedly ill-advised, I suggest, is actually a virtue for an ethical vision in the anthropocene era marked by a dominant economics of neoliberalism. A radically new ethics marked by a process that is complicated, difficult to work with, and lacking in precision is precisely what our four interlocutors are proposing is the type of ethical vision we need today. Further, borrowing upon the thinking of various theorists, I will demonstrate that the concerns raised above that cast doubts about the thoughtfulness, constructive resolution and critical attention with which our four theorists have approached the domains of the environment and liberation are either unsubstantiated or unconvincing when the entire corpus of our four Christian thinkers is taken into consideration and examined critically. We will begin our query by examining the current context in ethical thinking in Western society.

5.1 Inadequacies of Conventional Modes of Ethical Thought

Our four interlocutors are challenging conventional modes of ethical thinking in-so-far as they comprise simplified formulas, rigid procedures, decontextualized abstract reasoning or reductionist analyses in the face of a real world full of complex interconnectedness. Current thinking within some philosophical circles would suggest that conventional ethical frameworks, and even epistemological approaches to the environmental and social problems our planet is facing, are indeed problematic.² Philosopher Martin Schönfeld, for instance, speaks to the failure of conventional ways of thinking in our world today to help us to arrive at a global ethics on climate change. He is critical of mainstream philosophy that relies on postmodern thinking which stresses culture over nature and deconstruction over structure, on the one hand, and “analyticity,”

² That Christian ethics specifically is currently also inadequate to the task is not discussed here. This matter will be the topic in Chapter 7. Given the “planetary” import of their ethics, however, the question at hand, and one our interlocutors are stressing, is that the problem is larger than merely Christian ethics: our current philosophical ethical modes of thinking are problematic.
which stresses the breakdown of information, the isolation of data, and the separation of events from context, on the other hand. Such an approach, he avers, fails to provide us with solutions to a looming climate change disaster. “Doing business as usual,” he underlines, “is a recipe for failure.”

While not employing as stern an assessment of the current state of ethical thinking in philosophical circles, philosophers Jim Cheney and Anthony Weston suggest that environmental thinking, in particular, is challenging the relationship between epistemology and ethics, thus forcing us to rethink basic assumptions concerning ethics itself. The epistemologies of modernism, they contend, have led us to remain detached from the world, “treating the nonhuman world and even the world as objects of domination and control.” Not unlike what Keith Douglass Warner said in our Introduction about Catholic bishops merely “grafting” environmental concerns onto social teaching, Cheney and Weston question whether ethical theories can be “stretched to retrofit all new ethical insights.” They identify features of mainstream theories in ethics (what they call “epistemology-based ethics”), that presume the world is readily knowable, that ethical knowledge is a response to our knowledge of the world, that ethics itself is incremental and extensionist, and that the task of ethics is to sort out the world ethically. In this view, the two authors argue, ethics remains in the “orbit of facts” and merely builds upon “the stable and well-understood familiar world.” Examples they provide with regard to animals helps explain what they mean: we must first know what animals are capable of, and then decide on that basis whether and how we are to deal with them ethically. Hence, it is only after gathering facts and figures on whether or not an animal feels pain, or is self-conscious that we decide whether or not to attribute to it rights. The presumption here, of course, is that we can

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5 Ibid., 124.
6 Ibid., 115.
7 Cheney and Weston cite Peter Singer’s “expansionist circle” as an example of how ethics is incremental and extensionist, taking the centre circle (where acting ethically began as a genetically based drive to protect one's kin and community members only later to expand into a consciously chosen circle of moral concern), as a “‘given’, from the reliable and established, to the less certain and more speculative” (117).
8 Ibid., 117.
9 Ibid., 117.
know, even with precision, exactly what animals do or do not feel. This method, they say, is characterized by a sense of “familiarity” and “settledness” which thwarts our discovery of the new or openness to surprise.  

From a different perspective, philosopher of liberation Enrique Dussel also argues that a new ethical framework is necessary. Our context, he maintains, is unique: we are at the end of a 500 year-old hegemonic system that has reached “absolute limits:” the ecological destruction of the planet, and the destruction of humanity itself. As a result, he maintains, we find ourselves constantly searching for solutions to problems we have to think about for the first time. Ethics, he contends, can no longer overlook the voices from the periphery, nor can it participate in conciliating the irreconcilable, or covering up ruptures so as to avoid conflict. Moreover, this process cannot occur by reading textbooks in the comfort of one’s domain; rather, it can only be carried out by living “in the daily and historical experiences of our lives.” Such a rooted perspective is important, as Dussel underlines:

Bartolomé De Las Casas would not have been able to formulate and articulate his critique of the Spanish conquest of the Americas if he had not himself lived in the periphery and heard the cries and witnessed the tortures to which indigenous people were being submitted.

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10 Ibid., 119.
12 Dussel is also critical of Catholic Church documents that mitigate the real material suffering experienced by the majority of Latin Americans; see Michael Barber, Ethical Hermeneutics: Rationality in Enrique Dussel’s Philosophy of Liberation (New York: Fordham University Press, 1998), 105-107; we will discuss this further in section 5.3.
14 Dussel, Ethics of Liberation, 45. De las Casas, a Dominican friar of the sixteenth century, arrived with the first Spanish colonizers. He witnessed, and eventually was morally compelled to oppose the atrocities to which the Spanish subjected the indigenous populations. He became the first bishop of Chiapas (now a state in Mexico) and is considered fondly amongst indigenous peoples there as their protector; cf.: Gomez, where Dussel shares his experience studying in Europe in his youth. He said that he could not truly understand fully being made to feel like a barbarian from the global South until he actually lived and studied in Europe.
The global problem that most concerns Dussel is the global genocide – evidenced by an estimated 20 million persons dying each year from starvation and malnutrition\(^{15}\) – that is perpetuated by a global capitalist world order. This problem is the product of modernity, which Dussel conceives as a centre-periphery system that begins in 1492 when the first Europeans conquered the new lands of America, treating the land and its human inhabitants as possessions, only to be colonized and enslaved to serve the centre. These are people who “never appeared as other”\(^{16}\) and to this day remain colonized, economically, socially and, to a degree, politically too. While the centre of this now global system has shifted throughout the last 500 years (from various countries in Europe to United States, and arguably continuing onto China and/or India), the basic rationalization of the lifeworld into simplified and, therefore, manageable economic, political and cultural subsystems remains intact as a necessary means for managing the centrality of a world system of domination. Coloniality is not merely the underside of modernity, Dussel avers, but a constitutive dimension of it.\(^{17}\)

Affirming what certainly Ruether and Boff have been saying, Dussel contends that, for the most part, Western ethics – or more broadly, European philosophy – is detrimental to fostering liberation, as it perpetuates modernity’s systems of domination and, by extension, the suffering and oppression that results. This happens because it accepts modernity (as he defines it above), as its point of departure – thereby rendering it capable, at best, of managing its

\(^{15}\) Linda Martin Alcoff and Eduardo Mendieta writing on Dussel employ the term “genocide,” in their Introduction to *Thinking from the Underside of History: Enrique Dussel’s Philosophy of Liberation* (Lanham, Md.: Rowman & Littlefield Publishers, 2000), 2; the term is reminiscent of Boff’s writing on the matter (see “Boff, editorial, “Ecology and Poverty: Cry of the Earth, Cry of the Poor,” x-xi) when he states: “Today, nature’s most threatened creatures are not the whales or the giant pandas of China, but the poor of the world, condemned to die of hunger and disease before their time.” The actual statistic of 20 million is attributed to Dussel by Alcoff and Mendieta, the latter, at least, who has written extensively on Dussel and translated much of his work. Yet, the statistic is not referenced and I am not able to verify its source. Dussel himself does not seem to employ such statistics. Notwithstanding this, a glance at the website of the United Nation’s World Food Program shows that the figure is not far off the mark considering currently, “870 million people in the world do not have enough to eat.” Current statistics for children are more easily found: “Undernutrition contributes to 2.6 million deaths of children under five each year - one third of the global total;” see [http://www.wfp.org/hunger/stats](http://www.wfp.org/hunger/stats), accessed May 2013.


\(^{17}\) Dussel gives a detailed account of the world history of ethical systems in his first chapter of *Ethics of Liberation*. 
deficiencies – or by degrading material needs with its disembodied thinking that universalizes what can only be particular.\(^\text{18}\) He states,

> Philosophy, and ethics in particular, thus must free themselves from ‘Eurocentrism’ in order to become empirically, materially, and factually global from the perspective of the affirmation of its excluded alterity, in order now to enable the deconstructive analysis of its “peripheral self.”\(^\text{19}\)

It is not the universal per se which Dussel eschews, but a universal criterion that is “not grounded in empirical judgments that are descriptive of fact – and not simply on judgments of value.”\(^\text{20}\)

The present and dominant discourse works from abstract principles and ideas and procedures, and not from human life in its concrete, creaturely, “material” experience, with real needs and

\(^{18}\) Dussel critiques all philosophical starting points that relegate the empirical, historical, material aspects of the human: see Enrique Dussel, “The Architectonics of the Ethics of Liberation,” in *Liberation Theologies, Postmodernity, and the Americas*, eds. David Batstone, Eduardo Mendieta, Lois Ann Lorentzen and Dwight N. Hopkins (New York; London: Routledge, 1997), 275. Here he states, “The inadequacy of the ‘take off’ determines the impossibility of the ‘landing.’” Also see Dussel (*The Invention of the Americas*, 132), where he argues, for instance, that the Frankfurt School tends to fall into an easy optimism of rationalist, abstract universalism that would conflate universality with Eurocentrism. Similarly (in Dussel, *Ethics of Liberation*, 82), while citing that Charles Taylor recognizes “the universal recognition of difference,” Dussel claims he does not discover a material principle on which to ground his system, and his system thus remains insufficient. Alasdair MacIntyre’s ethics is relativist, as it finds no set of independent standards of rational justification to decide between contending traditions (81). Utilitarianism, Dussel finds, while it at least works from the material principle – through pleasure or pain or happiness – is naive and insufficient in many respects, notably in that, “it is not yet able to define a criterion that subsumes other material aspects of ethics, such values…that could be grounded …as a universal ethical principle” (77). To be sure, Dussel finds that through Marx, on whose thinking Dussel grounds much of his analysis, the “Other” gains materiality: see Enrique Dussel, *The Underside of Modernity: Apel, Ricoeur, Rorty, Taylor, and the Philosophy of Liberation*, trans. and ed. Eduardo Mendieta (New Jersey: Humanities Press, 1996), xvi-xvii. It is not just Marx: Heidegger also placed emphasis on concretely situated human existence (the finite *Dasein* as being-in-the-world). The world is not external to but “co-constitutive” of the human being; see Fred Dallmayr, “The Underside of Modernity: Adorno, Heidegger, and Dussel,” *Constellations* 11, no. 1 (March 2004): 113. Such thinking lies in direct contrast to Cartesian thinking with its decorporealized soul, and it excludes the Kantian framework which, as Kant puts it, “All practical principles that presuppose an (material) object of the appetitive faculty as determining foundation of the will, are empirical and cannot give practical laws” (Dussel, “The Architectonics of the Ethics of Liberation,” 275). Dussel, outlining the goal he strives for, puts it this way:

> What happens in my case is that my ethics is not a dogmatic metaphysics. Speaking about the human being is not necessarily always a metaphysics. In my own case, it is an ethics that is postmetaphysical, or, as Levinas would say, a postmetaphysical metaphysics. That is to say, I am not advocating a naïve realism in which I am affirming the universality of my particularity; I am instead advocating something that is very different: the universality where the particularity of the oppressor and the oppressed is constantly pushed and pulled by ethical obligations (Gomez, 35).

\(^{19}\) Dussel, *Ethics of Liberation*, 52.

\(^{20}\) Ibid., 95.
potentials. This disregard for the creaturely experience has produced a world where both humans and the Earth can be viewed as “exploitable.”

Philosopher Chris J. Cuomo, I think, captures the salient issue at hand. She posits that we exist at a moral distance geographically, affectively, and epistemically to the people, communities, nonhuman species and ecosystems of the planet, while at the same time being in close ethical proximity to them. She asks, “What might it mean to promote the good of a community you cannot even hold in your imagination?” Yet, our money, the clothes we wear, our desires and our work are “mobilized in the service of the exploitation of people all over the place, from midtown Manhattan to Malalaling.” Traditional ethical theory, she concludes, provides very little to help us deal with these difficult dimensions of contemporary life:

Most traditional philosophical views assume the relationship between knowledge and responsibility to be straightforward, when we know of a clear casual connection between our choices and harm to others, there is a direct self-evident duty to alleviate that harm. …Utilitarians, deontologists, and virtue theorists agree: rationality demands that, if we want to do the right things, and there is not much of significance competing for our attention, the right action will be obvious, and attractive.

What Cuomo is saying rings true with the experience of anyone who regularly buys the groceries: the consequences of our actions and behaviours are difficult and sometimes impossible to know let alone address in a globalized world. The problems involve entities such as ecosystems and “dying cultures” that are “not easily accommodated by ethics that value people, utility, sentient beings, or communities of people.” Moreover, she adds, these problems involve past and future generations, which calls for our current generation to cultivate a sense of responsibility that is unprecedented. In a sense, she sums up what Dussel, Cheney and Weston and Schönfeld are saying when she concludes:

But the endlessly flawed twentieth-century moral imagination is woefully inadequate to address the intricate webs of relation created by global capitalism, postcolonial realities,

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21 Dussel, Ethics of Liberation, 39. It is interesting to note that Dussel, like Boff and O’Murchu to a degree, employs ethics in contrast to morality. Ethics belongs to the future realm of liberation, while morality belongs to the current dominant system. He gives an example of why this distinction matters: a person can pay taxes, offer minimum wage and be regarded as being “moral,” while simultaneously perpetuating the dominant system of oppression: Enrique Dussel, “Ethics of Culture and Ecology,” in Ethics and Community, trans. Robert R. Barr (Maryknoll, NY: Orbis Books, 1988), 28.

22 Chris J. Cuomo, “Getting Closer: Thoughts on the Ethics of Knowledge Production,” available online at: http://fore.research.yale.edu/disciplines/ethics/essays/, accessed August 2013. My quotes from her stem from this article.
and the fact that the environment has no borders. We [apparently referring to global North] are prosperous/preposterous moral beings with a litany of responsibilities that seem nearly impossible to know, let alone enact.

The philosophers discussed above corroborate what Ruether, Boff, O’Murchu and Berry are saying themselves about the dramatic disconnect that exists amongst humans and between humans and the other-than-human world. This is why a new approach is needed. Currently – to continue the line of thinking from our philosophers above – the majority of humans living in the global North, stress culture over nature, and one culture (the dominant Western culture and its thinking) is stressed above all others, perpetuating a global system that favours the few at the expense of the many. We prefer to remain in the realm of abstract reasoning, separating events from their contexts, thus keeping ethics from getting muddled in the day-to-day corporeal realities of countless subjects who suffer. We search for facts in order to know a world believed to be knowable, while failing to recognize and acknowledge ourselves as living within a larger animate universe, in communion with other subjects.

In contrast to these conventional modes of ethical thought, our four Christian thinkers present an ethical vision that is “messy” and relational. As Ruether says, it invites us to stand back and consider how all subjects interconnect and cooperate rather than compete. There is no real “how-to” manual to their ethical vision. As O’Murchu puts it, we are to change from the traditional ethics of royalty or loyalty to one where there is constant mutual engagement of humans “as servants to a bigger process”. The complex web of relationships underlying reality appears to preclude a deontological, or one-size-fits-all ethics, or a utilitarian ethic, one that calculates the greatest good for the greatest number. Instead, our four Christian thinkers appear

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23 To be sure, that a new ethic is required is not necessarily a universally held proposition or fully embraced by philosophers. See, for instance, David E. Cooper, “The Idea of Environment,” in The Environment in Question: Ethics and Global Issues, eds. David E. Cooper and Joy A. Palmer (London; New York: Routledge, 1992), 178-179. Cooper believes the call for a “new” environmental ethics is fraught with problems of vagueness, and a distended notion of environment. He suggests the need is not for a new ethic but for a renewal of an old ethic that stems from being “at home” in a local environment, concerning oneself with the needs of people, flora and fauna (future included), extending this simple ethic to other people (and animals) and their environments. While Cooper raises some good points in regard to “new” environmental ethics, which I will speak to later in this chapter, I believe his opinion too simple in light of the picture Cuomo and Dussel paint above. Simply to “complement the old principles of obligations to one’s children, avoidance of suffering and the like” (179), as he puts it, is very unconvincing. To be fair to Cooper, he wrote this over twenty years ago, before the rise of cellphones, the avaricious drive for coltan and gold minerals to use them, and the resulting grave social and ecological effects they raise when mined.

24 My interview with him.
to be fostering first and foremost a sensitivity to all Earth subjects, which forces us to see things differently and from the perspective of alterity and from the whole. We are being asked to make a loving relationship with all creation serve as our starting point, to embrace our anthropological vulnerability, to facilitate a vast communal conversation when ethical decision are made, to allow science to author their ethical visions and to regard liberation in a new light, as a constant dialogic between the whole and its parts. We turn to discussing these now.

5.2 Starting with a Loving Relationship with All Creation

In each of the first four chapters of this dissertation we began with an investigation of the respective starting points of our four Christian thinkers, that is, aspects of their personal biography that have influenced their thinking. It became evident that each formed, at a relatively early age, a loving, even reverential relationship with nature and, initially at least, a specific place – whether for the Irish countryside, the Amazon forest, the San Bernardino Mountains, or a North Carolinian meadow. This loving relationship, I suggest, is more than a mere sentimentality, but something akin to Albert Schweitzer’s philosophy of “Reverence for Life,” which he presented as the foundation of all ethics. As a starting point for their ethical vision, this love instills within them a deep sensitivity to what is happening to all subjects of creation, obliging our authors to eschew simple answers to complex issues. Love, as we will see, also serves as a means for further knowing and engaging with the world.

For Schweitzer, reverence is not simply an ethic of love or purely a system of thought. Later in his life Schweitzer concluded that as an ethic, reverence for life “is the ethic of love widened into universality.” But even this definition does not seem to capture its full meaning. In its original German (ehrfurcht vor dem leben), the term carries overtones beyond what reverence evokes in English. One has to include feelings of “awe before an overwhelming force” to capture its fuller meaning. Reverence stems from a knowledge, or recognition “apprehended

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by the most learned and the most childlike alike,” that all life holds a “will-to-live.” On this
knowledge, Schweitzer writes:

It is reverence for life, reverence for the impenetrable mystery that meets us in our
universe, an existence different from ourselves in external appearance, yet inwardly of
the same character with us, terribly similar, awesomely related. The dissimilarity, the
strangeness [original italics], between us and other creatures is here removed.

Such a will-to-live, he reasons, demands that humans share and preserve life. The notion,
Schweitzer holds, is neither simple nor naïve. He recognizes the full consequence of acting with
reverence for all life, outlining the complexities and difficulties involved in constantly having to
make decisions about life at seemingly every encounter. Since all “creatures live at the expense
of other creatures,” Schweitzer observes, noting that humans are not exempted from this
reality, that from the standpoint of reverence for life, ethical living demands a constant
discernment or weighing of the options. Simple common codes of behaviours will not suffice,
since reverence for Schweitzer is an attitude toward life, not a set of rules. Much like our four

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27 Ibid., 123. How this knowledge is apprehended is interesting. Schweitzer says Reverence for Life is a logical
consequence or necessity of thought. Author Marvin Meyer, director of Chapman University Albert Schweitzer
Institute, notes that some writers on Schweitzer, like Brabazon, believe thought refers not only to intellectual
argumentation but also to meditation, intuition, mystical reflection. Meyer is not convinced that it is the product of
rational thought at all, citing the “dog-eat-dog” world we see so often seemingly defies reason (something akin, I
would say, to what O’Murchu would leave to the acceptance of paradox). Interestingly, Meyer sees Reverence for Life
to be more in line with “reciprocity, the recognition that it is right and proper to balance my expectations and
actions for myself with my expectations and actions for others,” which seems to be in line with Berry’s thinking; see
Marvin Meyer, “Affirming Reverence for Life,” in Reverence for Life: The Ethics of Albert Schweitzer for the
Twenty-first Century, eds. Marvin Meyer and Kurt Bergel (Syracuse, New York: Syracuse University Press, 2002),
34. Notwithstanding this debate, I have the sense from reading Schweitzer that the knowledge he speaks of includes
rational thought as well as some feeling, for reason, “teaches us the truths that come from reflection...[t]rue
knowledge of the world consists in our being penetrated by a sense of the mystery of existence and of life”
(Schweitzer, Albert Schweitzer: Essential Writings, 124-125). Brabazon quotes Schweitzer saying: “thought is no
dry intellectualism, which would suppress all the manifold movements of our inner life, but the totality of all
function of our spirit in their living action and interaction.” It is this “attitude of mind,” as Brabazon calls it – though
I prefer to say, “attitude toward life” – then, which I employ as a means to convey knowledge for Schweitzer.

28 Albert Schweitzer, A Place for Revelation: Sermons on Reverence for Life, trans. David Larrimore Holland

29 Ibid., 15.

30 Schweitzer admits (Albert Schweitzer: Essential Writings, 137), that living like Jesus is the greatest riddle in
Christian ethics; in Schweitzer, A Place for Revelation, 50ff., he recognizes that even being successful in business
could mean the demise and suffering of other business people (as one person’s gain means another’s loss). What is
required of us in each case, he says, is to feel the responsibility and to decide, in each and every case, whether our
success is “really necessary” (51), for the sake of our getting on with our life, which is suggestive of a constant
discernment.
Christian thinkers, when reflecting on the good, Schweitzer suggests “good” is not fixed, but that which sustains and advances life.  

We see this attitude toward life at play more distinctly within the bioregional model, for example, as put forth by our four Christian thinkers. Whether the demand is to convert our minds to one another and to Earth or Gaia, as Boff and Ruether would stress, or to live well and not better and to nurture reciprocity by aligning our desires with the evolutionary impulses found in the cosmos, as O’Murchu and Berry would more likely stress, the “good” is not fixed. In fact, while bioregionalism is the most concrete facet of the ethical vision our four interlocutors espouse, as a model it nevertheless provides little in the way of straightforward rules or codes. What specifically constitutes “living well” within a bioregion, for example, is not so evident, especially since responses would reasonably differ from bioregion to bioregion. By way of a more concrete example, the question of whether one ought to become a vegetarian, or vegan is never clear-cut, as Ruether reminds us that a chicken could be the only source of protein for a malnourished farmer living in the global South. Like Schweitzer’s Reverence for Life philosophy, then, our four Christian thinkers make love for all creation a firm point of departure, and the process for discerning the “good” is ongoing and demanding. The way Schweitzer puts it – a way that resonates with Dussel’s ethics of life – seems to encapsulate what it is our four interlocutors are saying themselves:

It is not by receiving instruction about agreement between ethical and necessary, that a man makes progress in ethics, but only by coming to hear more and more plainly the voice of the ethical, by becoming ruled more and more by the longing to preserve and promote life, and by becoming more and more obstinate in resistance to the necessity for destroying or injuring life.

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31 Schweitzer, A Place for Revelation, 14; we find this same understanding of “good” in Aldo Leopold’s Land Ethic, as that which “preserves the integrity, stability and beauty of the biotic community” (Aldo Leopold, A Sand County Almanac, 262), and Berry’s notion of what is “good” for his meadow.

32 This is precisely the constant discernment that Schweitzer avers is necessary. On the issues of whether or not to eat animals, for instance, Jim Corbett (Goatwalking [New York: Viking, 1991], Chapter 4), reflects on the discernment process he went through. Any unwillingness to cull his herd, he realized, would only lead to violence carried out toward the land, adding, “I can’t live non-violently on the Sonoran desert” (44). Living in the Sonoran desert, becoming a vegetarian would also create violence (as he would need to travel – by car – to buy the produce far away). While both Ruether and O’Murchu are vegetarians themselves (for justice reasons they state), neither ascribes this duty universally due a similar discernment process. We find a comparable process followed philosopher James Garvey, “Climate Change and Causal Inefficacy: Why Go Green When it Makes no Difference?” Royal Institute of Philosophy Supplement 69 (September 2011): 163, doi:10.1017/S1358246111000269.

33 Schweitzer, Albert Schweitzer: Essential Writings, 130.
Perhaps such an attitude explains, at least in part, why paradoxes are readily accepted, 
ambiguities welcomed, and each of our four authors seems content to live with uncertainties. 
For, to do the contrary, to simplify or demand neat formulaic answers, could lead to meaningless 
suffering for another subject. As O’Murchu puts it, the opposite of love is not hate, but 
indifference. Our task, then, is not merely to learn to “leave things alone,” but to discern 
constantly through “a love that liberates” – when suffering is deemed to be meaningless – how 
and when to act.34

5.2.1 Can We Revere That with Which We Are Not Engaged?

At this point, we should consider the concern presented by philosopher David E. Cooper 
about ethics that exhort us to revere nature or the environment. From a phenomenological 
approach, he fittingly points out that one cannot revere what one is not engaged with, citing the 
Ganges River as an example. “It is absurd,” he writes, “to suppose that the kind of attitude held 
by the Hindus to their river could be held by everyone towards everything.”35 Cooper’s argument 
is persuasive and suggestive of Cuomo’s argument above, that it is difficult if not impossible to 
promote the good of a community we cannot even hold in our imagination. The sensitivity Boff 
holds for the Amazon, for instance, is undoubtedly unique.

Yet, while the sensitivity our four interlocutors hold for all of creation is remarkably 
similar to Schweitzer’s “Reverence for Life,” it is nevertheless also grounded within a 
bioregional framework. This distinction is important. Cooper himself suggests, “The concerns of 
people conscious of the ancient ideal [obligation to one’s children, avoidance of suffering, for 
example] will begin ‘at home’, with their environments, the networks of meaning with which 
they are engaged.”36 In this sense, the reverence and sensitivity our four Christian thinkers are 
suggesting would also “begin ‘at home’, ” in their bioregion. This does not mean, however, a 
reverence and sensitivity cannot also be held for all of creation at a different level. I surmise this 
is not unlike a Mohawk woman who, in travelling to Peru, can still show reverence for the 
Amazon river, though she is most at home along the St. Lawrence River. She extends her deeply

34 O’Murchu, Quantum Theology, 206. 
36 Ibid., 179.
engaged concern for her river toward another river. She need not hold the same kind of attitude toward the Amazon as she does the St. Lawrence in order to esteem the other river as a subject. In other words, a “reverence” for life need not mean that it occur on the same deep level and for every entity on Earth as Cooper suggests.\(^{37}\)

Starting an ethic from such a loving *relationship* with all creation is not unlike what Aldo Leopold writes over half a century ago: “We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.”\(^{38}\) Whether as love or reverence, such a relationality seems to matter. Leopold says, “No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions.”\(^{39}\) Similarly, the call to a loving relationality promoted by our four authors encourages solidarity or a communion in kinship. This attitude toward life mandates humans to imagine and feel the suffering of others, including the non-human other, and to find ways in which interrelation becomes cooperative and mutually life enhancing for both sides. Making a connection with the writings of Aldo Leopold and Thomas Berry, Stephen Bede Scharper affirms that it is love that allows us to see the world as a communion of subjects and not a collection of objects. Scharper supports the claim that rules or contracts are insufficient alone to change our ethics. In fact, Scharper, concludes, “We can make ourselves more knowledgeable, change all our laws, fashion new policies, and even design cutting-edge sustainable technologies, but none of these will take hold until we change our relationship with creation.”\(^{40}\)

\(^{37}\) Still, proximity (physical, at least) does not seem fully to account for why we revere things. We discussed the works of many scientists in Chapters 1 to 4, many who have a deep reverence for the cosmos. While it might be logical to assume that an extraterrestrial being living in another quadrant of our galaxy might have a “deeper” reverence for a neighboring star, with whose light and warmth the alien engages, the distinction appears somewhat forced. We engage (from Earth) with the stars whether unaided during clear nights, or assisted through the Hubble telescope. Engagement, it would seem, is key here and not necessarily geographical distance. While I do not wish to discount the reverence a Hindu might have for the Ganges as she bathes and prays in its waters, given the connectivity to the remotest places in our world and the universe, as well as to other people and even animals and mountains, through the media of television, computers, and even cellphones, should we not reconsider what and how we can embrace and revere and what we can hold in our imagination at different quantitative and qualitative levels?

\(^{38}\) Leopold, Foreword xviii.

\(^{39}\) Ibid., 246.

\(^{40}\) Stephen Bede Scharper, *For Earth’s Sake: Toward a Compassionate Ecology*, ed. Simon Appolloni (Toronto: Novalis Publishing Inc., 2013), 185. Scharper also makes a cogent connection between the work of biologist E.O. Wilson and his notion of “biophilia,” which suggests humans have an innate love for nature, and that of journalist
Love as a starting point not only obliges us to eschew simple answers to complex issues, it also serves instrumentally as a means for knowing the world. This is the argument put forth by Cheney and Weston. In contrast to conventional ethics defined above, which remains in the “orbit of facts,” Cheney and Weston identify an alternative foundational assumption for ethics that is not dissimilar to what is being suggested by Ruether, Boff, O’Murchu and Berry above. Cheney and Weston suggest an “ethics-based epistemology” (as opposed to the “epistemology-based ethics” described above), is increasingly gaining ground as the dominant ethics fails to resolve our pressing environmental and social problems. An “ethics-based epistemology,” they write, seeks first and foremost to explore and enrich the world, characterized by less certainty and even disruption. This alternative view begins with the attitude toward life discussed above: love. “Love,” they contend, “is in fact a way of knowing, but its dynamics are the reverse of the usual models,” adding, “Love comes first, and opens up possibilities.”

They continue:

Love in this sense is already an ethical relationship. It thus stands at the beginning, at the core, of ethics itself: a venture as well as an adventure – a risk, an attitude that may (may, for we cannot say for sure at the beginning) lead in time to more knowledge of someone or something, wholly wild possibilities.

In this fashion, the tools of the ethicist are to “listen” to give “space” to the subject, only pursuing any inquiry when “invited.” The temperament of the ethicist becomes one of “courtesy, openness to surprise.” Again, in contrast to the current ethical framework, we must first know

Richard Louv and his notion of “nature deficit disorder.” Louv speaks to the psychological, social and spiritual loss we feel when we are cut off from nature. Scharper suggests biophilia becomes distorted when humans are severed from the natural world (33-34).

41 Cheney and Weston, 118.
42 Ibid., 118.
43 Ibid., 119. Cheney and Weston refer to this stance as an “etiquette.” They suggest it is a genuine means of discovery which is being applied by researchers and environmental writers in general:

The theme of environmental etiquette is actually a major sub-theme of environmental writing already. An ethics-based epistemology brings this strand into focus. Grizzly tracker Doug Peacock insists upon what he calls “interspecific tact.” Wendell Berry speaks of an “etiquette” of nature. Calvin Martin, citing a global range of native practices, speaks of “courtesy.” Gary Snyder writes of “grace.” Birch writes of “generosity of spirit” along with “considerateness.” All of these terms have their home in a discourse of manners and personal bearing. So to enter the realm of “invitation” calls us to a kind of deftness, understatement, circumspection: points back toward something very close to us, bound up with who we are and how we immediately bear ourselves toward others and in the world (127).

The authors relate a story that took place in an animal training facility where academics and the handlers or caretakers of chimpanzees were observed in how they related with the animals. The academics, who were there to observe operations in sign language, were,
what animals are capable of, and then decide on that basis whether and how we are to deal with them ethically. In their alternative view, Cheney and Weston write,

> We will have no idea of what other animals are actually capable – we will not readily understand them – until we *already* have approached them ethically – that is, until we have offered them the space and time, the occasion, and the acknowledgment necessary to enter into relationship. Ethics must come *first*.\(^{44}\)

Cheney and Weston believe that in contrast to conventional ethics, which has us treat the other-than-human world “as objects of domination and control,” the ramification of such an “ethics-based epistemology” is profound: “others” are granted “universal consideration” that considers them to be valuable *at the onset*, thus reversing the usual burden of proof, “even though we may not yet know how or why, until they are proved otherwise.”\(^{45}\) In this manner, ethics and the love that precedes it is primary, and rather than constricting the way to knowledge, it facilitates it.\(^{46}\)

This thinking underlines what our four Christian thinkers mean by insisting that we are a communion of subjects. It also further illuminates, as we discussed in Chapter 4, why some biologists are giving names to the whales and gorillas they study.\(^{47}\) These scientists are not approaching animals through a value-neutral analytic process, but through an absorption of their experiences with the natural world into their very being. Not surprisingly, as our four Christian thinkers have themselves discovered, by beginning with love so as to enrich a world that is not psychically intrusive and failed to radiate the intelligence the handlers...[who] walked in with a soft, acute, 360-degree awareness: they were receptively establishing...acknowledgment of and in relationship with all of the several hundred pumas, wolves, chimps, spider monkeys and Galapagos tortoises. Their ways of moving fit into the spaces shaped by the animals’ awareness.

The lesson is that “good handlers don’t “observe” animals in this way, ... with that stare that makes almost all animals a bit uneasy” (127-128). As Cuomo notes in her article above, “Arrogant inquiries accept a comfortable distance between knowledge and life, and hide their limits and inadequacies behind epistemic posture that proclaims a unified route to knowing.”

\(^{44}\) Ibid., 118.

\(^{45}\) Ibid., 120.

\(^{46}\) Ibid., 120.

\(^{47}\) Berry, *Dream*, 4. Indeed it is not just Dian Fossey who named her special gorilla Digit, but Jane Goodall who was a pioneer in giving her chimpanzees names. See Jane Goodall’s Foreward to Marc Bekoff, *Minding Animals: Awareness, Emotions, and Heart* (Oxford: Oxford University Press, 2002).
readily knowable, possibilities can open up. At the same time, not surprisingly, as Cheney and Weston affirm, this makes ethics pluralistic, at times discontinuous and even dissonant. 

What our four Christian thinkers are proposing is not merely an ethical vision, then, but an ethical process, one that springs from a loving relationship and, as Chris Cuomo suggests, has us “recommit ourselves to the project of Getting Closer.” However, a loving relationship, while a viable starting point, cannot rest alone, as love could blind us to reality. More is needed within an ethical vision, such as a clearer understanding of ourselves as corporeal, finite beings.

5.3 Embracing Our Anthropological Vulnerability

In the development of a viable ethical vision, our four authors maintain, we must also address, as Berry puts it, our “deep hidden rage against the human condition, an unwillingness to accept life under the conditions that life granted us,” that is, our anthropological vulnerability. This does not imply, as we discussed in Chapter 1, the act of being wounded or in a situation of immediate danger; these should be avoided or reduced. Nor does it imply that we do not work to change our realities in order to live healthier and happier lives. It is, instead, a recognition of what philosopher Enrique Dussel states, our creaturely, “material” experience, with real needs and potentials. Dussel’s most recent work, Ethics of Liberation: In an Age of Globalization and Exclusion particularly resonates with the liberationist trajectory of our thinkers, as it outlines

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48 Cheney and Weston, 125. It should be clear that the pluralistic, dissonant, and discontinuous nature of ethics-based epistemology lies in contrast to the incremental and extensionist nature of the current one. Cheney and Weston believe the former is exemplified by indigenous cultures: “Indigenous people not only acknowledge but celebrate the differences that exist among the various indigenous peoples in truly remarkable ways, ways that have inclined us to prefer the terms ceremonial worlds and songs of the world to world views, which suggests the idea of a set of beliefs about how the world actually is” (125).

49 Cuomo.


51 While considered “one of the main representatives and articulators of liberation theology,” according to Eduardo Mendieta (Dussel, The Underside of Modernity, xiii), Dussel as a philosopher of liberation is my main focus here. Dussel is not refuting a theological perspective or the building of an ethic upon the notion of God. He has, in fact, written from the theological perspective. However, his intention here is to stay faithful to the philosophical tradition. Dussel obviously wants to make this ethics “theoretically accessible” to anyone who is “willing to use his or her reason” (see Gomez, 31), since a philosophical stance does not require one from the start to have an empathy toward the religious dimension.
why it is necessary to accept, and even found, an ethic on our anthropological vulnerability, and why this, as we shall see in the next section, necessitates a vast communal dialogue. Dussel’s work further resonates with that of our four authors as it also takes on a global scale, “engaging the complexity of the world as a whole,” comprising a principle with universal validity (or as he later clarifies, there is a “planetary” dimension to it).\textsuperscript{52} Such a planetary ethic can only come about, he stresses, by being grounded in the materiality.\textsuperscript{53} Dussel’s “material principle,” as he calls it, is “the obligation to produce, reproduce, and develop the concrete human life of each ethical subject in community.”\textsuperscript{54} He substantiates this claim through the empirical studies of the biology of the brain.\textsuperscript{55} A brief investigation of his reasoning will explain his overall ethic and affirm why it is important in an ethical vision to acknowledge our anthropological vulnerability.

Building from biologist Humberto Maturana’s proposal that we are a moment of autopoietic life or autonomous entities,\textsuperscript{56} Dussel looks at the human brain from a neurological-scientific point of view as described by Nobel Prize-winning scientist Gerald Edelman,

\begin{footnotesize}
\bibitem{Dussel1979} Dussel, \textit{Ethics of Liberation}, 47. In the interview by Gomez Dussel indicates preference for “planetary.” He says, “The adjective \textit{universal} I would leave for abstract principles. But in history, what is important is the planetary, and the planetary is not universal; it is instead the coexistence of systems that include differences, with variable degrees of complexity” (Gomez, 60).
\bibitem{Gomez1979} Gomez, 70. Unlike our four authors, Dussel takes this materiality further: in \textit{Ethics of Liberation} Dussel writes, “My ethics is extremely materialistic. I negate quite unambiguously the existence of the soul. I find this to be an unthinkable kind of myth. Nonetheless, I am willing to assume all possible dimensions” (66-67).
\bibitem{Dussel1979} Dussel, \textit{Ethics of Liberation}, 55. Dussel aims to give analytic depth to the fundamental intuition of economist and theorist on liberation theology Franz Hinkelammert: that life is the sole criterion for truth (Gomez, 60ff.). Dussel admits it is a theoretical problem he is still working on, but he remains firm on the first principle it raises: to produce human life in community. He speaks further to the criterion for truth in Gomez’s interview:
\begin{quote}
So it happens that I have the theoretical principle that no one can ignore. All human acts address this principle in one way or another. All human acts. That is, no human act cannot not affirm life [if it is to be ethical, we can clarify here]. No exceptions (60).
\end{quote}
While his concern is for the exclusion of all alterity (Africa and Asia and Latin America), his project is to construct specifically a Latin American philosophy, “an ethics of life,” a caption which begins each of his chapters in \textit{Ethic of Liberation}.
\bibitem{Dussel1979} In his aim to bypass the religious and metaphysical, has this left Dussel’s work open to claims of reductionism? Perhaps not. While Dussel concentrates on the biological sciences, privileging reason as a mediation reason, he also recognizes that reason will always face boundaries it will not be able to pass: “There will always be a dimension of [human] reality that reason alone will never know.” So while materialistic, (negating for instance quite unambiguously the existence of the soul, he is adds, “I am willing to assume all possible dimensions” (Gomez, 70). Notwithstanding this, faith, for Dussel, only enters the picture only after reason reaches its limit, as suggested by theologian Lee Cormie (personal conversation). In this manner, Dussel’s thinking seems to diverge from that of Cheny and Weston or Cuomo, who seem to be less rigid in where an ethic, a hope or a faith comes into play.
\bibitem{Dussel1979} See my Chapter 2 on Boff, especially footnote 96.
\end{footnotesize}
characterized as a “selective recognition system.” Dussel looks at the evaluative affective systems constituted by the limbic system and the base of the brain (the oldest part, already present in insects and reptiles), where some of the organs are the hypothalamus, the ganglia, the hippocampus, and the thalamus, which, for all animals, as he puts it “give the ‘green light’ (or ‘red light’),” to allow or oppose the continuation or growth of the life of the organism. If animals did not have these functioning evaluative capacities, they would die. And while “higher mammals” have more complex neural systems that allow them to discriminate more effectively, he points to “higher species” – ostensibly the human – that possess self-conscious and language capacities that proffer us a unique ability to regulate the survival, reproduction, and development of our lives.

For Dussel, the difference between non-human animals and human animals (who possess self-conscious and linguistic-social capabilities) is important since, for the former, there is no distance (in time) between the stimulaic categorization and the reaction. The animal simply receives stimulus and reacts. Yet, for the human, according to Dussel, “a space opens up between (a) the conceptual categorization, the conscious valorization, the responsible and the self-conscious linguistic process, and (b) the possible response.” The brain, Dussel concludes, is “the organ directly responsible for the human subject’s ‘continuing to live’ via reproduction and the development of the human life of the organism, of the communitarian and historical corporeality of the ethical subject.” This “space” to which he refers denotes the self-conscious and linguistic-social processes that allow a human to choose life – as suicide, he stresses, is an option – thereby implying a responsibility to do so. “Life is under its own responsibility,” Dussel states, adding that this is “exclusive to the mode of reality of human life: to have it under one’s own responsibility [italics original].”

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58 Ibid., 61.
59 Ibid., 106.
60 Ibid., 58.
61 Ibid., 101.
Dussel reasons that because of this process, only humans live ethically: “The ethical character of human life is one’s self-responsibility for preserving life.” Dussel puts it as a syllogism:

1. John, who is a responsible human living subject, is eating.
2. To live, it is necessary to eat.
3. If John ceases to eat, he would die.
4. As self-responsible for his life, he ought not to stop eating, or he would be guilty of suicide. Ergo,
5. John ought to continue eating.

Dussel does not leave this responsibility at the individual level, though. The material basis he affirms carries a logic of “intersubjectivity,” a recognition of the autonomy and freedom before all other humans as well. Therefore, the responsibility to produce, reproduce and develop one’s life becomes a responsibility to ensure others too can meet these ends.

5.3.1 Why Is Such a Corporeal Framework for Ethics Necessary?

Notwithstanding Schweitzer’s framework above – Dussel’s delineation between the human self—“responsibility” to produce, reproduce, and develop and the “responsibility” of all life to do the same is not very convincing. His ethics is nevertheless helpful in explaining the larger issue of why liberation (here described as having one’s life under one’s own responsibility)

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62 Ibid., 101.
63 Ibid., 103.
64 Ibid., 100.
65 As mentioned, Dussel extends the obligation to promote liberation to humans based on our self-reflective mode of reality. But can such an ontological delineation be cast between that which engenders the “will-to-live” in all life (as Schweitzer describes it) and the “material” experience for preserving life Dussel assigns solely to humans? Are not the hypothalamus, the ganglia, the hippocampus, and the thalamus, which for all animals, “give the ‘green light’ (or ‘red light’)” (61), to allow or oppose the continuation or growth of the life of the organism sufficient to make his claim that life in general be the sole criterion? Dussel does seem to grant a larger import to life as a whole rather than human life in a more recent interview (Gomez, 58), where he states, “I say that we should put life as the sole, exclusive universal criterion for everything under the sun—linguistics, mathematics, politics . . . you name it! Ecology and bioethical medicine are instead, quite simply, internal chapters [of the overall plan of life].” Further, Dussel’s claim in Ethics of Liberation, which assigns this self-responsibility uniquely to humans, is used to substantiate why “humans are the only living beings that live ethically” (101), suggesting, without sufficient evidence I might add, that no animals have “feelings” in the way humans have feelings (67). Yet, new research in ethology by Marc Bekoff and Frans de Waal and Jane Goodall, suggests that such conclusions, with regard to mammals at least, are increasingly more difficult to justify; see Frans B.M. de Waal and Peter L. Tyack, eds., Animal Social Complexity: Intelligence, Culture, and Individualized Societies (Cambridge, Mass.: Harvard University Press, 2003), and Mark Bekoff, “Animal Emotions: Exploring Passionate Natures,” Bioscience 50, no. 10 (October 2000): 861-870, doi: 10.1641/0006-3568(2000)050[0861:AEEPN]2.0.CO;2; Bekoff demonstrates how current interdisciplinary research is providing compelling evidence that many animals experience emotions such as joy, despair, love and grief, suggesting that the human animal is not alone in this regard.
is important in the first place. Dussel wishes to demonstrate that by being grounded in factual, empirical and descriptive judgments, liberation becomes more than an abstract sentiment, but an irrefutable obligation. His ethics is not dependent on notion of class, or abstract reasoning. The desire for liberation stems from “unconscious force field of drives,” grounded in our corporeal nature. In other words, Dussel’s framework forces us to acknowledge, first and foremost, the daily anthropological vulnerability of the human.

We can readily appreciate the significance of grounding ethics in our corporeal nature and not on abstract or uncritical metaphysical reasoning, when we consider what has occurred (and continues to occur) throughout much of the colonial history of Latin America where human suffering has been perpetuated under the pretense of “love.” Such thinking motivates Dussel’s critique of the Latin American Bishops in Puebla who, in 1979 (in preparation to meet then Pope John Paul II), drafted a document which claimed to open “new directions.” The document argued that the poor, “although deprived of everything, can still live with strength because of ‘faith, as a word which nourishes’.” Dussel fittingly counters, “Since when is it affirmed, and on what basis, that the word of God can replace material nourishment, proteins, and calories.” Dussel considers such thinking from Christian leaders to be one of the reasons for the passive, tragic and ahistorical resignation among Latin American peoples. For Dussel, the ethics the bishops are espousing can only be an ethics for angels or God for whom death is not possible:

Without death, human life loses its vulnerability, its finitude; it stops being the criterion of truth; the logic of life no longer reigns in it; ethics becomes impossible: the angels or God are not governed by the ethics we are speaking about (which is an ethics of the living, within the horizon of death, always immediately possible), and even less by an ethics of liberation, which would be unnecessary under Cartesianism and, more than that, impossible.

Demonstrably, then, Dussel’s philosophy of liberation bolsters the requirement set by our four Christian thinkers that we recognize and accept our anthropological vulnerability to the violent

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66 Gomez, 34.
67 Barber, *Ethical Hermeneutics*, 107. This meeting in Puebla presents, in part, a retreat from promulgations of an earlier conference attended by then more progressive bishops in Medillín, Colombia in 1969. Pope John Paul II wanted to distance the bishops at Puebla from the earlier promulgations that held the preferential option for the poor and action for justice here on Earth as paramount features of the Christian faith.
69 Ibid., 107.
tragic force of nature, suffering, limits and death. Not grounding ethics in the concrete daily life of all peoples – and our four interlocutors would add all life – permits the rationalization of the lifeworld of billions of excluded people into simplified and, therefore, manageable economic, political and cultural subsystems.

Like our four Christian thinkers who, I have shown, believe that we must respond to the needs of our Guatemalan indigenous woman, Dussel insists we must respond to what Indigenous leader in Guatemala, Rigoberta Menchú, is trying to articulate to those espousing a Eurocentric ethic. Menchú, if we listen to her – and to the millions of indigenous peoples excluded from the conversation – tells us that her own anthropological condition must be recognized and nurtured within a liberationist perspective. Attending to our anthropological vulnerability in isolation to the larger liberationist import is imprudent, as the task of reconstructing an ethic of life is left abandoned. We must remember that for Dussel, as it is for our four thinkers, the goal of reconstructing an ethics of life is to arrive at an intersubjective agreement whose validity rests on consensus, autonomy and legitimacy. The construction of consensus must be plural, diverse and it must incorporate the “symmetrical participation” of the affected members in the rational decision-making of such a community. How that conversation might unfold is where we now turn our attention.

5.4 Safeguarding a Communal Conversation

The communal conversation Ruether, Boff, O’Murchu and Berry are suggesting might seem unwieldy at initial glance – partly due to the fact that none of our interlocutors really spells out how the conversation might occur in any detail. If we take Boff’s perichoretic model, for instance, he suggests it is the best approach for realizing “the most inclusive stance possible.” He is not as clear about how it is also “the one that is least inclined to produce victims.” Yet, as we realized with regard to how a loving relationship serves as our starting point, a communal

71 Rigoberta Menchú is featured throughout Ethics of Liberation.
72 Dussel subsumes discourse ethics (of which he is also critical because of its non-materialist grounding) under his larger material ethics of liberation. See Chapter 2 of Ethic of Liberation.
73 A good construction of this argument (as Dussel’s writing can be scholastic and systematic, seemingly to an extreme), can be found in an article written by Enrique Dussel in collaboration with Eduardo Ibarra-Colado, “Globalization, Organization and the Ethics of Liberation,” Organization 13, no. 4 (2006): 489-508, doi: 10.1177/1350508406065852.
74 See Chapter 2, section 2.5.
conversation would also occur at the bioregional level and, if need be, amongst bioregions, in which case, the framework need not be so unmanageable. Moreover, it would be absurd to suggest that the vast communal conversation include those subjects who are not involved in any way in the ethical situation that undergirds the conversation.\textsuperscript{75} Already, then, we can see delimitations on its vastness.

Dussel’s framework is also helpful in this regard. As we have seen, it substantiates the claim put forth by our four authors that a vast and communal discussion and negotiation through a “democratic” conversation occur and that it be integral to the process. Taking his cue from discourse ethics, Dussel affirms the need for the symmetric participation of all those affected. Nevertheless, he realizes the impossibility of identifying all those affected and “\textit{all the ‘possibly’ affected}.”\textsuperscript{76} His point of departure, however, which delineates a major difference between the philosophy of liberation and discourse ethics, is the procedural “first question” that must always, and seemingly constantly, be asked: “Who may we have left ‘outside’ – without re-cognition?”\textsuperscript{77} The primary consideration, then, is not so much the quantity of those participating, but the quality, that is, who participates (i.e., the victim). More precisely, though, Dussel underlines what must occur within that conversation:

The criteria of liberation would be that the unfulfilled demands of the victims, reflected in the alternatives suggested by the critical discourse, should be met. From then on, all future ethical decisions will be taken from the perspective of the victims. This means that life – and the choices it implies – would not be the privilege of a few but something common to every human being.\textsuperscript{78}

Perfection within the process is not attainable, and Dussel realizes this. What we can attain, is a hermeneutic that consistently inquires who is missing from the conversation. Integrated into this vast communal discussion, Dussel adds, are “advisers,” the experts, scientists, technicians, and those with experience.\textsuperscript{79}

\textsuperscript{75} Certainly none of our authors suggest this.
\textsuperscript{76} Dussel, \textit{Ethics of Liberation}, 293.
\textsuperscript{77} Ibid., 294.
\textsuperscript{78} Dussel in collaboration with Eduardo Ibarra-Colado, “Globalization, Organization and the Ethics of Liberation,” 504.
\textsuperscript{79} Dussel builds upon a Freirian model in \textit{Ethics of Liberation} and elaborates in his Chapter 5 what he labels a “complex spiral of collaboration” between the experts and the everyday citizen.
Two main questions regarding Boff’s perichoretic model and indeed those of the others still need to be clarified: how can the inclusive communal conversation proceed amongst humans, one that is especially accommodating of our Guatemalan woman and her community? And how are the subjectivity of the river and the discernment of its rights realized within the conversation? Fortunately, in their collective wisdom, our interlocutors do provide some guidance on these points. And with the inclusion of the work of theologian David Tracy on the analogical imagination, we can describe the process well enough: all four of our authors stress the need for humans – and hence the development of our capacity – to listen, and not only to our Guatemalan campesina, but to the river as well. Not surprisingly, the listening process begins by forming a relationship.

In order to listen well and understand our campesina, we need to enter into, and become involved with her world. The process begins by forming a relationship and ends in solidarity. The strong liberationist methodologies of Boff and Ruether and the broader conception of liberation understood by O’Murchu and Berry have them dwell with the poor and the suffering, being in regular contact with them. When it comes to including the natural world into the conversation, the process is somewhat similar in how it unfolds. We begin by dwelling on the land. Dwelling on the land, as Boff puts it, implies we listen to it, comprehend the kind of soils, rocks, and insects it has, as well as its carrying capacities. Dwelling, then, marks the first step in fostering a communal conversation. Taking his cue from father of liberation theology Gustavo Gutiérrez, Stephen Bede Scharper finds that this similarity in approach to listening to our campesina and the land makes perfect sense. He quotes Gutiérrez, who says, “Unless you know the names of poor persons, you are not in solidarity with them.” In this way, we are meant to actually know them as “Rigoberta” or “John.” Scharper then suggests Gutiérrez’s statement has relevance for including nature in the conversation, for, “unless you know the names of certain species, learn how to communicate with them, spend time with eco-systems, with rivers, discern

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81 I reference this through Stephen Scharper, *For Earth’s Sake*, 193. Scharper adds that we can be in intellectual solidarity with the poor without knowing them, but not fully in solidarity with them until we develop a relationship with them.
the patterns of animals that move across your life course, your ravines, you are not in solidarity.\textsuperscript{82}

The actual engagement with the land, our four theorists suggest, occurs through critical reflection and what seems to be an interiorization process.\textsuperscript{83} This process, we recall, cannot be forced; instead we allow the “land to reclaim us like ivy growing over an old house.”\textsuperscript{84} Such an interiorization process, one facilitated through meditation, spiritual dance, song, poetry, and intuition, by the use of our ears, eyes, with or without scientific equipment, is proposed by our four authors.\textsuperscript{85} Berry explains this process most adeptly when, as we have discussed with regard to scientists mentioned above, humans absorb their experiences with the natural world into their very being. This allows the biologist to listen not solely to what her instruments are telling her, but also to what she is being told through the very structure of her being.

5.4.1 How Do We Bridge Understandings and Facilitate an Inclusive Conversation?

How, in the process of decision-making, are we to understand what rights a river ought to have? Berry, we recall, suggests we think analogically. He contends, “Each being has rights according to its mode of being.”\textsuperscript{86} When we normally speak of the rights of a human and the rights of the other-than-human, we have trouble assessing the two because of their apparent differences, and too often end with human rights trumping the rights of the non-human. However, if we employ the term “rights” as an analogous term, we see similarities and differences. In this way “a river has rights,” but it does not have human rights, because human rights would be no good for a river. A river needs river rights, which we can discern through the process of dwelling and interiorizing explained above. Analogy, as Berry uses it, is a way of ordering relationships and articulating similarity-in-difference.\textsuperscript{87}

\textsuperscript{82} Ibid., 193.
\textsuperscript{83} Recall that to O’Murchu, our ability to converse in this manner with the natural world makes infinite sense given that “creation itself is a narrative experience, telling its own story across the aeons of evolutionary unfolding;” O’Murchu, \textit{Evolutionary Faith}, 13.
\textsuperscript{84} Hathaway and Boff, 356.
\textsuperscript{85} Berry includes the indigenous imaginative dream process as a form of listening.
\textsuperscript{86} Thomas Berry “The Wisdom of the Cross,” 91.
While Berry employs analogy to understand the needs of nature, theologian David Tracy contends that thinking analogically can also be employed to enable a viable conversation amongst humans, which is especially important given the plurality of voices that characterize such conversations. Conversations amongst humans can become frustrated by misunderstandings, leading to conflict or suspicions, notes Tracy. He advances the method of analogical imagination as a means for moving through such a morass, that is, as a way to enable a conversation. Tracy argues that the analogical imagination helps us to order relationships and articulate similarity-in-difference. He believes, “We understand one another, if at all, only through a-nalogenes.” A brief review of his argument will demonstrate its potential in this regard.

The goal in using the analogical imagination is to fashion some order out of disparate realities by recognizing congruities while maintaining real differences. Differences cannot be washed away under the banner of commonality or shared humanity, Tracy insists. In other words, in applying the analogical imagination, we are required to resist easy incorporation of another person’s focus, thoughts or claims into our own common ways of knowing, while simultaneously finding that similarity-in-difference that allows us to draw some kind of rough coherence, eventually steering us toward some form of harmony or order. This harmony, Tracy insists, can never be forced or it will simply turn into a form of domination. This runs the risk of debasing all information to all-too-common denominators, making no one at home in the conversation.

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88 Tracy, The Analogical Imagination, 363. Analogy, as a way of ordering relationships and articulating similarity-in-difference, is not the invention of Tracy. He points to Aristotle’s remark that “to spot the similar in the dissimilar is the mark of poetic genius.” It was also a method used by Thomas Aquinas, Friedrich Schleiermacher and Karl Rahner (410).

89 Tracy, The Analogical Imagination, 407 ff. As a way of understanding how the analogical imagination works within the Christian tradition, Brent Little presents an example (“David Tracy’s Analogical Imagination in Ethical Action,” Pacifica: Journal of the Melbourne College of Divinity 25, no. 1 [February 2012]: 51-66). He accounts how the story of the unnamed woman of Mark 5:25-24 can, using the analogical imagination, foster new insights. I will quote his passage here:

For example, commentators note that the unnamed woman of Mark 5:25-34 was an outcast of society due to her twelve years of hemorrhaging. This constant bleeding would have made her ritually impure and unable to bear children, which, in turn, would have been grounds for divorce. Her physical ailment would thereby prevent her from fulfilling her function as a child bearer as determined by her ancient, patriarchal culture. Her action of touching Jesus, even indirectly by touching his cloak, would have provoked a scandal in her society. Yet Jesus does not condemn her for breaking a social norm, but instead confirms the healing power of her faith in action. We no longer live with such social conventions. Nevertheless, the application
In order to ensure analogy does not become some deadening single expression of truth for all places, and for all time, Tracy insists that it be accompanied by the dialectic – as portrayed most aptly through the methodology employed in liberation theology – as a necessary corrective. He states, “Without the ever-renewing power of the negative, all analogical concepts eventually collapse into a false harmony, the brittle sterility, the cheap grace of an all-too-canny univocity or an unreal compromise pleasing no one who understands the real issues.”

At the same time, he argues, the dialectical language must move into analogy if it is to avoid any false harmony that remains when the negation ends. The dialectic and the analogy, then, complement each other, and conflict becomes a reality that is welcomed. Where truth is being systematically distorted, Tracy states the conversation must yield to the dialectic.

With Tracy’s formulation of the analogical imagination, then, we can see how it can serve as a means for bridging the difficult path to understanding amongst humans. Moreover, it coalesces well with, and indeed requires, the liberationist paradigm put forth by our four Christian thinkers, one which challenges illusions, deceptions or distortions of the truth. In other words, the analogical imagination, which necessitates the liberationist model, not only assists us in comprehending what our Guatemalan woman is telling us, but ensures that her voice is not excluded from the conversation, nor the voices of the other-than-human. What begins as a dwelling that forms a relationship incorporating the analogical and the dialectic, facilitates the communal conversation that includes our Guatemalan woman and the river. Their voices are vital to the ethical vision put forth by our four Christian thinkers.

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90 Negative dialectics is in Tracy’s view, and I would agree, most aptly portrayed in the liberationist methodology, comprising a logic of contradiction that negates illusions, pretensions, wishful thinking, and challenges the status quo, saying no to ethical deliberations that exclude our Guatemalan woman from participating in her forming her future. See also David Tracy and John B. Cobb, Jr., *Talking about God: Doing Theology in the Context of Modern Pluralism* (New York : Seabury Press, 1983), Chapter 3, available online, [http://www.religion-online.org/showchapter.asp?title=1626&C=1576](http://www.religion-online.org/showchapter.asp?title=1626&C=1576), accessed 2 June, 2013.

91 Tracy, *The Analogical Imagination*, 421. But it need not be just through the techniques of liberation that this happen, though: the conversation can also yield to the techniques of suspicion, which Tracy believes are classically expressed in Freud, Marx, Nietzsche and Heidegger, adding, “Where that conversation is possible – on the other side of all techniques of explanation and suspicion – lies the hope of understanding in the continuing conversation of the classics of the culture…” (*The Analogical Imagination*, 363).
5.5 Having Science Author an Ethical Vision

Our four Christian thinkers have formulated guidelines and models from the natural world, which they suggest can help us change how we see the world and ourselves in it. The knowledge comes in large measure through findings in science. In other words, science, as a wisdom, also becomes vital to the ethical vision put forth by our four Christian thinkers. Boff, for instance, puts forth a dynamic ethics that is “born out of a new definition of the human being and of its mission in the universe as understood by new science.”92 In fact, while our conversation with a river can be facilitated through meditation, spiritual dance, song, poetry, and intuition, our four theorists nevertheless assign pre-eminence to science as a way of knowing.

With her understanding of ecology, Ruether concludes that the escalating human population is unethical, as it represents an extreme case of the proliferation of one population that threatens to strip the planet of its life. Ecology especially becomes normative or ethically prescriptive for our four theorists, but quantum physics, systems theory, cosmology, as well as the chaos and Gaian theories play a normative role as well. Through cosmology, the principles of communion, differentiation and subjectivity that describe how the universe functions explain how all creation and not just the human are to live in harmony within biotic communities. At a fundamental level, then, science is used by our four Christian thinkers to understand how the complex relationships within our environment are sustained and how we contribute to them, positively and negatively. In this manner, our four Christian thinkers employ science not solely to authorize but to author an ethic:93 as Ruether suggests, we convert our minds to nature’s logic through science; through the Gaian theory, Boff and Ruether maintain, we find principles for

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92 Boff, Essential Care, 6.
93 I make a distinction here between science “authoring” and “authorizing.” I use “authorize” to mean that which sanctions, lends credibility, legitimacy or authority. This has been a common employment of science by many religious thinkers and for some time. The science of the day that spurred Samuel F.B. Morse to send his wire across vast distances, for instance, lent much credibility to the beliefs among spiritualists, metaphysicists and some Christians that mediums can somehow communicate with the dead (see Catherine L. Albanese, A Republic of Mind & Spirit: A Cultural History of American Metaphysical Religion [New Haven: Yale University Press, 2007]). But at an even deeper level, we notice that science is employed to actually author an ethical vision. I employ “author” partly in the traditional fashion to mean the originator or creator of a work, theory or plan. But I also take the root of the word, autor or “father,” from old French (c.1300) to imply “source.” Literally, autor – taking its Latin root auctus, which is the past participle of augere “to increase” – means “one who causes to grow.” In this light, we can take author to mean a corporate body that is the source of some form of intellectual or creative work: in our case, an environmental-religious ethic or vision: Random House Dictionary of the English Language, Unabridged Version, 1st ed. (New York: Random House, 1987) s.v.v. “authorize,” “Author.” Also used was Dictionary.com, http://dictionary.reference.com/ (accessed March 20, 2010).
living well, not better; from quantum holism, as O’Murchu suggests, we eschew power relations, as they are not the only, or perhaps even the most effective, way that people and events can be linked in society; from the whole narrative the universe conveys we subsume our democracy under the governance of the larger biocracy.

This employment of science as prescriptive, that is, going from what is in the natural world, to what ought to be, is viewed within philosophical circles as committing a logical fallacy. Based on the Humean dictum that we cannot deduce an ought from an is in nature, many philosophers prefer to maintain a logical distinction between questions of fact and questions of value. Hume, taking a subjectivist stance to ethics, was adamant that moral values are merely the product of natural human desires, not objective fact. Along somewhat similar subjectivist lines, philosopher G.E. Moore argues that the good is an “object of thought” and not an objective feature of the world. Moore believed that the notion of good cannot be defined, only intuited and, thus, cannot be defined in naturalistic terms; to do so would be committing the naturalistic fallacy. In both instances, the authors argue that it is wrong to derive oughts from what is empirically observed.

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94 While in this section I am approaching this issue primarily through a philosophical lens, in Chapter 7, I will explore the concept of natural theology, which arguably defines the theological framework with which our four thinkers approach science, and its close-related natural law tradition, both which impact on the understanding of the naturalistic fallacy. In short, natural theology refers to the study of God and that this can be interpreted through God’s creation, or nature. Natural law, which is complementary to this, broadly understood, holds that humans possess the ability to discover God’s laws through rational analysis of the nature inherent in the human. In other words, because an “ought” can, in this case, be derived and defended in terms of an “is,” natural law defies the naturalistic fallacy. See Rebecca Kneale Gould, “Christianity – Natural Theology,” in Encyclopedia of Religion and Nature, ed. Bron Taylor, 368-369 (London and New York: Continuum, 2005).

95 Stefanovic, Safeguarding Our Common Future, 122.


98 Discussion over the naturalistic fallacy and the is-ought fallacy is fraught with ambiguities and complexities. William H. Bruening (“Moore and ‘Is-Ought,’” Ethics 81, no. 2 [January, 1971]: 143-149), is certain that Moore’s naturalistic fallacy is not the same thing as the is-ought problem. Conversely, many philosophers employ the terms almost interchangeably: Holmes Rolston III (“Environmental Ethics and Religion/Science,” in The Oxford Handbook of Religion and Science, ed. Philip Clayton and Zachary Simpson, ass. ed., [New York: Oxford University Press, 2006], 908-928), and Stefanovic (Safeguarding Our Common Future: 122-123), both employ the term naturalistic fallacy to convey the problems when an ought is derived from an is. Dussel, Ethics of Liberation, 68, 99-100, also appears to employ the two fallacies interchangeably. Bruening posits that Moore is partly to blame, as he uses terms like “naturalistic” misleadingly (144). Oliver Curry (“Who’s Afraid of the Naturalistic Fallacy”), posits that there are not only these two but many arguments that mistakenly go under the name “naturalistic fallacy,” Hume’s and Moore’s being just two (claiming that good is a natural property or assuming that what currently exists
The concerns surrounding the naturalistic fallacy, it is important to keep in mind, involve more than the committing of mere “logical” errors, as potentially stakes can be high when fallacious conclusions are reached.99 A glance at how some authors approach the issue reveals that legitimate fears and concerns prevail over the potential misuse of science by scientists and non-scientists alike. Some scientists, such as biologist Frans de Waal, appalled at the vigor with which some Christians can embrace the harsh ideology of social Darwinism, call for a more cautious approach when reflecting upon animal behaviour, so as to avoid committing the naturalistic fallacy. “The problem is,” de Waal writes, “that one can’t derive the goals of society from the goals of nature.”100 Others, such as scientist Stephen Jay Gould, renowned for his argument that we preserve a sharp delineation between religion and science, is adamant that the former preoccupy itself with questions of morality, while the latter – at the most – only describe the conditions under which certain morals or values might have arisen.101 Christopher diCarlo, lecturer on bioethics and philosophy of science, and John Teehan, professor of religion, suggest that underlining Moore’s elaboration of the naturalistic fallacy was a special concern that evolutionary ethics might be allowed to define “good,” since “those that are most knowledgeable about what things are more evolved (i.e., biologists) would become our authorities.”102 DiCarlo and Teehan also cite the case when philosopher Michael Levin argued that homosexuality, based on “science,” is abnormal: the seemingly natural manner in which the penis fits the vagina and not the anus, following seemingly “mechanical” laws, according to Levin, obliges us to pursue only heterosexual relationships. The better fit leads to happiness, and to act contrary to what facilitates our happiness is abnormal. DiCarlo and Teehan sum up the issue at hand here:  

99 In “Environmental Ethics and Religion/Science,” Rolston III notes no surprise that this is a debated issue to this day, and argues it is one not easily resolved.
102 Ibid., 311.
It is, we believe, arguments like Levin’s which cause the most anxiety over evolutionary ethics. The concern seems to be that if we allow evolutionary thinking into our ethics we are going to end up with a reactionary moral system which supports an oppressive patriarchal value system in which women are consigned to the kitchen, homosexuals to the closets, the poor and disadvantaged to the fringes of society, all in the name of the natural moral order.\(^\text{103}\)

While DiCarlo and Teehan relate their concerns to evolutionary biology, we can assume that these concerns over oppressive ethics stemming from a prescriptive science are valid in other areas. This will be arguably an even greater concern in the future, as science continues to reign as the most powerful alternative explanation of the world. After all, as Holmes Rolston III points out, in the past twentieth century alone, “science flourished as never before, but left us with deep misgivings about the human relation to the world.”\(^\text{104}\) This outcome does not seem to be subsiding.

While the above certainly supports the need for caution to avoid committing logical fallacies, it also illuminates why deliberating whether our four Christian thinkers have themselves committed such fallacies is important. It is a critical issue that requires critical attention. Have Ruether, Boff, O’Murchu and Berry, then, derived \textit{oughts} from what is empirically observed in nature through science, thus committing the naturalistic fallacy?\(^\text{105}\) The answer is not straightforward. It is true that they have derived \textit{oughts} from what is empirically observed in nature through science, but it is less certain that they commit the naturalistic fallacy.

\(^{103}\) Ibid., 313.
\(^{105}\) It is interesting to note that Dussel, as we observed above, also arrives at an \textit{ought} from an \textit{is}. His account of reality positions itself at a material level and not at the abstract, logical-formal level, which he contends was the original problem Hume had with obtaining “oughts” from observed reality (see Dussel, \textit{Ethics of Liberation}, 99). Consequently, he maintains that he does not commit the naturalistic fallacy. Since humans have lost certain instinctual abilities (available in animals) due to our historical-cultural development, Dussel argues, “It would seem then that every descriptive statement of constitutive movements of the human living reality as \textit{human} always includes, necessarily,…and from its origin, a responsible self-reflection that ‘gives’ its own life to the demands, the obligation to conserve it” (101). Put more simply, he underlines that if material processes leads us to conclude something is poison, the ensuing “I ought not drink it then,” becomes a duty, which he positions at the level of a fact. This, Dussel concludes, is a view of life which necessitates new logical developments. While my purpose here is not to decide whether he commits the naturalistic fallacy, I find it is interesting to note that while his argument seems to resist claims of committing the naturalistic fallacy because it positions itself at a material level, a more foundational premise, which is metaphysically derived, underlies his ultimate claim: that humans \textit{ought} to live. So, while Dussel does make a good claim that “John ought to continue eating,” as a judgment of fact, it does not necessarily follow that John’s entire species (human) ought to exist on the same material grounding, especially considering our seeming “demonic” presence on Earth, as Berry puts it.
When Ruether rejects the radical dichotomy between humans and non-humans or between matter and energy, she is not basing this purely on findings from subatomic physics. Similarly, her embrace of Carolyn Merchant’s Partnership Model, while in keeping with the claims from scientists Paul and Anne Ehrlich, is also informed by her feminist epistemological perspectives founded on the experience of women and her feminist understandings of relationality. We note that when Boff views the Gaian theory prescriptively, he uses Gaia interchangeably with Pacha Mama. When Boff challenges the presumed static nature of religious truths by relying on what scientist Ilya Prigogine tells us about order-disorder-order, his conclusions equally rely on the messages from mystics, such as St. Francis. Similarly, O’Murchu relies equally on the mystic – arguably more so – than on the scientist when he makes conclusions about the relational character of our universe derived from quantum physics. And while Berry, perhaps more so than our other three thinkers, gives pre-eminence to science in helping us understand the three principles that guide evolution, he includes the wisdoms of women, ancient traditions and indigenous traditions into his larger framework, as “Each [wisdom] has its own distinctive achievements, limitations, distortions, its own special contribution toward an integral wisdom that seems to be taking shape in the emerging twenty-first century.”

Moreover, even if science alone were used to author an ethical conclusion, Berry and indeed all our four Christian thinkers, view science as mythic in nature. In light of the above, we can conclude that science is not so much authoring an ethic, but co-authoring it. On the one level, then, it would be difficult to claim our interlocutors have committed the naturalistic fallacy. If they have not, which I maintain is the case, then what is it they have done in their appropriation of science?

5.5.1 Can We Isolate Whole Systems of Thought?

Philosopher Mary Midgley sheds light on what we are seeing here and, in doing so, arguably positions the whole naturalistic fallacy argument into a new perspective. Midgley is of the mind that the naturalistic fallacy is a “stuffed dragon and philosophers must finally stop marching around with its head balanced on their spears.” While I believe that the fears surrounding the possible misappropriation of science, as discussed above, might warrant that the
conversation should not quite cease, as Midgley suggests, she does raise a valid point. She contends that while some thinkers do deductively reach conclusions from observing the natural world, their conclusions always stem from “a whole system of thought which they explain and defend in all its parts.”

109 Midgley is not certain that facts and values can be so drastically isolated from one another, since the manner in which we make sense of the world always rests on a larger conceptual scheme. Our conceptual scheme frames how we interpret facts, she insists, concluding that “Moral judgments, if they are to be understood, can no more be arbitrary and isolated than judgments about causality.”

110 In this light, we can readily see that when our four Christian thinkers have science authoring an ethical vision, it occurs always within a larger conceptual framework in which they arrive at their conclusions.

But there is more going on, suggests philosopher Holmes Rolston III, when science is employed prescriptively, specifically within the framework of evolutionary biology or ecological science. If Midgley is not certain that facts and values can be so drastically isolated from one another generally, Rolston is not certain that the is can ever be isolated from the ought when we speak of ecosystem health or harmony. He explains:

Our account initially suggests that ecological description is logically (if not chronologically) prior to the ecosystemic evaluation, the former generating the latter. But the connection of description with evaluation is more complex, for the description and evaluation to some extent arise together, and it is often difficult to say which is prior and which is subordinate. Ecological description finds unity, harmony, interdependence, stability, etc., and these are valuationally endorsed, yet, they are found to some extent, because we search with a disposition to value, order, harmony, stability, unity. Still, the ecological description does not merely confirm these values, it informs them; and we find that the character, the empirical content, of order, harmony, stability, is drawn from, no less than brought to, nature.

111 The key point Rolston identifies is that value, or what we consider as good, is frequently – if not, perhaps, inevitably – encountered whenever we deal with evolutionary biology and ecosystem science. In this sense, it follows that Berry’s sense of what is good is inevitably that which preserves and enhances this meadow, or Schweitzer’s sense of what is good is inevitably that

109 Ibid., 212.
110 Ibid., 219.
which sustains and advances life. Rolston realizes that when we celebrate things such as biodiversity, order, and interdependence, for instance, biology and theology become natural allies, and that “managing a landscape that has reared up such a spectacle of life becomes a matter of ethics and religions as well as of science.” Strictly speaking, he notes, these are only descriptive terms; yet, they also carry “quasi-evaluative” terms. This connection of description and evaluation is complex in how it forms, for, as we read above, the description and evaluation “arise together” and determining a sequence of reasoning is impossible. His conclusion is not so much that an ought is “derived” from an is within the framework of evolutionary biology or ecological science, but that an ought is “discovered simultaneously” with an is, adding, “It is difficult to say where the natural facts leave off and where the natural values appear. If both Rolston and Midgley’s analyses are correct, and I believe they are, we can better understand why Ruether’s employment of science leads her to conclude that a natural interdependency exists, one that depicts an expanding universe that is relational, interconnected, interdependent and finite, or why Boff concludes that new science provides a conceptual foundation for a holistic paradigm fostering relatedness. The human appears as a value-maker when it is life that is in question. Rolston puts it like this:

Earth is a kind of providing ground, where the life epic is lived on in the midst of its perpetual perishing, life arriving and struggling through to something higher. Ultimately, there is a kind of creativity in nature demanding either that [humans] spell nature with a capital N or pass beyond nature to nature’s God.

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115 Rolston III, “Science and Religion in the Face of the Environmental Crisis,” 394. Rolston concludes:

At this point ethicists, looking over the shoulders of biologists describing this display of biodiversity, millions of species defending their kin over millennia, begin to wonder whether there may be goods (values) in nature which humans ought to consider. Animals, plants, and species, integrated into ecosystems, may embody values that, though non-moral, count morally when moral agents encounter these (Rolston III, “Environmental Ethics and Religion/Science, 911). Of note is a nuance to Rolston’s thinking on the naturalistic fallacy, which grants value to nature not anthropogenically but biogenically. Recognizing that each organism in nature has its own “telos” which expresses a way of life for that organism, Rolston states – almost in the manner in which Dussel portrays his material ethics and Schweitzer describes the “will to live” found in all life – that we pass from a description into a prescription when we realize this way of life stems from a genetic set in the organism to live. From this he concludes an ought: “a radical commitment to respect all life.” See Kara L. Lamb, “The Problem of Defining Nature First: A Philosophical Critique of Environmental Ethics,” The Social Science Journal 33, no. 4 (1996): 475-486.
When it is nature we are dealing with, and especially one we love – and here we include the human – value is synchronously present when ethical questions are pondered. Our four Christian thinkers read the science that describes the world, as Rolston suggests, “with a disposition to value.” And given the larger conceptual scheme which frames the manner in which our four Christian thinkers make sense of the world, the problem of the naturalistic fallacy is reframed less as an epistemological problem (deriving an ought from an is) to an ontological one: for what really is the is we are encountering? Is it a subject or an object? In this sense, our authors become necessarily, as Stephen Bede Scharper suggests, “not the consciousness but the conscience of the universe,” ensuring liberation for all subjects.

5.6 Maximizing the Welfare of the Whole

In the effort to provide liberation for all creation, our four Christian thinkers have journeyed between the Scylla of conferring moral consideration firstly to the human (individual and community), and the Charybdis of conferring moral concern above all to the biotic whole. This is not an easy journey to navigate, so it is necessary to see if they have done so with thoughtfulness, allowing the demands and dynamics of one to inform and qualify the other. Philosopher Ingrid Stefanovic expresses concern when ethicists accord the biotic whole greater reverence, thereby grouping complex phenomena within a “totalizing paradigm,” that leads to questionable ethics, which would have us sacrifice the individual for the good of the biotic whole. Is this the case with the model of liberation put forth by our four thinkers? I contend that while their ethical vision does accord much value to the biotic whole, it avoids the problem outlined above by conceiving an “eco-tethered liberation,” which I will describe in this section.

While affirming the need to understand environmental issues holistically, Stefanovic is critical of various ways in which the term “whole” is understood and employed in environmental dialogue. The term is, at times, either vaguely described or naively applied to ethical reasoning, leaving us with questionable moral claims. She cites, for example, Tom Regan’s objection to

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118 Her argument is fully laid out in her Chapter 4. She is critical, for instance, of Carolyn Merchant’s description of holistic thinking that maintains “everything is connected to everything else,” as it trivializes the meaning of
“ecoholism” in that it amounts to what he calls “environmental fascism” by shifting moral considerability from the individual to the biotic wholes, potentially leaving an individual to be “sacrificed – with a clear conscience – for the good of the larger whole.”\(^{119}\) She correctly proposes, “[A]ny philosophy that tells us that we should sacrifice ourselves and our children for the good of the larger whole is itself morally degenerate from the start.”\(^{120}\) Stefanovic suggests that the problem occurs when “wholes achieve a substantial, metaphysical reality unto themselves beyond the existence of their individual parts.”\(^{121}\) In other words, in breadth and scope the environment becomes so large an entity that it becomes difficult, if not impossible, to speak about it and certainly any of its parts meaningfully. It becomes an abstraction and ultimately, “an object separate from human beings instead of the very foundation of our experience.”\(^{122}\) Such a totalizing and abstract view of holism, Stefanovic stresses, fails “to account adequately for implicit or hidden contexts, or for the significance of complex, synergistic relations that exceed the parameters of totalizing explanations.”\(^{123}\)

Stefanovic’s argument serves as a valid warning to theorists who place wholes morally above their constitutive parts. It raises an important question for our four Christian thinkers for whom fostering diversity, interiority and communion for each subject is a vital part of their liberationist framework, for, such a view of holism “may easily slip into a denial of difference, a denial of the value of the individual, component parts in favor of some abstract, totalitarian vision of the whole as superorganism…” as Stefanovic suggests.\(^{124}\) Can the principle of interiority, for instance, take hold when the subject is sacrificed for the good of the larger whole? The answer is, of course, no. However, is this what is occurring within their framework? Stefanovic would be correct in criticizing O’Murchu for seemingly doing just this. Recall that he
claims, “Morality, in the quantum context, attends first to the whole and only secondarily to the parts composing the whole.”

Further, as I discussed in Chapter 3, O’Murchu seems to contradict himself when he also offers the hologram as an apt model of holism, which sees the whole not only greater than the sum of its parts, but contained in each part as well.

Notwithstanding this ambiguity found within O’Murchu’s writing, in my view our other interlocutors certainly do not present a totalizing and abstract view of holism. Certainly, Berry maintains that we can never know parts of the universe separate from the whole any more than we can understand the theme of a musical piece by listening to a musical phrase where the earlier notes are gone. It is not just the whole, but the mysteries within the whole that concern Berry. Rather than taking a totalizing view of the whole, Boff emphasizes the common good, which recognizes that humans share a destiny with the whole terrestrial, biological world. And Ruether, while subsuming our human anthropocentric ethic into the larger not-just-human “ecologic” which maximizes the welfare of the whole, simultaneously stresses that (worth repeating here in its entirety):

Converging our minds to earth cannot happen without converging our minds to each other, since the distorted and ecologically dysfunctional relationships appear necessary, yet they actually support the profits of the few against the many. There can be no ecological ethic simply as a new relation of “man” and “nature.” Any ecological ethic must always take into account the structures of social domination and exploitation that mediate domination of nature and prevent concern for the welfare of the whole community in favor of the immediate advantage of the dominant class, race, and sex. An ecological ethic must

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125 O’Murchu, *Quantum Theology*, 150.
126 We discussed the ambiguity surrounding O’Murchu’s understanding of the whole in Chapter 3. O’Murchu also speaks to the “holarchy” of the community in that relationship is the core dynamic whereby no subject is considered in isolation and a mutuality of responsibility. This ambiguity surrounding O’Murchu’s work (see footnote 43, Chapter 3), is resolved when we contemplate his understanding of “personhood.” He turns to Jungian psychology and the notion of the transpersonal, which means growing into fuller sense of who one is by developing an awareness of his/her relationship with everything that constitutes the wider web of life. It is from that relational context that a person gets his/her deeper identity as a human being; hence, it is inaccurate for O’Murchu to say the whole is “greater” than the sum of its parts, even with the proviso that the whole is contained in each of the parts. Stefanovic also considers the holographic model to be a more salubrious way of understanding the relation of whole to parts “where neither is ontologically primary” (*Safeguarding the Future*, 64). She employs the work of physicist and philosopher Henri Bortoft and offers a more nuanced understanding which suggests that “the whole is something other [my emphasis] than the sum of its parts, but that the whole can, in some sense, be seen to be present in the parts;” see Ingrid Leman Stefanovic, “Evolving Sustainability: A Re-Thinking of Ontological Foundations,” *Trumpeter* 8, no. 4 (Fall, 1991): 199.
127 See footnote 111, Chapter 4.
128 Boff, “The Ethic of Care,” 135; this good is marked by our living in kinship with all that exists and assuming a responsibility for it.
always be an ethic of ecojustice that recognizes the interconnection of social domination and domination of nature.\textsuperscript{129}

Evident here is the balance of tensions so apparent within Ruether’s ethical vision. The tension also describes the manner in which Boff and Berry represent holism (and O’Murchu too, once we resolve the ambiguity surrounding his understanding). It is a pragmatic response grounded in earthly realities that realizes the ecological necessity of granting vital significance to the whole, while not placing it morally above its constitutive parts, for the parts are subjects, not objects. Rather than a totalizing view of holism, what we see our four theorists espousing is more like a dialogical relation between the whole and its parts, one, as Stefanovic puts it, “where neither is ontologically primary.”\textsuperscript{130} In this sense, a subject is never “sacrificed” for the sake of the whole; rather, our interlocutors simply affirm the paradoxical necessity of destroying other life. The key is to minimize this occurrence when/if possible and certainly, as O’Murchu states, to avoid meaningless suffering (such as factory animal farms) altogether.

The issue on maximizing the welfare of the whole and the challenges it presents, as Stefanovic demonstrates, brings us back to the question we have been investigating in the first four chapters of this dissertation, a question not adequately answered by our four interlocutors individually: how do we actually take the liberation of all creation seriously? How are we to reconcile advocating for liberation for both the human and the non-human when conflicts of desires, needs and interests arise? In this final section, I wish to address this question.

5.7 Exploring an “Eco-tethered” Liberation

While an acceptable answer to the questions above eluded our interlocutors individually, in bringing their ethical visions into conversation, adding only some connecting-of-the-dots by me, I propose that they have lead the way to a novel conception of liberation, which addresses the perplexing questions above. Below, I construct a conversation – which never did happen as far as I know, but one that is neither fanciful nor contrived – which demonstrates my point. It builds upon and adapts Gustavo Gutiérrez’s three-fold notion of liberation as discussed in the Introduction to this dissertation.

\textsuperscript{129} Ruether “Toward and Ecological-Feminist Theology,” 93.
\textsuperscript{130} Stefanovic, Safeguarding Our Future, 64.
All four of our Christian thinkers agree that any authentic liberation must be a comprehensive liberation.\textsuperscript{131} Ecotheologian Charles Birch states this understanding well:

It is a cock-eyed view that regards ecological liberation as a distraction from the task of liberation of the poor. One cannot be done without the other. It is time to recognize that the liberation movement is finally one movement. It includes women’s liberation, men’s liberation, the liberation of science and technology, animal liberation, plant liberation, and the liberation of the air and the oceans, the forests, deserts, mountains and valleys.\textsuperscript{132}

The difficulty here, and one not completely worked out by any one of our four thinkers, though evident when we bring their works into a communal conversation, is substantiating the claim above proportionately within an ecological and liberationist framework.

We recall that according to Gutiérrez’s framework, in order for liberation to be authentic, it must be comprehensive. To this end, he distinguishes amongst three levels or dimensions: a social liberation, which frees subjects from all unjust structures that oppress or marginalize, an inner liberation, which has subjects themselves be the artisans of their own history, and a liberation from sin, which underscores the fact only in loving relationship or communion with the other is each subject truly free from domination. This last point is key; for, it stresses that both social and inner freedoms from oppressive structures are dependent upon the larger communal relationship one experiences with all subjects in creation. What might this mean with regard to our campesina woman?

Given that liberation for the human does not represent a flight from the world, but is grounded and sought in Earthly realities, a few matters are clear: authentic liberation can only come about if humans cease trying to escape the horrors of our Earthly, embodied existence in return for “immortal blessedness,”\textsuperscript{133} or invulnerability that frees us from our finite limits. In this light, liberation necessitates that we also accept our vulnerability to the violent tragic force of nature, suffering, limits and death. In light of the third dimension of liberation put forth by Gutiérrez, this means that we accept that, as humans, we have emerged from, and exist as part of the living Earth community. There is, as Heather Eaton expresses, a deep continuity between

\begin{footnotesize}
\textsuperscript{131} Indeed, for Ruether especially, given her ecofeminist standpoint, recognizing our anthropological vulnerability is crucial. What I contend Berry is asking of Ruether et al. is to take this step to its logical (ecological) conclusion, which requires us to tether the human – and that includes human liberation – to the ecological imperative.
\textsuperscript{132} Quoted in Bakken, Engel and Engel, 10.
\textsuperscript{133} Borrowing upon Ruether’s terminology in “Ecofeminism Symbolic and Social Connections,” 53.
\end{footnotesize}
Earth processes and ourselves, adding, “To persistently speak of humans and ‘the environment’ is ridiculous in the face of planetary dynamics, evolutionary processes, and emergent complexities.”134 Dennis Patrick O’Hara and Alan Abelsohn echo this sentiment, underlining what Berry himself made apparent, that “it is not possible to have healthy humans on a sick planet.”135 If we continue this line of reasoning and extend this conversation amongst all four of our Christian thinkers, we can discern within their mutual conversation a novel truth about liberation: that it can only ever be authentic – that is not exclusive to humans – if tethered to the larger bioregional context. A brief explanation will help explain what I mean.

On the one hand, we find Berry who is arguably most adamant that we quell our “rage against the human condition,” that “unwillingness of humans to accept life under the conditions that life granted us.”136 Berry calls for nothing less than the ultimate subsuming of the human to the ecological imperative – which entails, among other things, preserving and enhancing the “meadow” – and accepting our anthropological vulnerability to the pains of life and ultimately death. On the other hand, we find Ruether and Boff and to a certain extent O’Murchu, equally adamant about the imperative to give preference to fulfilling the needs of our Guatemalan campesina walking long and far for water.

I suggest that Berry’s sophisticated understanding of the darker side of creativity, and his insistence that we confer to the Earth primordial concern, ultimately induces Ruether and Boff to expose the preferential option for the poor itself to a certain vulnerability. One can almost picture Berry figuratively taking our liberation thinkers by their hands toward the dangerous, yet necessary, precipice of our anthropological condition, and ecological necessities with a clear understanding that only in this manner can humans and all Earth subjects find authentic and lasting liberation and, ultimately, the harmony they seek to live sustainably on Earth. At the same time, however, Ruether and Boff – for whom the liberation of the human in all its forms (corporeal, social, economic and spiritual) must also be taken seriously – remind Berry, and to

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136 Berry, “Ethics and Ecology.”
some extent O’Murchu as well, that while they certainly accept our radical dependence on Earth and recognize destruction as being an inescapable part of creativity, they maintain that the burdens that arise from these must never be disproportionately placed on an already vulnerable majority that is dominated socially, economically, by gender or race, and arguably least responsible for our problems. In other words, the liberation of our Guatemalan woman and her community must also be taken seriously; burdens, then, ought to be portioned justly.

As I stated above, this conversation is neither fanciful nor contrived. Ruether, Boff and O’Murchu already recognize a dynamic between ecological and social justice as two unique, yet inseparable, entities and Berry never suggests that our campesina ought to bear the burdens of giving preference first and foremost to Earth – and would find it abhorrent if she were to do so. I have merely connected the dots already drawn, which are undergirded by our relationality. The fruit of such a communal negotiation and the willingness to accepting the vulnerable status of any liberation is, I think, a novel and important understanding of how one’s own liberation is inextricably tied to the liberation of all subjects. Put another way, if a shared liberation within the larger Earth community can only occur within the constraints of a larger bioregional model, then any authentic liberation can only ever be a tethered liberation, or perhaps better labelled, eco-tethered liberation. To understand an eco-tethered liberation more succinctly, consider the river, on whose banks humans need to settle and grow, must be treated as a subject, never an object and must, therefore, be accorded a say in how it is approached. The imperative to give preference to fulfilling the needs of our Guatemalan woman or her community can no longer – in light of what new science is telling us – be considered outside the larger ecological imperative.

Where conflicts between the two arise, the key is not to circumvent the liberation of the larger biotic community – as humans have been doing for some time now – but to address the larger and global preferential option for the rich, so that it is not our woman who

137 We should not confuse here liberation with liberty. The latter is the freedom to do what one wishes. Liberation, while maintained as an ideal, is fostered by various actions that are “good” or “bad” depending upon how well they contribute to liberation. While it is these “goods” that are ultimately negotiated within the wider whole, since they foster liberation, I therefore, speak of liberation itself as being ultimately tethered. In other words, a human does not just “decide” she/he is liberated. Since liberation here represents a concrete, material good, it invariably demands an engagement with the entire biotic community and, therefore, must be negotiated. Notwithstanding the paradoxes we have to live with – all creatures live at the expense of other creatures – authentic liberation ought not occur, whenever possible, at the expense of another subject’s liberation, or at least with the minimal amount of interference with that subject’s liberation.
disproportionately bears the burden, or the river from which she draws water, but the entire human species that proportionately limits its actions. For, just as destruction is an inescapable part of creativity, so too constraint is an inescapable part of liberation. Their liberationist framework necessitates, therefore, the communal negotiation with the wider bioregional community we discussed above, whereby the concerns, realities and the tendencies of all subjects – here we could say their autopoietic nature – are included in the human life project. This is an ecological adaptation of Gutiérrez’s third dimension of liberation: only in loving relationship or communion with all of creation is each subject truly free from domination.

The significance of this insight can be readily understood when compared to a 2000 statement Pope John Paul II delivered to farmers and representatives of agricultural institutions. We read, for instance, that, “not only has God given the earth to man, who must use it with respect for the original good purpose for which it was given to him, but man too is God’s gift to man. He must therefore respect the natural and moral structure with which he has been endowed.”138 Similarly, the Pope’s 1990 World Day of Peace message emphasized our “fraternal” relationship with creation but concluded by positing that “our religious obligation to respect and watch over them with care, in light of the greater and higher fraternity that exists within the human family.”139 Just as Berry has us reinvent the human at the cultural level, then, so too liberation of the human is reimagined in a new light: one unshackled from its anthropocentric foundation so common in Christian thinking and shared amongst all Earth subjects and, thus, inextricably consigned to an “eco-tethered” status.140

To test the viability of an eco-tethered liberation, we can conceive a scenario concerning our campesina and her Guatemalan community. Might an understanding of an eco-tethered liberation be used by wealthier communities to give ontological primacy to the land, thus

140 To conceive better what I mean, picture a group of individuals dancing to modern music separately. Now have them continue dancing but while holding one another’s hands (as in a circle). Any move or gesture each makes can only occur within the restraints brought upon by their tethered status. Their “rights” to move in whatever direction they please are qualified.
denying the liberation of our \textit{campesina} and her community? There is certainly a risk involved when the moral consideration of our Guatemalan community – arguably without much political and economic clout – is pitted against the moral consideration of the natural world represented by environmentalists with more political and economic clout. In this scenario, is there not a risk to \textit{any} delimiting of the liberationist ideal? An example will suffice to explain what I mean.

It is not mere speculation when we envision the possibility of our \textit{campesina} and her community – people already vulnerable – having their liberation tethered, unilaterally and in the name of the liberation of other Earth subjects, perhaps by ardent environmentalists who deem a river’s right to flow is more important than the community’s right to use the rocks that lie along its border to build a school. Ramachandra Guha has made comparisons between the environmentalisms of the global North and South, for instance, and provides evidence that this has indeed been the case.\textsuperscript{141} The environmentalism of the global North, he states, strives to save a natural setting “\textit{just for itself},” acknowledging an ethical responsibility toward “other species” while also enriching the “spiritual side” of human existence by preserving pristine wildernesses.\textsuperscript{142} When such thinking surfaces in countries like India, Guha notes, the needs of entire human communities can be lost in the passion to save the land. Vast areas as national parks and sanctuaries can be protected from all “human interference” in the name of protecting nature, thus ignoring our own species, and sometimes abruptly displacing entire communities deprived of political clout and without compensation from a territory on which they might have lived on, and depended on for generations.\textsuperscript{143}

While this is undeniably always a possibility, and one presumably more likely to occur as human populations continue to grow (especially in the global South) thereby increasingly encroaching on increasingly degraded natural lands, we cannot accuse our four interlocutors of ignoring this possibility, nor in failing to provide a way to address it. When Ruether underlines the idea that converting our minds to Earth cannot happen without converting our minds to each other, she is also stressing that the option of the poor (for humans) cannot come about without

\textsuperscript{142} Ibid., 476-477.
\textsuperscript{143} Ibid., 476.
also addressing the destructive “option for the rich,” an option which currently prevails throughout the globe. The larger questions of production and distribution (which favour wealthier human communities) cannot be ignored when addressing the needs of our Guatemalan community. In this light, our four interlocutors are consistent in their thinking. Within the framework of relationship, any conflict between a river’s right to flow and the right for our Guatemalan campesina woman to retrieve water from it is a false dichotomy.

Conclusion

We have examined the collective ethical vision of our four Christian thinkers, describing how they approach the social and environmental problems of our time with a view to assessing whether they take and integrate both these issues seriously. Two main questions have guided our research in this chapter: was the focus of their attention placed on the entire creation and the current logic of domination that marginalizes both the human and the other-than-human? And do we find within their ethical visions evidence of a thorough and thoughtful examination of what is required to unite a liberationist agenda with an environmental ethic, as well as a commitment to see this occur? I contend that to both questions we can answer “yes.” The liberation of all creation has been approached with much thoughtfulness and critical attention. Further, in their integration of the social and environmental problems facing our planet, we find evidence that environmental concerns were not merely grafted onto a social ethical framework. There was evidence of a critical conversation in part elaborated by me – that had the two issues inform and qualify each other.

There is a saying one hears now and then when seeking directions from local people: “Oh, you can’t get there from here!”¹¹⁴⁴ I cannot think of a better metaphor than this to express the essence of the ethical vision of our four Christian thinkers. For, on the one hand, it denotes that liberation for the entire planet can be reached only by a circuitous and complex – we can now say messy – route. Our four theorists comprehend this. Conventional modes of ethical

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¹¹⁴⁴ Internet searches attribute this idiom to peoples in New England in the United States. Michael E. Allsopp (Reviewing Christian Ethics: The Catholic Tradition [Chicago, Ill.: University of Scranton Press, 2005], 108), attributes this to the Irish. He notes tourists seeking directions from locals are occasionally told, “Well, I wouldn’t go there from here.”
thinking are either bankrupt or deficient in one way or another. The moral imagination of the Western tradition appears woefully inadequate either to address the realities of the anthropocene or to change the social, economic and political structures which – as the Bishop of Mozambique points out in our Introduction – seemingly allow African children to die so that North American children may overeat.

Indeed, a new ethical vision will have to represent a radically new relational paradigm for the twenty-first century that places the liberation of all creation above social, economic and political structures. Any attempt to lessen the complexity of the path towards liberation – whether by taking a detour around the negotiation phase or by excluding those on the periphery – will only thwart us from reaching the harmony we seek amongst ourselves or between us and the natural world. Perhaps the main reason contemporary conventional ethics are proving inadequate for the task is that they take detours around the complexities of ethical decision-making, as Dussel notes, by permitting the rationalization of the lifeworld of billions of excluded people into simplified, manageable economic, political and cultural subsystems. They avoid the concrete every-day slow and complex – messy – process that our four Christian thinkers are telling us is the truer path toward liberation for all creation.

We might think that making a loving relationship with creation our starting point in ethics is too simple or unattainable, but this need not be the case within a bioregional context. Moreover, as we have seen, love as a starting point not only obliges us to eschew simple answers to complex issues, it also serves instrumentally as a viable means for knowing the world. We might wince at the level to which their ethical vision has us embrace our anthropological vulnerability, but this is our biological reality: ignoring it, our theorists point out, has proven and will continue to prove folly. Taking detours around this reality explains why our waters are warming, countless species are becoming extinct, and the majority of the human species lives on the margins of life fed only to often by platitudes such as nourishment will come from faith.

We might think our interlocutors are not being very serious when they propose a vast communal conversation amongst all of creation; yet, while daunting and arguably never fully realized, viewed from a liberationist point of view, the primary task here is to seek, first and foremost, the inclusion of the victims. Moreover, the task occurs at the bioregional level. And through use of analogy, discerning the rights of a river is not as impracticable as it might seem.
We also might believe that our interlocutors are committing a logical fallacy when they employ science prescriptively. But, is science even authoring their ethical vision independent of a whole system of thought? Besides, when the subject matter is all of creation, one we love, value is synchronously present when ethical questions are pondered. Finally, we might question the wisdom of granting such high value to the whole, noting the risk we take that could lead to a denial of difference or a denial of the value of the individual. Yet, when the relationship of the whole and the parts is perceived as dialogical, the focus put forth by our four Christian thinkers seems less precarious.

Yes it is a messy ethical vision our four Christian thinkers put forth, but it also appears, as this chapter has demonstrated, feasible, and arguably more in line with the social and environmental needs of our day. What is more, it is unlikely that our four thinkers could have articulated such a vision had they not approached both the liberation of the human and the natural world in the manner they did. By sheer dint of purpose, they needed to allow the dynamics and concerns surrounding the issues of environmental degradation and the marginalization of the majority of humankind to inform and qualify, as well as clarify and affirm, each other. When brought together into a communal conversation, we found that their ethical vision is a product of this dynamic. The fruit of this integration is, I suggest, the notion of an eco-tethered liberation.

As we will see more clearly in the ensuing chapters, Ruether, Boff, O’Murchu and Berry appear much less concerned with arriving at an approximation of truth, and far more concerned with arriving at an assessment of truth. In fact, one gets a sense that truth takes on, what I can only call, a liberationally-pragmatic significance to it, measured more by the quality with which all subjects in creation can participate in their own (Earthly) liberation, than merely being

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145 J. Wentzel van Huyssteen, suggests (“Postfoundationalism in Theology and Science: Beyond Conflict and Consonance,” in Rethinking Theology and Science: Six Models for the Current Dialogue, eds. Niels Henrik Gregeren and J. Wentzel van Huyssteen [Grand Rapids Mich.: William B. Eerdmans Publishing Company, 1998], 34), that such a view of truth is increasingly more common in theological circles, where we seek not an approximation of truth (since we are not necessarily “closer” to a truth), but an estimation of truth, something we estimate to be true within a certain context. Boff, for instance (Global Civilization, 17-18), recognizes truth as lying in part to how it conforms to reality and in part to how it is revealed to us by reality itself, an ontological understanding of truth. But he also sees all humans as being co-producers and co-authors of truths giving it a democratic air one where truth is relative to the totality of reality. When we consider the import of liberation Boff assigns to all humans, indeed all creation, we can begin to see how a pragmatic character to truth unfolds.
consistent with what we know of the world through science or indeed with tenets of the Christian faith. By pragmatic, I am referring, in part, to the Deweyan perspective in so far as it sees truth as an instrument used by human beings to solve their problems in a radically democratic fashion. Indeed, in the Deweyan tradition, like in the liberationist tradition, philosophical ethics ought to arise out of the everyday experiences of ordinary peoples, working in solidarity to attempt to clarify cause of suffering, with the goal of reconstructing (not just deconstructing) a just system within a democratic framework. Like our four Christian thinkers, then, Dewy sees truth as being bound up with the socially desired consequences which for our interlocutors, is more definitively represented as liberation.

The next chapter takes a deeper look at the quality with which our four Christian thinkers have appropriated the science. This is crucial given the pre-eminence science receives in forming their ethical vision. The inquiry goes far beyond the possibility of committing logical fallacies though. For surely the quality of the conclusions attained from science will reflect upon the quality of their ethical vision. Have our authors taken science seriously?


147 Ibid.; of course, when aligning my understanding of pragmatic with Dewey’s pragmatism, there is much of thinking that I do not include here as it stands in contrast to what our four Christian thinkers espouse: Dewey, influenced by the positivist tendencies of his day, for instance, negates metaphysical ways of knowing.
Chapter 6
Toward a Serious and Sustained Reflection on Science

Introduction

We have established that our four Christian thinkers have approached the domains of environment and liberation with thoughtfulness, resolution and critical attention. What is more, we have found evidence that they have allowed the issues, dynamics and concerns surrounding these two domains to qualify and inform each other, providing evidence that they are taking this four-fold nexus seriously. We turn our attention in this chapter to analyzing the manner in which our four Christian thinkers have approached science. And, as we discussed in the Introduction, it is specifically the natural sciences, and even more specifically, a particular understanding of the natural sciences, one often labeled as “new” even “postnormal,” which is significant.

The science they appropriate enables our four Christian thinkers to see a universe where the mechanistic, reductionist, dualistic classical Newtonian, as well as neo-Darwinist, seemingly purposeless and red-in-tooth-and-claw worldviews, are rejected in favour of a paradigm in which the universe is deeply relational, a communion of subjects. Competition is understood, then, within the broader framework of cooperation. Cold mechanistic determinism is eschewed in favour of a world that is self-regulating and self-determining and, therefore, open to uncertain outcomes. Applying Gaian and systems theory, our four Christian thinkers ascertain that the Earth has maintained an optimum balance so that life for hundreds of millions of years could thrive. The Gaia theory also serves as a transformative praxis carrying with it strong mythic qualities. The picture is not all rosy. Each sees violence and destruction as being integral parts of the universe and indeed the progenitors of creativity, a characteristic which they conclude is also integral to the universe. In all this, all four theorists depend on the writings of Pierre Teilhard de Chardin, which challenge scientific dualistic thinking, suggesting a radically different epistemology or way of knowing in science, and promoting the notion that consciousness plays a role in evolution. It is not a common approach to science our four interlocutors take, as they readily employ metaphors to convey complex concepts in science, and they maintain science is
ultimately mythic in nature. In short, science is providing a myth, guidelines, as well as models that our four Christian authors aver can help us change how we see the world and ourselves in it.

Specifically in this chapter, we need to decide whether our four interlocutors, in their efforts to take the liberation of the entire planet seriously, have also taken seriously the science upon which they rely profoundly as a way of knowing the world and arriving at an ethic. Investigating the thoughtfulness, constructive resolution and critical attention with which the science is appropriated is important, then, as our interlocutors have assigned preeminence to contemporary findings in science in order to derive normative guidelines from nature. It is reasonable to conclude that the quality with which the science is understood and used by them will affect the quality of their ethical visions. Moreover, some of the scientists whose work they employ have pushed the boundaries of orthodoxy within their own disciplines. The main question underlining this chapter, then, is this: what is the quality with which our interlocutors have entered into a conversation the science?

To answer this question, if we are to make a judicious appraisal of their appropriation of science, we will need to be clear here what we mean by the criteria of thoughtfulness, constructive resolution and critical attention from a scientific point of view. Taking cues from various authors who have addressed this subject, cosmologist Brian Swimme, scholar on the religion-science debate Philip Clayton, and theologian and biologist Celia Deane-Drummond, I suggest that to assess the quality of their appropriation of science, we should look for the following particular criteria: a coherent and sophisticated understanding of the current scientific theories; a resolve to avoid conclusions not supported by current scientific evidence; a readiness

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1. Brian Swimme, “Science a Partner in Creating the Vision,” in Thomas Berry and the New Cosmology, eds. Anne Lonergan and Caroline Richards (Mystic, Conn.: Twenty-Third Publications, 1987); Celia Deane-Drummond, “Theology and the Biological Sciences;” and Philip Clayton, “Theology and the Physical Sciences,” in The Modern Theologians: An Introduction to Christian Theology in the Twentieth Century, 2nd ed., ed. David F. Ford (Oxford; Cambridge, Mass.: Blackwell Publishers, 1997). Clayton argues that the beliefs a theologian affirms “should be consistent with the results of disciplined study of the natural world” (354). Deane-Drummond argues that there is a need for more theologians to take biological issues seriously, but admits this cannot come about unless theology “becomes a shared task, where mutual encounter and engagement can take place” (366). Along with this must come a “readiness to accept the challenge of the biological sciences in all areas of theology, without necessarily simply accepting biological empiricism as the final arbiter of such theology” (367). The issue is not merely about the quantity of Christians who marginalize scientific empirical evidence, but the quality or depth of conviction with which they do it.
to accept the challenges to previously-held beliefs brought forth by scientific inquiry; and – related to the previous criterion – attention to potential incompatibilities between empirically-based assertions and metaphysical claims. The point is not to determine whether their appropriation of science is faultless, as such a determination is not possible since, as we will see, science is not itself a homogeneous discipline with uniform methodologies or compatible theories. Instead, the aim is to determine whether or not any incompatibilities that might exist detract from the overall quality with which they appropriate the science.

To this end, I have employed the work of environment and religion scholar, Lisa H. Sideris. Her work is helpful because, like mine, it draws our attention to a crucial epistemological question underlining the more fundamental claims of Christians appropriating science: what does it mean to take nature – and by extension, the science that describes it – seriously? Moreover, Sideris also investigates a number of Christian thinkers who have appropriated science in order to develop a new ethic that speaks to the escalating environmental crisis.

Sideris is very critical of how many Christian thinkers, including our four interlocutors, misrepresent nature by “neglect and/or misuse of basic scientific data.” Namely, she believes they have not dealt adequately with the implications of natural selection. Sideris critiques Rosemary Radford Ruether for her “panglossian” portrayal of the science. And while she does not explicitly name Boff, O’Murchu or Berry in her research, Sideris’s somewhat dismissive attitude toward the Gaia theory and her indictment of “postmodern and green critiques of science,” as well as her stance toward “new” physics and the appropriation of science “in mythopoetic form,” suggests that she is critical of the larger grouping of my Christian thinkers appropriating science. Sideris’s main contention, then, is that we ought to understand nature “as science understands it,” adding, “if details of the model are wrong, the ethics that emerges will,

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2 Lisa H. Sideris, *Environmental Ethics*, 217; Sideris’s ultimate goal to provide a comprehensive “theocentric” perspective, one that scientific evidence supports. She relies on Aldo Leopold, theologian James Gustafson and ethicist Holmes Rolston III to this end; see her Chapter 6.
3 Ibid., 264.
accordingly, be inappropriate.” Is Sideris correct in suggesting that our four Christian authors have not approached science with critical resolve and thoughtfulness? But how does science “understand” nature? While Sideris is not clear on this crucial point, as will become evident, our four Christian authors differ with Sideris on how science functions.

I will borrow upon Sideris’s work, then, as a means for articulating some of the conceivable critiques of our four Christians authors’ appropriation of science. I will begin this investigation by describing Sideris’s argument in more detail, enumerating its strengths and weaknesses. With regard to the former, I borrow upon the work of ecologist Peter F. Sale to elucidate a legitimate claim Sideris makes: that Christian thinkers neglect more recent understandings of ecosystem science. Sideris’s work is also helpful as it opens up debate on two larger and important issues surrounding our investigation of whether Ruether, Boff, O’Murchu and Berry have taken science seriously. The first is that in appraising one’s appropriation of science, how one understands the structures and processes in science matters. Accordingly, part of this chapter will explore – in broad strokes, for this is a too large a topic to portray comprehensively here – how science is structured, and some of its processes for knowing reality and communicating its findings. To do this, I will rely principally on the writings of historian and philosopher of science Thomas Kuhn. It will become clear that the scientific process is not a purely rational process, but one that entails the entire spectrum of human experience: it takes place within a fragmented social community, under social forces, with habits and biases, and within a particular culture that influences what science is carried out, as well as within a certain paradigm that is rarely questioned. Borrowing upon the works of ecologist Brendon Larson and philosopher Mary Midgley, I will also discuss the nature of myth and metaphor in science and the powerful ways in which these shape how scientists understand and communicate their findings. From this, it will become clear that the attention our four interlocutors give to myth and metaphor is not unjustified.

The second important issue surrounding our investigation of how our four Christian thinkers have appropriated science is that when it is the liberation for the entire planet we are seeking, the particular approach we take to science – whether narrow or broad – matters. I argue

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6 Ibid., 6.
here that the most viable approach to science in this context is one that is wide in scope and breadth, inclusive of multiple scientific branches, and one that takes into account the myths and imaginations that surround the broader issue. Furthermore, I contend, it is the Gaia theory that addresses the above requirements, not exclusively, but certainly uniquely and adeptly, as it serves not only as a viable interdisciplinary platform to understand better the intricate and complex processes of our planet, but encompasses an important transformative praxis for arriving at a viable ethical vision. I will finish this chapter with an appraisal of each of our four authors’ appropriation of science: on the whole, we find within their writings a coherent and sophisticated understanding of the current scientific theories, a resolve to avoid conclusions not supported by current scientific evidence, a readiness to accept the challenges to previously-held beliefs brought forth by scientific inquiry, and attention to potential incompatibilities between empirically-based assertions and metaphysical claims.

6.1 Lisa Sideris’s Critique of the Christian Appropriation of Science

Lisa Sideris’s concern is not whether Christian ethicists derive normative guidelines from nature; this she does herself. She is more concerned with the actual “oughts” or normative claims that these ecological theologians arrive at: in other words, how their normative claims are produced. She argues that too often the oughts “represent only a part of nature’s is, as science understands it.” As a result, she holds that the misappropriation of science by ecological theologians has led to the formation of inappropriate environmental ethics. Specifically, Sideris’s view is that many ecological theologians have not taken into account and, therefore, have not fully realized, the implications of scientific evidence on evolution when generating their ethics, namely, that “many ecological theologians have not dealt adequately with the implications of natural selection,” as presented by Darwin.

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7 Sideris, Environmental Ethics, 217; Sideris claims scientific knowledge must play a central role in the process of discerning our ethical obligations toward nature, forming, for her, a “naturalized ethic.” She disagrees – and I would argue correctly – with scientist Stephen Jay Gould who “asserts the moral neutrality of scientific data” (footnote 43, p. 271).

8 Ibid., 27. In asserting the oughts “represent only a part of nature’s is, as science understands it,” she is taking a cue from scientist Stephen Jay Gould who objects to reductionist and uncritical inferences from scientific information: see her footnote 43, p. 271; see also, 263.

9 Ibid., 1; see also Sideris, “Evolving Environmentalism.”
These thinkers, she states, downplay or gloss over the dark and negative Darwinian processes of the natural world, such as predation, competition and disease by relying too heavily on rosy appropriations of lessons from ecology that characterize an interdependent, cooperative and harmonious world. She concedes,

Darwin’s darker vision of nature has never completely triumphed over a pleasant, harmonious interpretation. In popular imagination, as well as in the science of ecology, there has been an ongoing tug-of-war between ecological models of harmony and evolutionary accounts of struggle and disorder.10

However, as she maintains, the lessons of evolution – the “darker vision of Darwinism” – cannot be brushed aside, as Sideris claims these thinkers do, to favour more “panglossian” Christian visions or sentiments. These visions or sentiments could be yearnings for a loving God that does not wish there to be suffering, or for Christian hopes for some ultimate redemption, or for an ultimate peaceful world where “the lion and the lamb, the child and the snake, lie down together; where there is food for all; where neither people nor animals are destroying one another,”11 something that ecological theologian Sallie McFague apparently suggests.

Sideris raises some appropriate and convincing points about the quality of some ethicists’ appropriation of science. For instance, she cannot see how McFague could arrive at her love ethic, which requires Christians to “extend a loving ‘praxis’ to nature, ‘treating the natural world in the same way we treat, or should treat, God and other people…’”12 Sideris suggests that the Christian anthropocentric sensibilities on the significance and importance of the human compared to the non-human prevents these theologians from fully grasping and accurately comprehending what science is telling them about the negative aspects associated with our interrelatedness, interconnectedness and utter dependence on the larger biotic community.13

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11 Ibid., 76; this adaptation of a biblical quote (Isaiah 65) actually stems from Sallie McFague’s writing, which Sideris uses to show how her ethic cannot be supported by science. Ruether, we will see, uses the same quote.
12 Ibid., 7.
13 Sideris (*Environmental Ethics*), also critiques Michael S. Northcott and his claim that an environmental ethic seeks peaceful and harmonious relations among all beings as a naïve imposition of a human agenda onto nature: “Take, for example,” she says, “the needs of predators, whose means of survival will apparently be revoked when the original goodness of creation is restored. The various life-forms may have their individual needs, drives, and purposes, but ultimately God’s plan for creation eliminates those differences, as the ‘frustration of everything is drawn into the eternal purposes of God for the restoration of the cosmos’” (88). As another example (discussed in the Introduction of this dissertation), she points to Northcott’s approach to science which rejects Aldo Leopold’s land ethic (an ethic Sideris herself promotes as viable and consistent with Darwinian thinking), because of its
In her appraisal of Ruether’s ethic, Sideris applies similar criticisms we see above, contending that neither Ruether’s romanticized understanding of science, nor the heightened role Ruether assigns to the human is consistent with the findings of science. With regard to the latter, Sideris concludes – and not without good warrant – Ruether needs to establish greater congruence between the ethical implications she derives from nature and the biblical themes she develops in support of human responsibilities toward life. Taking her own description of interdependence more seriously would imply a more modest role for humans than that of arbiters of justice and purveyors of peace and health in nature. In particular, Sideris is critical of Ruether’s quote from Isaiah who promises that “even the carnivorous conflict between animals will be overcome in the Peaceable kingdom,” and of Ruether’s claim that science of ecology provides us with a “vision of humanity living in community with all its sister and brother beings.” Sideris also takes exception to Ruether’s understanding of cooperation and interdependency as being primary principles of ecosystems. She quotes Ruether as saying the following:

Cooperation and interdependency are the primary principles of ecosystems, within which competition between populations stands as a subcategory that serves to maintain this...
interdependency in a way that sustains the balanced relation of each population in relation to the whole.\textsuperscript{17}

Sideris maintains Ruether is either ignoring the normative implications of evolutionary processes that posit struggle, predation and competition in her conclusions or believes those scientific findings “have no such normative import.”\textsuperscript{18} Sideris states,

Because she wishes to uphold an ecological ethic of interdependency and coevolution, Ruether must dispel any ‘survival of the fittest’ reading that might creep into a nature-informed ethic. She invokes this phrase and expresses concern that such a reading of nature could distort an ecological ethic by mistakenly implying that ‘the strong have a right to prevail over the weak and that, in the competitive struggle for existence, might makes right.’\textsuperscript{19}

Sideris’s main issue with Ruether’s appropriation of science, then, is that there is nothing of nature within her vision that comes out of science, which is ultimately disturbing; moreover, if nature’s processes are in disarray, it is because of “humans alone, in disobeying nature’s limits and engaging in competition.”\textsuperscript{20}

It should be noted, however, that Sideris’s reading of Ruether’s appropriation of science is slanted, as she does not consult the multitude of Ruether’s writings other than \textit{Gaia and God}, and she fails to mention explanations Ruether provides which nuance her employment of Isaiah’s quote above. As a result, as we will discuss more thoroughly later in this chapter, Sideris overlooks some of the more cooperative and harmonious aspects of the Gaia theory which underscore Ruether’s arguments. Where Sideris is correct, is in pointing out that more recent findings in ecosystem science are not found within Ruether – and we could say all four of our interlocutors – writings. Sideris discusses the popular misconceptions of nature being in “balance” and “self-regulating.” She presents a brief survey of the history of thinking on ecology, pointing out how ecologists and historians of ecology are, on the whole, moving away from the understanding of ecosystems as cooperative, co-evolving, and harmonious units that

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\textsuperscript{17} Ibid., 51, quoting Ruether in \textit{Gaia and God}, 56. See my Chapter 1, section 1.2 where I discuss the same quote. \\
\textsuperscript{18} Ibid., 48. \\
\textsuperscript{19} Ibid., 50, quoting in part Ruether in \textit{Gaia and God}, 55. \\
\textsuperscript{20} Ibid., 51.
\end{flushright}
maintain some form of balance. The advent of chaos theory has led many ecologists to view the processes of nature as random, and not as natural self-regulating communities.\textsuperscript{21}

Of course, such a claim could also challenge the writings of all four of our interlocutors. Because of the importance of ecology to all four of our thinkers, some more attention is warranted here. To explain further Sideris’s claim, and to understand its import, we can look to ecologist Peter F. Sale. While not using the term chaos himself, Sale affirms much of what Sideris is saying here: the idea that nature has some inherent self-regulating equilibrium-creating ability, while popular in our society, he says, is more a myth than reality. Nature is not in “balance,” but in a continuous state of non-equilibrium and change.\textsuperscript{22} Thus, we have seen in ecological studies a shift from whole, finely-tuned communities to natural systems that are,

Comprised of a mosaic of ephemeral patches [of communities] within which the component species exist as populations of individuals variously struggling to survive and reproduce against a broad variety of impediments – shortages of resources, the presence of predators, a harsh climate or season, and unanticipated disturbances that impact them suddenly and negatively.\textsuperscript{23}

Sale concludes from this that natural systems are open dynamic “patches” of communities fraught with constant disturbances that place them in imbalance or non-equilibrium state. Moreover, while disturbances are common within the natural world, many occur “naturally,” such as mudslides, falling trees or storms. He adds, “Life is tough, but it is tough in varying ways

\bibitem{Ibid., 25-38} Sideris notes how the idea of ecosystem began with British ecologist Arthur George Tansley (1871-1955). While Tansley resisted the metaphor of community, the idea that an ecosystem was balanced and self-regulating community was developed by the American Frederic Clements (1874-1945) who championed the notion of “climax community,” which was the last and final stage in a succession of communities in development; it was seen as a finely tuned system that changed only slowly and in predictable ways. In such a concept, it is typically the human who disturbs the balance. She notes how Eugene Odum’s popular book, \textit{Fundamentals of Ecology} (with editions in the 1950s and 1970s), stressed the communal benefits of cooperative interaction between the ecosystem’s members. It is his system, she stresses, with its emphasis on cooperation and self-regulation, that is in vogue today. Concurrently, ecologists are finding group selection more difficult to support. With the loss of this co-evolutionary force, they could no longer account for the destabilizing processes such as individual selection to account for homeostasis; hence, it was homeostasis that came into question. With the advent of chaos theory, the changes in systems were understood as random, which she believes is in keeping with Darwinism.

\bibitem{22} Peter F. Sale, \textit{Our Dying Planet: An Ecologists View of the Crisis We Face} (Berkeley: University of California Press, 2011); his argument stems from Chapter 6 of his book.

\bibitem{Ibid., 183}
from place to place and time to time.”

In short, if nature’s processes are in disarray, it is not solely due to humans by disobeying nature’s limits and engaging in competition.

Models emphasizing balance, Sale points out, rely on the concept of niche development, where “no two species can occupy the same niche.” Where biologists were finding many similar species to co-occur, the thinking was that the species would continuously interact in density-dependent ways to homeostatically regulate the others’ abundances, eventually leading to some form of balance. Rather than witnessing such a check-and-balance model, however, biologists in the last half of the last century were observing a patch-work of communities, some with high diversity of species co-existing. This perplexed them, for, according to niche theory, one species regulated another and – as Darwinism maintains – if only the fittest survive, “how is it possible that there can be so many similar species of fish on a reef or trees in a rainforest?”

One obvious answer – especially since such occurrences were often found in tropical regions – is that there are sufficient resources for a diversity of similar species to exist alongside each other. However, ecologists were also finding that within patch communities extinctions of species, as well as exponential population growth, were common occurrences. In other words, any equilibrium that might be found was not due to, or had little to do with the interactions amongst species. With this being the case, the niche concept carries no meaning and must be discarded, avers Sale. The absence of competition here means there is no self-regulating mechanism that generates balance. Along the same line of reasoning, ecologists can find no mechanism for causing destroyed ecosystems to return to their previous state.

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24 Ibid., 183. Sale, to be sure, is emphatic that humans are the perpetrators of great disturbances to nature at this time, to a point of crisis levels. But he also stresses that were humans never to have existed, nature would still exist in a non-equilibrium state.
25 Ibid., 168.
26 Ibid., 184.
27 Ibid., 177, and footnote 8; The term “density-dependent biotic interactions” is used to describe how balance in nature is achieved through the interaction between organisms so that abundances of particular species are continuously being controlled; the outcome and severity of competition varies as does the population.
28 Sale elucidates: “The conventional theory of communities as homeostatic assemblages of species, internally structured by their biotic interactions [this is what niche development does], appeared to do quite well at explaining the apparently stable coexistence of three or four species but struggled when confronted by the high diversity characteristic of many tropical communities” (184).
To be sure, Sale concedes there may still be interactions amongst individual local group of species, and in predictable ways. Indeed, he points out that long-term equilibrium has occurred at various places and times, “but these patterns of interaction,” he maintains, “are not universal, and they do not persist indefinitely, even within single local patches.” Sale concludes, as does Sideris, that we must take a less homeostatic view of nature that focuses not on the group but on the individual organisms’ struggle for existence. Here, chaos, as Sideris states, appears more the norm. The organism that can best tolerate harsh disturbances tends to win in the struggle for existence. These conclusions, as we will discuss later in this chapter, do not agree with the more group-focused dynamic of ecosystems presented by our four Christian thinkers, and certainly runs contrary to a Gaian understanding of a self-regulating, self-renewing planet.

Finally, we turn to Sideris’s critique of the appropriation of science “in mythopoetic form, as an enchanted ‘epic of evolution,’ a creation story common to all believers and atheists alike.” Sideris is, unquestionably, referring to “The Universe Story,” that fosters new hope “to usher in an ‘Ecozoic Era’ that recognizes the Universe as a ‘communion of subjects, not a collection of objects,’” thereby extending her critique to all four of our Christian thinkers. It is not clear why Sideris eschews such approaches, but she is more upfront in her criticism of using physics to arrive at an environmental ethics. Specifically, she does not believe physics should be used as a means of understanding interdependence at the ecological level. When physics is mentioned by her, in the context of its appropriation by Christian thinkers, it is often spoken of

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29 Ibid., 191.
31 From the website Rachel Carson Center for Environment and Society, available at http://www.carsoncenter.uni-muenchen.de/alumni/former_fellows/lisa_sideris/index.html and http://www.carsoncenter.uni-muenchen.de/download/staff_and_fellows/projects/project_sideris.pdf, accessed, 21 August 2012. To be fair to Sideris, these thoughts have yet to be developed, as she only outlines them as the focus of her future research. Nevertheless, her target is unmistakable: to make a case why the “Epic of Evolution movement” is misguided and how it “may be ethically problematic.” The success or failure of her research aside, I note her objection to the “Universe Story” and it concomitant value for arriving at an ethic. Curiously, she never mentions Thomas Berry by name.
32 Sideris, Environmental Ethics, footnote 2, p. 294.
disapprovingly by coupling it with the adjective “postmodern.” While she is not entirely explicit by what she means by the term “postmodern physics,” we do get clues on what it might mean from her reference to the infamous “Sokal hoax,” whose architect (or perpetrator, depending on how one views the affair) theoretical physicist Alan Sokal, Sideris lauds. She

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33 Lisa H. Sideris, “Religion, Environmentalism, and the Meaning of Ecology,” in The Oxford Handbook of Religion and Ecology (Online), ed. Roger Gottlieb (New York: Oxford University Press, 2006), doi: 10.1093/oxfordhb/9780195178722.003.0021; see also Sideris, “Evolving Environmentalism,” 63. To be sure, Sideris is mainly targeting the works of Whiteheadian process thinkers such as Charles Birch, John Cobb and David Ray Griffin in her discussion of “the so-called ‘new physics,’” but she is decidedly also targeting a larger group (in which arguably not just Ruether but Boff, O’Murchu and Berry belong), which is “more enamored of the Heisenberg Uncertainty Principle than, say, the theory of natural selection, or Lotka-Volterra equations for predator–prey and parasite-host interactions which so perfectly illustrate intimate interconnections between predator and prey[…].” (Sideris, “Religions, Environmentalism, and the Meaning of Ecology,” 454). Again, I do not wish to deal here with Sideris’s treatment of these thinkers. In many regards, it merits mentioning that she raises good questions: can the “postmodern” thinking to which Cobb ascribes—what “postmodern” means is not defined clearly by Sideris, nevertheless eluded to as that which “instead of focusing initially on the whole…attends primarily to the individual comprising it”—be considered scientific? Arguably not, and Sideris has a point in this regard. She goes on to say, and correctly in “Evolving Environmentalism” (62), “One need not hold to a vision of natural selection as relentless struggle and suffering to see that within a given species, evolutionary fitness is realized at the expense of individuals who lack the needed trait or traits. Simply put, natural selection entails differential survival and reproduction.” Curiously, this, I argue, is just what my four interlocutors are doing; yet, while she is more favourable towards the thinking of John Haught and James Gustafson, Sideris seems to paint most ecological theologians with the same interpretive brush.

34 For a balanced report on the incident that addresses this aspect, read The Sokal Hoax: The Shame that Shook the Academy, eds. the editors of Lingua Franca (Lincoln, Nebr.: University of Nebraska Press, 2000). See also, an editorial from The Economist, “You Can’t Follow the Science Wars without a Battle Map,” December 13, 1997, 77-79. We learn in the introduction of Lingua Franca that the “Sokal hoax” was executed by professor of Physics at New York University, Alan Sokal in 1996, in a leading North American journal of cultural studies, Social Text. Concerned about “the spread of subjectivist thinking,” within the academy by leftist academics who apply “nonsense and sloppy thinking,” which “denies the objective realities” (see also Alan Sokal, “Revelation: A Physicist Experiments with Cultural Studies,” in this same book, 49-53), Sokal set out to demonstrate the errors of such an approach to science. Sokal felt that these thinkers were “betraying their cause by challenging standards of logic, truth, and intellectual inquiry, in general, and the role of these concepts in the natural sciences in particular” (Editors’s introduction to book, 1). He crafted a putative scientific article that he felt perpetuated the implausible claims of postmodernist thinkers (such as suggesting there was a link between quantum physics and postmodern thought), incorporating fringe philosophical theories (Sheldrake’s morphogenetic fields, for example), though touted as widely accepted scientific advances and written in dense almost unreadable syntax. He entitled the piece, “Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity,” and despite its numerous (intentional) errors regarding physics and obfuscating jargon, the article was published. Shortly after its appearance in print, Sokal revealed his hoax hoping that a lesson was learned. While the debate on what lessons were learned continues, certainly the incident caused a great stir in academic circles. It is interesting to note how Sideris juxtaposes quotes from Jürgen Moltmann, Sallie McFague, Charles Birch and John Cobb with a quote from Sokal’s fake article, worth repeating here:

The postmodern sciences deconstruct and transcend the Cartesian metaphysical distinctions between humankind and Nature, observer and observed, Subject and Object[,] overthrow the static ontological categories and hierarchies characteristic of modernist science. In place of atomism and reductionism, [they] stress the dynamic web of relationships between the whole and the part; … the postmodern sciences, appear to be converging on a new epistemological paradigm, one that may be termed an ecological perspective. … A liberatory science may arise from interdisciplinary sharing of epistemologies” (taken from Sokal’s hoax article, found in Sideris, “Religions, Environmentalism,” 453).
quotes Sokal as making “the reasonable observation that ‘anyone who insists on speaking about the natural sciences – and nobody is forced to do so – needs to be well-informed and to avoid making arbitrary statements about the sciences or their epistemology.’”

When Sideris criticizes “postmodern science” for its “abstruse theories and concepts” that jettison subject-object dualisms, treat all creation as “subjects,” and for its alignment of ecological perspectives with those from quantum science, her thinking about science as a way of knowing the world appears to be in line with that of Sokal who dismisses postmodernist thinking as “nonsense and sloppy.” Sokal maintains it is “subjectivist thinking” which “denies the objective realities.” Like Sokal, it would seem reasonable to assume, Sideris believes that ecotheologians, comparable to the leftist academics whom Sokal was targeting (mostly those in the humanities, but specifically those in cultural studies and studies of science), are “betraying their cause by challenging standards of logic, truth, and intellectual inquiry, in general, and the role of these concepts in the natural sciences in particular.” And while Sideris concedes, “there are certainly forms of postmodernism that bear no particular animosity to science or its methodology,” she is arguing that many ecotheologians, in general, have helped foster “a general suspicion of the cultural authority of science….”

This point on the authority of science warrants attention, for, in granting authority to science – which is something all our interlocutors do, as does Sideris – it stands to reason that we

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The passage above, which is meant to mock “postmodernists” abuse of science, is resoundingly similar in tone and content to Sideris’s contention about ecological theologians.

36 Ibid., 453.
37 Sideris, “Evolving Environmentalism,” 64.
38 Sideris, Environmental Ethics, 75.
39 Sideris, “Religions, Environmentalism,” 453; on the subject of quantum physics, there is little she says other than it is of little use for arriving at an ethic and improperly aligned with ecology: “To say that the ecological perspective and, say, quantum science are essentially one because both recognize the importance of interdependence is absurdly simplistic” (453).
40 Sokal, 51.
41 Editors of Lingua Franca in their Introduction (The Sokal Hoax, 1).
42 Sideris, “Evolving Environmentalism” 65. Interestingly, Sideris concedes “that in a world where science has often overstepped and abused its authority, some (emphasis mine) degree of suspicion might be deemed salutary” (65). Sideris suggests this tendency to oppose science for its reductionist, materialist, and mechanistic” views theories and methodologies, plays into the Intelligent Design camp, thus generating “some troubling alliances between ecotheologians and modern critics of Darwinism.”
should understand how much, and in what manner, it ought to have authority. Recall, at the beginning of this chapter, Sideris argues that too often the “oughts” ecotheologians arrive at “represent only a part of nature’s is, as science understands it.” But how does science understand nature’s is? Sideris is not precise in outlining her epistemological understandings of science. To suggest that we should understand “oughts” conveyed by nature “as science understands it” without first knowing how science understands it would be unwise. What is it about the nature of science that should or should not warrant such doubt, ambivalence or animosity in us? Are ecotheologians mistaken in being suspicious of the cultural authority of science? Or is it a matter of simply respecting, as Sokal suggests above, the standards of logic, truth, and intellectual inquiry within science? Can a viable conversation between religion and science ensue if

43 I find it curious that Sideris is not clear about her epistemological understandings of science, considering her great incorporation of the discipline. One gets clues, however, by where she places emphasis. In fact, Sideris is one of the contributors to the article, “Intelligent Design, Science, Education, and Public Reason.” The White Paper, a product of the Poynter Center for the Study of Ethics and American Institutions at Indiana University is, as stated on its website,

the product of over a year's collaboration bringing together Poynter Center staff and faculty at Indiana University in the sciences, education, and the humanities. The paper stakes out basic scientific, theological, educational, judicial, and public policy dimensions to recent efforts to include “intelligent design theory” in science teaching and to remove evolution theory from science curricula (See http://poynter.indiana.edu/science.shtml, accessed, April 2010).

The paper is clearly targeted at the troubling phenomenon in the United States where scientific method is being debased to the level of empirical evidence and testing as that of Intelligent Design. The tone is not surprisingly somewhat defiantly defensive when describing how science approaches the world. It is in this light, we begin to see why Sideris might seem cautious, and arguably critical of those who challenge “the science,” as science understands nature. Sideris is particularly critical of Carol Merchant’s book The Death of Nature that claims “modern science and its mechanistic framework put nature in peril” (“Religion, Environmentalism,” 450). She says such thinking has served as the “crucial point of departure for ecotheology,” and has motivated a “deep ambivalence about science and scientific method.” Sideris suggests that such “ambivalence” has contributed to a climate of suspicion to the scientific method. In her writings on Rachel Carson, this aspect becomes clear:

Carson maintained a prima facie respect for ecological interrelationships, but she did not counsel scientists to refrain from manipulating or controlling life processes. The leading pioneer of the environmental movement would not feel at home in the current climate of suspicion toward science that is apparent in many environmentalists’ - particularly ecofeminists’ - condemnation of detached, controlling, and objectifying methodologies. Unlike many contemporary advocates of an ‘ecological ethic’ that endeavors to treat all organic beings as inviolable ends in themselves, Carson did not see human manipulation and even destruction of some parts of nature as inimical to an ecological sensibility. ‘Controlling’ and ‘caring for’ the environment were not mutually exclusive imperatives (Lisa H. Sideris, “The Ecological Body: Rachel Carson, Silent Spring, and Breast Cancer” (Rachel Carson: Legacy and Challenge, eds. Lisa H. Sideris and Kathleen Dean Moore [Albany, N.Y.: State University Press, 2008], 142-3).

I will not take this matter further, except to underline what appears obvious: that Sideris certainly has a low regard for ecofeminist thinking and a general focus on all people who challenge the scientific method, at least as it pertains to how some of its adherents appropriate science. Moreover, I am skeptical about Sideris’s claim that Carson would “not counsel scientists to refrain from manipulating or controlling life processes,” today in the context where the use of terminator seeds and other genetically modified organisms of dubious merit plague farm fields and our food system.
suspicions one side has about the cultural authority of the other are left unexamined? If some suspicion is warranted, then in what manner can science be said to grasp and convey objective realities?

To address these questions, we will need to have some understanding of how science arrives at its conclusions. Even if only in broad outline, we need to have a better understanding of its processes for knowing reality and communicating its findings. Not only will such an exploration help us understand the challenges in assigning excessive authority to science, but it will help us understand more clearly why our four Christian thinkers seek to understand our world in a non-reductionist and mythopoetic scientific manner. Indeed, it would seem also that Sideris’s critique of Ruether and our other interlocutors rests, in some ways, on her understanding of the nature of science. Understanding that nature, then, is where we shall turn out attention.

6.2 Understanding the Structure of Science

It bears mentioning that addressing comprehensively how science is structured and what processes it incorporates to know reality and communicate its findings, far exceeds the parameters of this chapter, let alone this section. But such an expansive analysis of the structure and process of science, I do not think, is essential here. Sufficient for the purpose ultimately of assessing how well our interlocutors have appropriated science (and why, by analogy, Sideris’s critique of them is at times mistaken), we need only obtain insight into some of the key challenges and limitations inherent in how science as a discipline is structured, how it arrives at truths, and how it communicates them. I will look at how science, as an overall discipline, is structured, how it comes to know truths about our world and communicate those truths largely through the writings of Thomas Kuhn, along with the incorporation of the insights from philosophers Hilary Putnam, and Ingrid Stefanovic.44 Given that our interlocutors are primarily

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44 I do not suggest, in addressing science as an overall discipline, that it is monolithic. Far from it; methodologies differ as do theories amongst the branches of science. However, as a discipline, all branches of science do share fundamental commonalities, which are discussed here. While as late as the 1960s people were still speaking of the “unification of science,” state Niels Henrik Gregeren and J. Wentzel van Huyssteen, today with the advancement of the study of philosophy of science, scholars focus more on “the pluralism of conceptual disunities” and the “manifold of competitive theories” (Rethinking Theology and Science: Six Models for the Current Dialogue, eds. Niels Henrik Gregeren and J. Wentzel van Huyssteen [Grand Rapids, Mich.: William B. Erdmans Publishing)
working with “new science” or “postnormal science,” Kuhn’s work is especially pertinent, as it speaks to paradigm changes in science. Following this, I will specifically look at the nature and significance of myths and metaphors in the formulation and explanation of scientific concepts, borrowing upon the insights on this matter from Brendon Larson and Mary Midgley.

Thomas Kuhn’s 1962 The Structure of Scientific Revolutions has been extremely influential in how we view scientific knowledge-making process; it ushered in a new momentum into the philosophy of science, so it is fitting that we begin our examination with it.\(^{45}\)

Specifically, for our purposes, two outcomes that arise from his larger thesis merit study, as they challenge popular conceptions on how, and to what extent we can know the world through science.\(^{46}\) The first is that we cannot speak of scientific knowledge as progressively ascending
toward an approximation of a fixed truth, but rather as a process that is continuously defined by a consensus of a scientific community by increased specialization. This process of increased specialization accounts, in large measure, for why it is increasingly difficult for the lay, non-scientist to appropriate the knowledge gained by science. The second and more important outcome – which is tied to the first – is that we can no longer view scientific method as an entirely rational process where some logical processes filter our social and cultural influences in the process of discovery.47

Kuhn characterizes science as a continuous puzzle-solving enterprise operating in two ways: as normal and as revolutionary science. Normal science, the more common of the two, is highly regimented research guided by paradigms, replete with “exemplars” or model solutions to puzzles in the form of tried and tested methods and assumptions affirmed by the broader scientific community.48 While anomalies are certainly encountered, often, Kuhn states, these do not challenge the validity of the rules, or paradigms used. This is because scientists test the phenomena, but the models of testing them are not themselves examined (much like a chess player who follows the rules of chess to win the game but does not challenge the rules he or she uses to win the game).49 In this manner, for instance, a scientist applies the rules for calculating certain properties of an atomic nucleus in quantum physics, but he or she does not test the rules themselves. In defending paradigms, then, contending groups of scientists use their own paradigm to argue in defense of their paradigm, making the debate somewhat circular, for, in a sense, one is using the scientific method to judge the scientific method. Another way to look at it epistemology;” nevertheless, changes in theory are ultimately caused by a consideration of epistemic factors and not external ones.

47 Physicist Alan Sokal, for instance, declares (201), that while facts must be interpreted, “proper scientific methods filter our social and cultural influences in the process of discovery,” insinuating the opposite of what Kuhn is implying, that science operates like some sort of epistemological self-cleaning oven; see Stanley Aronowitz, “Alan Sokal’s ‘Transgression’,” in The Sokal Hoax, 201.

48 Kuhn uses paradigm to denote the laws, theories, applications, instrumentations, methods and traditions that undergird and guide the scientific endeavour. A student of science is prepared for membership into a particular scientific community immersed in such a paradigm, for the paradigm defines the research, the scientific life and particular field in which he or she will be a practitioner; see Kuhn, Structure, 10-11.

49 Hoyningen-Huene makes this helpful analogy.
is to think of scientists attempting to discover the laws of nature and to predict what will happen in the future, based on those laws.\footnote{Yet another way to look at it is by envisioning a scientist wearing glasses of a particular colour. If the glasses are green, then the wearer sees reality accordingly. See Edwin Hung, \textit{The Nature of Science: Problems and Perspectives} (Belmont, Calif.: Wadsworth Publishing Company, 1997), 357.}

Good science cannot, therefore, be defined by rules such as Popper’s criterion of falsifiability, and certainly not by positivist postulates.\footnote{The former has been considered a mainstay of the scientific method, where, by design, hypotheses are considered testable by empirical experiment; the latter where logical and mathematical treatments of such data are considered the exclusive source of all authentic knowledge.} Instead, good science, Kuhn claims, is defined by how scientists perceive and apply these exemplars. Guided by the paradigm, however, science can be extremely productive, as Kuhn states:

By focusing attention upon a small range of relatively esoteric problems, the paradigm forces scientists to investigate some part of nature in detail and depth [and] the profession will have solved problems that its members could scarcely have imagined and would never have undertaken without commitment to the paradigm.\footnote{Kuhn, \textit{Structure}, 24-25.}

When situations occur whereby normal problem-solving activities fail (that is, the exemplars themselves are put in question), normal science falls into a period of crisis. It is at this point, Kuhn maintains, that the nature of scientific inquiry within a particular field is abruptly transformed by the formulation of a novel theory, at which point controversies among competing schools of thought ensue. If the new theory is accepted by the scientific community, thus replacing the old theory, a scientific revolution has occurred and scientists work within a new paradigm. Kuhn likens this change to perceptual Gestalt switches, even religious conversions.\footnote{See Nickles, 2.} The new theories, such as those ushered in by Copernicus, Newton, Darwin or Einstein, Kuhn maintains, transform the scientific imagination “in ways that we shall ultimately need to describe as a transformation of the world within which scientific work was done.”\footnote{Kuhn, \textit{Structure}, 6.}

For our purposes – given how our four thinkers rely heavily on new science – it is significant to learn why new theories are initially chosen. Kuhn explains that an epistemological crisis alone is not the sole reason for changing paradigms: “Something must make at least a few scientists feel that the new proposal is on the right track, and sometimes it is only personal and
inarticulate aesthetic considerations that can do that.”

Rational arguments on why a scientist changes paradigm might be put forth, but “these arguments, rarely made entirely explicit, that appeal to the individual’s sense of the appropriate or aesthetic – the new theory is said to be ‘neater’, or ‘more suitable’, or ‘simpler’ than the old.” In fact, Kuhn cites five criteria that scientists employ to evaluate the adequacy of a theory: accuracy, consistency, scope, simplicity and fruitfulness. Because no two scientists fully committed to the same criteria for choice of theory understand or give weight to each criterion in the same way, and because, when deployed together, these criteria often conflict with one another, the choice between competing theories “depends on a mixture of objective and subjective factors, or of shared and individual criteria.”

How a scientist initially works within a new theory is also significant. In rejecting an old paradigm in favour of a new one, Kuhn maintains, scientists must have “faith” that the new paradigm will indeed succeed, as the evidence provided by problem solving is not – at least fully – there.

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55 Ibid., 158. He adds, “In short, if a new candidate for paradigm had to be judged from the start by hardheaded people who examined only relative problem-solving ability, the sciences would experience very few major revolutions” (157).

56 Ibid., 155.

57 Kuhn, “Objectivity, Value Judgment,” 359. By way of one example, Kuhn cites how consistency as a criterion could lead a scientist to favour the Ptolemaic geocentric system over the Copernican heliocentric system. He writes:

As astronomical theories both Ptolemy’s and Copernicus’s were internally consistent, but their relation to related theories in other fields was very different. The stationary central earth was an essential ingredient of received physical theory, a tight-knit body of doctrine which explained, among other things, how stones fall, how water pumps function, and why the clouds move slowly across the skies. Heliocentric astronomy, which required the earth’s motion, was inconsistent with the existing scientific explanation of these and other terrestrial phenomena. The consistency criterion, by itself, therefore, spoke unequivocally for the geocentric tradition (358).

58 Kuhn, Structure, 158: He continues,

The man who embraces a new paradigm at an early stage must often do so in defiance of the evidence provided by problem-solving. He must have faith that the new paradigm will succeed with the many large problems that confront it, knowing only that the older paradigm has failed with a few. A decision of that kind can only be made on faith….Something must make at least a few scientists feel that the new proposal is on the right track, and sometimes it is only personal and inarticulate aesthetic considerations that can do that.

Cf.: Stanley L. Jaki, “The Role of Faith in Physics,” Zygon 2, no. 2 (May, 1967): 187–202. ATLA Religion Database with ATLASerials, EBSCOhost (accessed February 2, 2014). Jaki, a physicist and leading thinker in philosophy of science, in an historical review finds that “historical breakthroughs in physics are as much the product of a trusting faith in nature as of a critical analysis of the data of nature” (187); he notes, for example, that Faraday, despite his initial failures in proving the interconnectedness of electricity and magnetism, never showed the slightest trace of wavering in his belief that there was such a connection. Jaki quotes Faraday speaking about his failures: “[They] do not shake my strong feeling of the existence of a relation between gravity and electricity” (197).
If one thinks such subjective values to science, as discussed above, are anomalies to the discipline, philosopher Hilary Putnam argues that such values like “coherence,” “simplicity,” and even “reasonable” are presupposed by physical science. In fact, Putnam challenges the over-inflated dichotomies between fact and value cited in science, arguing – much along the same lines as Kuhn – that there have been no successful algorithmic methods for hypothesis selection. Putnam makes reference to the well-known story of Einstein admitting that “he arrived at the special theory of relativity by applying an empiricist critique to the notion of ‘simultaneity’ and that he arrived at general relativity by seeking the ‘simplest’ theory of gravity compatible with special relativity in the infinitesimal domain.” Putnam concludes, “What is considered to be reasonable may be objective in a conventional sort of way, but decisions of this kind carry value judgments at their every turn.” The subjective character to acceptance of a theory does not, in Kuhn’s mind, mean truth in science is all constructed. If a paradigm is to be accepted, he underlines, it must gain the support of a few scientists “who will develop it to the point where hardheaded arguments can be produced and multiplied.”

The subjective values do not only affect method of hypothesis selection. Philosopher Ingrid Leman Stefanovic demonstrates how taken-for-granted assumptions and the context in which questions are asked within the scientific endeavour can drastically shape how scientists interpret facts and view the world, thus drastically influencing the policy-making process. By way of example, she cites a case whereby an identical set of laboratory studies were interpreted by scientists in different ways. Here, a government ministry cancelled the registration of the herbicide “alachor” by Monsanto (an agro-bio-chemical company), because its assumptions concerning risk and safety were markedly different from those considered by scientists within

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60 Putnam ultimately sides with his pragmatist teachers who argued that “knowledge of facts presupposes knowledge of values” (137).

61 Kuhn, *Structure*, 158. To be sure, the absence of a certain objectivity does not imply, as Kuhn stresses, relativism either. Kuhn addresses this question in a Postscript, written seven years after his original work (205).
the company. But the issue does not lie just with assumptions, as Stefanovic notes: biases are also problematic. In this light, we must abandon the notion that science is guided, as Alan Sokal would suggest, solely by the scientific method, construed as a set of rules rigorously to be followed. Further, we begin to see why circumscription is needed with regard to granting cultural authority to science to describe nature, for, within the Kuhnian framework, science is not especially open-minded or critical.

6.2.1 Increasing Specialization and Insularity

One of the most controversial amongst Kuhn’s contentions is that competing paradigms (the old and the new) are frequently incommensurable. Because they are competing accounts of reality based on different methodologies, perceptions, and meanings of words or terms, the two

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62 Monsanto paid much more attention to the actual degree of carcinogenic risk within the herbicide, arguing, “The mere possibility of risk was not to be considered in isolation from the benefits and relative risks” (Ingrid Leman Stefanovic, Safeguarding Our Common Future, 13). Stefanovic sums up what is key here – and arguably not just with regard to science, but to all human endeavours – “Very few people take the time to carefully articulate and substantiate their value systems” (15).

63 We can see this in an example provided by science columnist Sharon Begley (“The Science Wars,” Newsweek, April 21, 1997, 54-57). She tells us how primatologists in the mid-part of the last century applied baboon studies as the model for human society, despite other examples from studying gibbons that were known that held different conclusions. Their studies on baboons found that the males, and not the females, were most important to fostering cohesion of the troop. Why? “It fit people’s conceptions of male and female behavior,” says one primatologist: “The baboons were supposedly telling us what our hunter-gatherer ancestors were like,” and from this scientists concluded how modern humans were naturally inclined to behave. However, as Begley notes, with the influence of feminism, almost forty years ago, primatologists realized they must study every individual in a troop – not just the biggest, strongest or most conspicuous – to understand primate society. In fact, subsequent research and broader range of analyses found that “females as well as males maintain social cohesion, and cooperation rather than aggression characterizes the life of the troop” (56). Cf.: Christina Chociolko, “The Experts Disagree: A Simple Matter of Facts Versus Values?” Alternatives 20, no. 3 (1995): 19-25. Indeed, this question comes to fore especially in the environmental decision-making processes: assumptions about risk – and not solely with regard to scientists – whether implicit or explicit are evident when decisions are made, see J.E. Dooley and P. Byer, “Decision-Making for Risk Management,” in Living with Risk: Environmental Risk Management in Canada, eds. I. Burton, C.D. Fowle, and R.S. McCullough (Toronto: IES Monograph, no. 3, University of Toronto, 1982), 71-84; see Brendon Larson, Metaphors for Environmental Sustainability: Redefining Our Relationship with Nature (New Haven, Conn.: Yale University Press, 2011), 61, where he discusses Frans de Waal’s findings that Japanese and Western primatologists interpret great apes very differently according to their cultural contexts.

64 See Hoyningen-Huene (4), who underlines that primarily due to the influences of Bacon and Descartes, this idea that science is guided by the scientific method has dominated the understanding of modern science from its very beginning. Instead, as Kuhn has shown us, “it is exemplary problem solutions that guide scientific research in its normal phase. Their cognitive potential for research is not exploited by explicit (or fully explicable) rules, but rather by implicit analogies; new problems are identified in the light of solved ones, and new solutions are judged as legitimate in a like manner” (4). Cf. Wray, 1; he states this applies, in particular, to accepted theories, but we can apply this to questions asked. Similarly, physicist Erich Jantsch (The Self Organizing Universe), quotes Ilya Prigogine speaking on this same point: “Scientific work consists of selective explanation and not of the discovery of a given reality. It consists of the choice of questions which have to be posed” (303).
paradigms cannot be readily, and certainly not coherently, reconciled.\textsuperscript{65} This is why we cannot speak of scientific knowledge as progressively ascending toward an approximation of a fixed truth.\textsuperscript{66} To assume a progression to an ultimate truth, would, in Kuhn’s mind, assume a teleology and he wonders whether this is necessary – indeed healthy – for science.\textsuperscript{67} He states:

But need there be any such goal? Can we not account for both science’s existence and its success in terms of evolution from the community’s state of knowledge at any given time? Does is really help to imagine that there is some one full, objective, true account of nature and that the proper measure of scientific achievement is the extent to which it brings us closer to that ultimate goal?\textsuperscript{68}

Kuhn suggests that we substitute “evolution-from-what-we-do-know, for evolution-toward-what-we-wish-to-know,”\textsuperscript{69} an impetus for discovery from behind, so to speak, rather than from ahead. Where progress does occur, Kuhn states, is during the period of normal science where we find greater \textit{articulation} and \textit{increasing specialization} of knowledge: as new specialties are formed, Kuhn’s contention is that because the way in which scientific work is done has changed – that is, the standards of evaluation are different – it becomes difficult to reconcile the previous and new paradigms; comparison between theories will not be as straightforward as the standard empiricist picture would have it. Theories are incommensurable, then, when they share no common measure. Some scientists and thinkers on science do not accept the notion of incommensurability, especially since Kuhn is not clear on its meaning; see David Bohm and F. David Peat (\textit{Science, Order, and Creativity} [New York: Routledge, 1987]), who suggest – and make a good case – that incommensurability is not necessarily a given. Moreover, incommensurability puts in question the notion of objectivity in science as well as progress; see Thomas S. Kuhn, “Objectivity, Value Judgment, and Theory Choice” (originally an unpublished Machette Lecture, delivered at Furman University, 30 November, 1973, later to be part of a larger volume by Kuhn entitled: “The Essential Tension: Selected Studies in the Scientific Tradition and Change,” 1974, here found online at \url{http://commonsenseatheism.com/wp-content/uploads/2010/04/Kuhn-Objectivity-Value-Judgment-and-Theory-Choice.pdf}, accessed, April 2012). Kuhn responds that “communication between proponents of different theories is inevitably partial, that what each takes to be facts depends in part on the theory he espouses, and that an individual’s transfer of allegiance from theory to theory is often better described as conversion than as choice” (366). To be sure, Kuhn does assert that it is more a case of there being “significant limits to what the proponents of different theories can communicate to one another,” and not necessarily out-and-out incommensurability.

\textsuperscript{66} Hilary Putnam claims something along similar lines of reasoning. He argues, The claim that on the whole we come closer to truth about the world by choosing theories that exhibit simplicity, coherence, past predictive success…are themselves complex empirical hypotheses that we choose (or which those of who do choose them choose), because we have been guided by the very values in question in our reflections upon records and testimonies concerning past inquires…that we have good reason to trust by \textit{these very criteria of ‘good reason’} (32).\textsuperscript{67}

Kuhn, for example (Kuhn, \textit{Structure}, 207), the case of Newton’s mechanics which is said to be improving upon that of Aristotle’s, and Einstein’s improving on that of Newton; however, he concludes, “But I can see in their succession no coherent direction of ontological development. On the contrary, in some important respects, though by no means in all, Einstein’s general theory of relativity is closer to Aristotle’s than either of them is to Newton’s.” It is for this reason Kuhn likens progress not to a teleological process but to Darwinian evolution, where there is no goal to which it is directed and, therefore, no “permanent fixed scientific truth, of which each stage in the development of scientific knowledge is a better exemplar” (172-3).\textsuperscript{68}

\textsuperscript{65} Kuhn, \textit{Structure}, 171.
\textsuperscript{66} Ibid., 171. The “we” Kuhn refers to is presumably the scientific researchers. It is not clear how exclusive the “we” should be. Does it include, for instance, non-scientific aboriginal knowledge on ecosystems?
scientists develop instruments, practices, and concepts suited to a narrower range of phenomena. This point is of great significance, one raised by all four of our Christian thinkers. The result of increased specialization is an increase in predictive power, but only within the context of normal science where scientists are working within a coherent paradigm. This greater specialization leads to greater fragmentation within science as a whole. Physicists David Bohm and David Peat cite fragmentation as the most pervasive and serious difficulty afflicting science today.

Another downside to this increasing specialization of knowledge, Kuhn points out, is the “unparalleled insulation of mature scientific communities from the demands of the laity and of everyday life.” In other words – in contrast to postnormal science – while the insulation has never been complete – since the scientist, arguably more so than any other professional (be it a poet or theologian) is working only for an audience of colleagues which makes him or her take standards and language for granted – lay appropriation of the science is not a priority for the scientist. Moreover, Kuhn states that unlike engineers, doctors or theologians, “the scientist need not choose problems because they urgently need solution,” and he or she could “concentrate his attention upon the problems that he has good reason to believe he will be able to solve.”

This issue, I suggest, will prove to be a decisive issue in the religion-science-environment-liberation debate in the decades to come since – as Kuhn effectively demonstrates – science invariably becomes increasingly specialized and complex, as times passes. A case in point could be Brian Greene’s The Elegant Universe. Greene, a physicist specializing in superstring theory, writes a book for the lay (non-scientist) using terms and linguistic devices to help the reader understand string theory. He must first explain Einstein’s general theory of relativity and his special theory of relativity as well as quantum physics. These steps alone embrace very complex concepts. String theory becomes even more complex, and not solely for the non-scientist. Greene writes that according to experts in the field,

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70 Ibid., 162; cf.: Wray, 9.
71 See David Bohm and David F. Peat, 1-2.
72 Kuhn, Structure, 164.
73 Ibid., 164. Kuhn goes on to argue that the education of a scientist perpetuates this insulation as the scientist – more so than the social scientists, and certainly more so that the student in the humanities – relies on textbooks to a large degree and is less likely to be aware of pressing problems in the world that could be learned by consulting supplementary resources.
It could be decades or even centuries before string theory is fully developed and understood. This may well be true. In fact, the mathematics of string theory is so complicated that, to date, no one even knows the exact equations of the theory. Instead, physicists know only approximations to these equations, and even the approximate equations are so complicated that they as yet have been only partially solved.74

Mathematics, especially for physicists, has increasingly become the tool for understanding and communicating theories and concepts.75 According to Bohm and Peat, Heisenberg was adamant that science could no longer visualize atomic reality in terms of physical concepts and that mathematics would have to be the basic expression of our knowledge of reality.76 Of course, this is not the view of all physicists (Bohm and Peat for instance), and certainly not all the branches of science employ mathematics to the same degree,77 but it attests to the preponderance of mathematics as a different and unique language used by the scientist, but not necessarily by the non-scientist. When not employing mathematics, scientists still need to convey complex issues and ideas using verbal concepts, pictorial aspects and philosophical thinking.

Already, we are getting a picture of the scientific process as not purely a rational process, but one that entails the entire spectrum of human experience: it takes place within a fragmented social community, with social forces, habits and biases, and within a particular culture that influences what science is carried out, and within a certain paradigm that is rarely questioned. Not only are there key challenges and limitations inherent in how science arrives at truths, but

74 Brian Greene, *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory* (New York: Vintage Books, 1999), 19. I have to admit my own difficulty in trying to get my head around the concept of many dimensions to the universe in string theory. We commonly know three dimensions in space: up-down, left-right and back-forth. Thanks to Einstein, there is now a time dimension (past-future). String theory necessitates the existence of 10 dimensions, and a variant of string theory, M-Theory (“M,” he suggests, could stand for mysterious, as much is not known), requires 11 dimensions.

75 Bohm and Peat, 17. The authors state that much greater reliance on mathematics came about with Einstein’s theory of relativity and quantum physics.

76 Ibid., xv. Stephen Hawking (A Brief History of Time: From the Big Bang to Black Holes [New York: Bantam Books, 1998], vi), believes “Modern science has become so technical that only a very few number of specialists are able to master the mathematics used to describe them.” While this could suggest the type of elitism Kuhn warns about, it also spells out the limits to our knowing. Take Carl Sagan (“Can We Know the Universe? Reflections on a Grain of Salt,” in *Science and Its Ways of Knowing*, eds. John Hatton and Paul B. Plouffe [Upper Saddle River, N.J.: Prentice Hall, 1997]), who asks us how much the brain can know when referring to the small scale of 10⁻¹³. Yet this is what scientists are dealing with when referring to a grain of salt or the number of neurons on the brain (estimated at 10¹⁵). We simply cannot relate things to our common-sense intuitions. While he is not saying we cannot know things, he concludes that the reality observed is too big, too odd, too surprising, too counterintuitive: “[T]he universe is intractable, astonishingly immune to any human attempt at full knowledge. We cannot on this level understand a grain of salt, much less the universe” (3).

77 Capra, *The Turning Point*, 376; Capra believes mathematics is, in some cases, “often desirable but not necessary.”
also in how it communicates them. This matter becomes more evident when we consider the use of myths and metaphors in science.

6.2.2 Communicating Truths through Myths and Metaphors

Myths and metaphors are important to the processes of science, and considering the weight our four Christian theorists give to them, I think they merit a separate discussion. That scientists are influenced by myths in the formulation of their theories should not surprise us. Biologist Brian Goodwin, for instance, finds interesting parallels between Darwin’s darker vision of nature and the Christian doctrine of sin and atonement. Goodwin compares the view of organisms being constructed by groups of genes whose goal is to leave more copies of themselves – the hereditary material being “selfish” – to humans being born in sin and perpetuating in sexual reproduction; greed and pride are basic elements of our flawed, sinful condition. The inherently selfish qualities of the hereditary material, reflected in competitive interactions between organisms, which results in the survival of the fittest, parallels how humanity is condemned in Christian tradition to life of conflict and perpetual toil.

On the matter of myth, Midgley writes, “We are accustomed to think of myths as the opposite of science. But in fact,” as we learned from our four theorists, “they are a central part of it: the part that decides its significance in our lives. So we very much need to understand them.” Kuhn’s thinking already opens the doors to understanding science not as a pure rational endeavour. And since science is a fully human experience, and not some natural or mechanical process, and because people are essentially purposive beings, Midgley concludes, myths naturally reflect what constitute an important purpose. Not all myths are good. The myth above

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80 Midgley, *Evolution as Religion*, 158: “The choice is not between integrating facts into one’s world-picture,” she adds, “It is between good and bad world-pictures.” Writer and futurist Alvin Toffler, in the foreward to Ilya Prigogine and Isabelle Stenger’s book (*Order out of Chaos*, xi-xxvi), reminds us that science is an open system embedded in society and linked to it by very dense feedback loops; it is, therefore, powerfully influenced by external environment. Its development is shaped by cultural receptivity to its dominant ideas. This explains why the
Acceptance of the mechanistic view coincided with the rise of a factory system and why the rise in technology (i.e.: railroad, steel, textile and auto) seemed to confirm the universe as an engineer’s “Tinkertoy.”

Midgley, *Evolution as Religion* 1, 2. Of particular interest to Midgley is her discussion on the myth of progress.


Ibid., 4; when discussing how myths change, Midgley adds:

> The question is specially urgent in times of rapid change, because patterns of thought that are really useful in one age can make serious trouble in the next one. They don’t necessarily have to be dropped. But they do often have to be reshaped or balanced by other thought-patterns in order to correct their faults. … In the process, myths do not alter in the rather brisk, wholesale way that much contemporary imagery suggests.

Larson, 91. There is a close relationship between metaphors and myths, notes Larson, not only on how they are both replete with values and how they each affect our view of reality, but in how one influences and even grows into the other. Metaphors over time may become myths, Larson states, and myths can inform metaphors. Indeed, Larson puts forth philosopher Bernard Lonergan’s understanding of the matter as a viable explanation: “Metaphor is revised and contracted myth and…myth anticipated and expanded metaphor.”

Greene, xv. In fact, throughout his book, Greene often associates the dynamics of sub-atomic particles to dance (not unlike O’Murchu does), incorporating words like “choreograph,” “rhythm,” as well as music and “dance” itself. Examples of the use of metaphors abound. Biologist Ursula Goodenough (*The Sacred Depths of Nature* [New York: Oxford University Press, 1998], 113-114), reflects on the symbolism behind metaphors. A powerful metaphor demonstrates the depth of one understanding through complex feelings and meaning. She believes it is our capacity to apprehend meaning and the emotion embedded in symbols endows us with the capacity for empathy, something not restricted to humans. By way of a few more notable examples, there is the infamous “Indra’s Net,” the
Although scientists have traditionally denounced metaphors as imprecise rhetorical embellishments, Larson tells us, metaphoric reasoning lies at the core of what scientists do when they design experiments, make discoveries, formulate theories and describe their results to others. Metaphors enable us not only to understand one thing in terms of another, but also to think of an abstraction in terms of something more concrete and commonplace. Philosopher Earl R. MacCormac sees metaphors literally producing absurdity and emotional shock to suggest new possibilities of meaning. Author Nancy Abrams concludes that scientists have to use metaphors, which she considers a form of art that helps us figure out what is going on in reality. She says we need mathematics to come up with pictures of reality, but art, poetry and language (by way of metaphor) to understand and “buy into it.” While scientific texts will always strive for accuracy and to narrow polysemy, Larson states, metaphors will continue to be an integral part of science.

Mahayana Buddhist notion that the whole universe is a network of interpenetrating things and events, represented by a vast network of precious gems hanging over the palace of the god Indra and the hadron bootstrap (a set of hadron particles), which are dynamically composed of one another in a self-consistent way; it is in that sense that they are said to “contain” one another (Fritjof Capra, The Tao of Physics, 296-298). Also, in the Educational Series of the video Journey of the Universe: An Epic Story of Cosmic, Earth, and Human Transformation (hosted by Mary Evelyn Tucker, directed by Adam Loften and Patsy Northcutt, 2011), Tucker has conversations with leading scientists on the subject of science and our human transformation on Earth. In explaining the science behind the origin of the universe, the scientists, it seemed, could not help but use metaphors in order to explain concepts. For example, physicist Todd Duncan places our solar system in the “suburbs” of the Milky Way (our galaxy), observing the cosmic microwave background radiation is as if we were looking at “baby pictures of the universe.” Geologist Craig Kochel, in explaining the importance of plate tectonics in the emergence of life, cites its “reseeding” of the Earth with new material that allows “creativity” to take place. Biologist Ursula Goodenough speaks about cells having “awareness,” a primitive “discernment” which allows them to make decisions when they encounter other beings. Similarly, Brian Swimme, in describing the process through which the Earth and sun brought forth photosynthesis, entertains the metaphor “engineering project,” but prefers “two lovers longing for each other,” making us ask, “What does each desire?”

86 Larson, 4-10. Authors Mary Gerhart and Allan Russell (Metaphoric Process: The Creation of Scientific and Religious Understanding [Fort Worth, Tex.: Texas Christian University Press, 1984], 108), suggest a metaphor is more like an act of thought than a language device. In this way they relate it not to words but meanings and thus need not be in words but graphic as well (117-118). Gerhart and Russell make the distinction between metaphor and analogy, borrowing upon Paul Ricoeur’s typology: analogy only extends meaning while the metaphor creates new meaning (119).

87 Earl R. MacCormac, “The Language of Metaphor,” excerpt within a book written by Jennifer McErlean Philosophies of Science: From Foundations to Contemporary Issues (Belmont, Calif.: Wadsworth Publishing Company, 2000), 355-359. MacCormac explains that for some time, the metaphor was dismissed for being more expressive of emotive feelings and too ambiguous. Logical positivists tried to eliminate it as a scientific linguistic device through formal logic. However, without a metaphor, scientists found they could not change the meanings of terms and suggest new hypotheses.

88 Nancy Abram, from Educational Series of the video Journey of the Universe.
The significance and seeming ubiquity of both myth and metaphor in science requires those appropriating scientific knowledge to be particularly discerning with the use of imaginative patterns, symbols, figures of speech and comparisons that might undergird and illuminate the concepts scientists are conveying. This is of particular concern in environmental inquiry, Larson underlines, since metaphors often carry normative claims, as the implicit distinction between facts and values is not always clear. Not unlike what we discussed in our previous chapter on the naturalistic fallacy, therefore, trying to separate the *is* from the *ought* often proves very difficult. As an example, he uses the metaphor, “earth is warming.” Here “earth” and “warming” are “coconstituted” by factual and normative elements: “At a minimum, the former relies on all the scientific interest in documenting such change, and the latter relies on evidence that there is enough of a problem that we need to do something.”

Metaphors can also be performative. When scientists say “the health of the Great Lakes has recently declined,” for instance, “health,” while imprecise as a term, nevertheless not only describes the reality, but changes (or at least sets out to change) reality. Despite the influence metaphors have, Larson points out that scientists are not always circumspect when they choose metaphors: some are effective, others not. This is why Midgley is critical of metaphors like “selfishness” and “clockwork” while approving of “Gaia:” since the way we imagine the world determines what we think is important in it, metaphors like “selfishness” and “clockwork” are not helpful. Larson agrees. Charged with symbolism, “Gaia,” he says, “is a positive form of personification that focuses on our relationship with our home planet.” Such a metaphor, as we will discuss presently, could then allow us to begin to question other predominant paradigms such as the mechanistic view of our world.

6.2.3 Science as Re-creation

In light of the powerful influence metaphors and myth have upon both the formation of scientific knowledge and its dissemination and, indeed, what we have learned about the nature of science, its structure and ways of knowing, the challenges to any appropriation of science for the purposes of arriving at an ethic become significant. There is much a scholar should discern before he or she decides not simply how much authority science as a discipline should be

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89 Larson, 71.
90 Ibid., 214. Larson actually calls for a broad mix of metaphors avoiding only one interpretation.
granted, but how much weight or credence he or she must give to a particular idea, concept or even theory. The discernment is ongoing and challenging, yet absolutely necessary.

Helpful in this regard is the work of biologist and historian of science Jacob Bronowski. Bronowski suggests that we look at science as an imaginative process, an infinitely human endeavour. In this light, he does not distinguish it from other imaginative activities such as art: both find order and meaning in our experience through discoveries of hidden symbols. “Science, like art,” he says, “is not a copy of nature but a re-creation of her.”\(^{91}\) This, he explains, is why science (and art for that matter) cannot be carried out by machines or insects. It is the creative process, the exploration of likenesses that count here. I think this view sums up well our exploration of the structure of science, how it arrives at truths, and how it communicates them.

This is also why I challenge Sideris’s view (discussed in section 6.1), that we ought to understand nature “as science understands it.” It seems too simple and arguably misguided – given what we have learned above – to grant science such decisive authority: any appropriation of science takes place under the influences of social forces, habits and biases, within a particular culture that influences what science is done, within a certain paradigm, influenced by certain myths that are rarely questioned, and often disseminated by using powerful and influential imaginative patterns, symbols, figures of speech and comparisons that are not always accurate or appropriate.

Does this mean all scientific knowledge is constructed? No. For one, there is a definiteness to electromagnetic waves that allow me to write this dissertation on my computer. Moreover, the critical realist approach to science we defined in our first four chapters, the approach all four of our interlocutors take, assumes that what one understands and judges the real to be is the result of experiencing, understanding and judging. And, as a continuous puzzle-solving endeavour, when scientists find – or are shown – that their ideas no longer conform to what they and others observe in reality, the ideas are discarded in favour of new ideas, concepts and theories. Again, Jacob Bronowski puts it well: “Science is a very human form of knowledge. We are always at the brink of the known; we always feel forward for what is to be hoped. Every

judgment in science stands on the edge of error and is personal. Science is a tribute to what we can know although [my emphasis] we are fallible.\footnote{Jacob Bronowski, from his television series \textit{The Ascent of Man} (Executive Producer Adrian Malone; directors Dick Gilling, Mick Jackson, David Kennard and David Paterson, 1969), available at: \url{http://www.youtube.com/watch?feature=endscreen&v=j7br6ibK8ic&NR=1 accessed August 2012}. Science, we have to remember, is also a very conservative enterprise, which is not, in this case, a bad thing. It should not surprise us to learn that it took scientists some thirty years to accept the basic idea of the Gaian system, and even now, many still reject it, as we shall discuss presently in this chapter.}

6.3 How Do We Approach Science?

Now that we have a better understanding of how science functions, the processes it incorporates to know reality and communicate its findings, how indeed are we to approach it? I am in accord with Mary Midgley on the matter of hermeneutics and standpoints when she contends these affect how we see and approach the world, and, ultimately the conclusions we draw. She quotes William James who contends that the observer’s spirituality and temper, as well as standpoint, “inevitably produce different responses and would do so even if what confronts them outside is actually the same for all.”\footnote{Mary Midgley, “Concluding Reflections: Dover Beach Revisited,” in \textit{The Oxford Handbook to Religion and Science} eds. Philip Clayton and Zachary Simpson (New York: Oxford University Press, 2006), 970. Indeed, both Midgley and Sideris approach Darwin’s writings at a time of grave environmental crisis with a concern over anthropocentric readings of the science, hoping to arrive at a viable ethic through a more rigorous interpretation of Darwinism. Midgley’s greater emphasis on the cooperative vision behind Darwin’s work is in keeping with two preponderant concerns we find in many of her writings: social atomism and fragmented epistemologies; hence, her emphasis on cooperation follows logically; see Midgley, \textit{Gaia: The Next Big Idea}, 11. As for Sideris, while I cannot speak for certain on the pressing concerns behind her approach to Darwin (as she is less precise on such matters and has not written as much as Midgley), a passage in the preface of her book suggests that she might be unusually sensitive to the suffering reality to life: she speaks of the September 11 terrorist attack on New York in a way that suggests she was intensely affected by it. “For better or worse,” she writes, “that experience has left me more attuned than ever to the reality of suffering and the inescapability of human frailty, finitude, and dependence, especially my own” \textit{(Environmental Ethics}, viii).} Earlier I quoted Midgley saying, “the way we imagine the world determines what we think is important in it.” In this light, a better question for our purposes might be, How do we draw from the wisdom of science when it is expressly appropriated for the purpose of addressing our environmental and social crises? Context matters, as we have discussed in our previous chapter with the work of Rolston III: our current context consists of vexing and sometimes incomprehensible problems, seemingly unsolvable interrelated issues and extremely complex processes affecting the life and liberation of countless subjects. Before we even approach science, we have a goal in mind. But there is more occurring here. In light of the complex and vexing nature of our global situation, one which requires an
understanding of how the entire complex planet functions, ought we to ignore the wider scientific context? Will one or two branches of science suffice to provide us with the worldview we seek? Can we afford to ignore the transformative powers that some scientific theories entail?

In this section of this chapter, then, in light of what we know about the structure and processes of science, I argue that the most viable approach to science, when it is the liberation for the entire planet we are seeking, is one that is wide in scope and breadth, inclusive of multiple scientific branches, and one that takes into account the myths and imaginations that surround the broader issue. Furthermore, I contend, it is the Gaia theory that addresses the above requirements, not exclusively but certainly uniquely and adeptly, as it serves not only as a viable interdisciplinary platform to understand better the intricate and complex processes of our planet, but encompasses an important transformative praxis for arriving at a viable ethical vision.

Lisa Sideris is mistaken in dismissing the import of the Gaia theory and in her refusal to approach science in its mythopoetic form. Her critique stems largely – and almost exclusively – from readings in the Darwinian biological sciences. Her challenge to Ruether’s understanding

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94 In Environmental Ethics, 54, she emphasizes “Gaia scientists remain skeptical that natural systems can generate normative guidelines for human relationships with nature and the earth as a whole.” Elsewhere, she states, “It is not surprising that Lovelock’s Gaia concept should resonate with Odum’s ecosystem idea [an idea Sideris earlier critiques because of its overemphasis on the cooperative nature of ecosystems (see 31ff.)], given that ‘there was a lot of panglossism in James Lovelock’” (52). As with her take on ecology, Sideris posits that Ruether chooses selectively from Gaian theory to emphasize its cooperative nature. In “Religion, Environmentalism, and the Meaning of Ecology,” Sideris refers to Gaia only once and with little enthusiasm for the sense of “earth as mother” invokes: “An understanding of our planet as a single integrated entity, a living organism […] upheld as an important feature of both the premodern and postmodern views. (For this reason, many ecotheologians also gravitate toward the Gaia hypothesis of James Lovelock, which describes our planet in similar terms and also evokes a sense of earth as mother or goddess.)”

95 To be sure, Sideris’s embrace of modern evolutionary biology, particularly Darwinian evolution to the exclusion of other fields of science, does not mean she espouses neo-Darwinist thinking as understood by its main proponent, Richard Dawkins. She distinguishes between Darwinism and neo-Darwinism in later writings and adeptly demonstrates how many Christian thinkers conflate the two, saying ecotheologians conflate neo-Darwinism with Darwinism and, hence, “Darwin’s worldview with a mechanistic science that sees organisms as dead machines and/or with the excesses of Enlightenment rationality ignore, or perhaps have simply never encountered,” Sideris, “Evolving Environmentalism,” 76. Still, the focus is clearly on Darwinism as a whole. In “Evolving Environmentalism” (73ff.), Sideris notes that it is Dawkin’s “hyperbolic prose about the utter meaninglessness of evolution,” as well as others of his ilk “(particularly sociobiologist E.O. Wilson and, at times, philosopher Daniel Dennett), [who] have undertaken the greatest reductionist move of all by rendering everything that is connoted by Darwin – good, bad, and indifferent – down to one rather narrow and dogmatic interpretation” (74). She admits modern day sociobiologists, evolutionary psychologists, and other Darwinian reductionists have “misconstructed the Darwinian project” (78), showing Darwinism as embracing a disenchanted, mechanical worldview. But, she maintains the solution does not lie in embracing postmodern physics at the expense of evolutionary theory or “in bending the rules of science to allow some types of explanation to be included as naturalistic.”
of ecology and evolution stems primarily from what the biological sciences are saying about the ecological and evolutionary (Darwinian) science, with some discussion on chaos and complexity theory especially in light of discussions on ecology. Her understanding of our world, then, appears to rest mainly on the scientific interpretations from thinkers within these branches of science, with little of substance from other scientists from different specialties. It is not surprising, then, that she finds interdependence to be not so much a solution to strife and suffering, as she contends Ruether’s ethic does, but “as a source [original italics] of it.” Sideris is obviously referring to predation and competition, but assumes these as a basis for life. Sideris, in fact, concludes that the radical interconnectedness of humans with nature and other animals that ecotheologians seek is already present in Darwinism. But does Darwinian theory, “more so than any other scientific theory…connect[…] us with a primordial past and with all other life forms, past and present” as Sideris claims? Can we fully understand evolution from what the biological sciences alone tell us?

Mary Midgley would argue no. She maintains that the world we are trying to understand is often a great deal more complex than one scientific approach is ever likely to satisfactorily capture completely and calls for a pluralism not only amongst the sciences but amongst all ways and branches of knowing our world. Paraphrasing biologist J.B.S. Haldane, she says, the world is

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96 It is interesting to note that Sale (like Sideris), does not support the Gaian theory. In fact, his predominant reliance on the ecology and the evolutionary biological sciences alone is ironic, considering he states in his book that ecologists “do not think as rigorously as mathematicians” (173), and that “they are not always noted for the precision with which they form hypotheses” (177). One would think a wider approach to the subject would indeed be in order if only to check these shortcomings.

97 Sideris, Environmental Ethics, 221.

98 Sideris, “Evolving Environmentalism,” 76.

99 Ibid., 77. Curiously, Sideris readily admits that Darwin’s attempt to explain the human species, “physical, mental, and moral evolution – exclusively from the side of natural history, as he characterizes his project in The Descent of Man,” marks “a certain type of reductionism” (78). She counters this conclusion by adding it is nevertheless “an oddly expansive kind of reductionism that remains compatible with a sense of wonder, because the recognition of our biological nature, our ties to lower animals and distant evolutionary past, was, in Darwin’s view, utterly ennobling.” She then adds that these connections “enrich and complicate what it means to be human,” suggesting that “what it means to be human cannot be reduced to any one meaning” (78, italics in original). My point is this: if a reduction of meanings is eschewed by Sideris, then why does she suggest that the understanding of the various meanings of being human can be reduced to one field of science? To be sure, Sideris’s aim in this section is to demonstrate that wonder ought to be found in nature and a shared natural history and not in science itself, which she accuses Dawkins and Wilson of doing; the former decentralizes humans while the latter “puts humans and the human mind front and center” (78).
probably not just much queerer than we suppose but much queerer than we can suppose."¹⁰⁰

Midgley thinks the more profound physicist of our day have already understood this:

No one pattern of thought – not even in physics – is so ‘fundamental’ that all others will eventually be reduced to it. For most important questions in human life, a number of different conceptual toolboxes always have to be used together. And there is no single law showing us how we should combine them.¹⁰¹

Along the same line of thinking, physicists David Bohm and David F. Peat call for greater creativity and communication in the sciences with a greater emphasis on the whole and not on fragments. Fragmentation, they argue, is not the same as simple specialization. The division of knowledge into various subdivisions in science is necessary to its developing precise knowledge about reality. It is when boundaries are rigid, however, that problems occur. For this reason they conclude: “[I]n general, science today is becoming more and more specialized so that an individual scientist may spend a lifetime working in a particular narrow field and never come into contact with the wider context of his or her subject.”¹⁰² The two authors call for fluid boundaries between specializations and a greater awareness of the wider context by other scientists.¹⁰³

¹⁰⁰ Midgley, “Concluding Reflections,” 968-9. Also Midgley (The Myths We Live By, Chapter 4) compares various ways of knowing the world to using a variety of maps for the same reality: “Reality is always turning out to be a great deal more complex than people expect…. We know that the political world is not a different world from the climatological one, that it is the same world seen from a different angle. Different questions are asked, so naturally there are different answers” (27).
¹⁰¹ Midgley, “Concluding Reflections,” 969.
¹⁰² David Bohm and David F. Peat, 5.
¹⁰³ Ibid., see Chapter 1. Bohm and Peat are not alone in their thinking. There are evolutionary biologists that feel they can indeed gather insights when taking the wider view. In “Biological Theory: Postmodern Evolution?” (Nature 455, no.8 [September 2008]:281-284, doi:10.1038/455281a), John Whitfield recounts a meeting of a group of evolutionary scientists that took place at the Konrad Lorenz Institute for Evolution and Cognition Research in Altenberg, Austria. The meeting has received a fair amount of hype — in the blogosphere it was dubbed “The Woodstock of Evolution.” Indeed, the scientists there were discussing the possible course of evolutionary theory based on the belief that there is something to evolutionary theory from the so called postmodern camp that cannot simply be dismissed. One scientist, Massimo Pigliucci, while shying away from the term “postmodern,” nevertheless voiced his hope of “moving from a gene-centric view of causality in evolution to a pluralist, multilevel causality.” The author of the article, recognizing the elephant in the room adds, “Postmodernists in the humanities call this ‘decentering’, and they are all for it.” Overall, a tone of caution was apparent at the gathering in Austria that thwarted any tendency to accept all theories as being equal, while simultaneously recognizing that the modern synthesis was not sufficient to account fully for evolutionary developments. Noteworthy about this gathering is that the worries of the participants were not about the postmodernists on the left. Whitfield writes:

Quite the reverse — the dominant political concern was a fear of attack from fundamentalists. As Gould discovered, creationists seize on any hint of splits in evolutionary theory or dissatisfaction with Darwinism. In the past couple of decades, everyone has become keenly aware of this, regardless of their satisfaction or otherwise with the modern synthesis. ‘You always feel like you’re trying to cover your rear,’ says Love. ‘If
This does not mean that Darwinian theory does not adeptly connect us with our primordial past, nor present us with a deep understanding of evolution. Darwin’s writings, especially as interpreted through Mary Midgley, reveal understandings of our interdependency and interrelatedness to a deep past. Borrowing upon the work of evolutionary theorist Peter Kropotkin, for example, she reveals a nuanced understanding of what Darwin might have meant by “struggle for existence.” Kropotkin became interested in the works of Charles Darwin in the late nineteenth century. He was in full agreement that the “struggle for existence” played a key role in evolution, but he rejected the ideas of Thomas Huxley who placed great emphasis on competition and conflict in the evolutionary process. From reading Kropotkin, Midgley finds evidence, not unlike what we read from Ruether, that “the fittest” members of an interdependent animal community, “are not necessarily the strongest, nor indeed the cleverest, but the most sociable: those whose temperament most inclines them to friendly cooperation.”

You criticize, it’s like handing ammunition to these folks.’ So don’t criticize in a grandstanding way, says Coyne: ‘People shouldn’t suppress their differences to placate creationists, but to suggest that neo-Darwinism has reached some kind of crisis point plays into creationists’ hands,’ he says. It is tempting to say that it’s not just genes that express themselves in an environment that responds and reshapes itself around them, feeding back and complicating matters beyond simple cause and effect; the same applies to ideas. Sideris too expresses concern with the fundamentalists (see footnote 43); though, she is still concerned with the postmodernists. Yet, not all scientists and even evolutionary biologists would agree that the postmodern is the enemy here and I suggest it is because the cogency of its arguments is prevailing.

Midgley, The Solitary Self: Darwin and the Selfish Gene (Durham, England: Acumen, 2010), 46. Compare how Sideris and Midgley each understands interdependence in reading Darwin. Midgley borrows from the writings of Kropotkin and his experiences studying animals over a hundred years ago in Eastern Siberia and Northern Manchuria. He observed two aspects on the notion of interdependence:

One was the extreme severity of the struggle for existence which most species of animals have to carry on against an inclement Nature….The other was that even in those few spots where animal life teemed in abundance, I failed to find – although I was eagerly looking for it – that bitter struggle for the means of existence, among animals belonging to the same species, which was considered by most Darwinists (though not by Darwin himself) as the dominant characteristic of the struggle for life and the main factor in evolution. [Instead] I saw Mutual Aid and Mutual Support carried on to an extent which made me suspect in it a feature of the greatest importance for the maintenance of life, the preservation of each species, and its further evolution (48).

This view certainly runs counter to the emphasis put forth by Sale on individual struggle.

To be certain, such a reading of survival of the fittest is much in keeping with Ruether’s ethical vision. Sideris herself sees the phrase “survival of the fittest” as being misleading, though not in the way suggested above: “Reproduction, rather than survival, is what is significant for natural selection. Organisms need not survive long after reproducing in order to meet the criterion of Darwinian ‘fitness’” (Sideris, Environmental Ethics, footnote 68, p. 277). From Ruether’s ecofeminist stance, as we saw in Chapter 1, “fittest” most assuredly takes on the meaning put forth by Midgley: that which is most sociable.

Ibid., 49.
Indeed, she finds that Darwin shows how “friendly order and cooperation – how much, indeed, of what we call humanity – there is already in the lives of other social animals,” which emphasizes how much our animal nature is not alien but part of who we are, which is part of a deep past.

Notwithstanding the significance of Darwinian theory, or even the larger branch of evolutionary biology, each branch and subdivision asks different questions and sees the world from a unique perspective and these alone cannot hope to capture fully the story of evolution. Elisabet Sahtouris, an evolutionary biologist herself, argues that we need to take a broader, more holistic cosmological look at evolution. In doing so, we find, on the whole, that life, represented in its earliest stages as ancient bacteria, while having “competed with each other for resources as they caused major planetwide problems such as starvation and global pollution […] invented new technologies to solve them, but finally had to negotiate and learn to cooperate in communities and in the ultimate symbiotic bacterial community.”

In other words, with this wider perspective Sahtouris can conclude, not unlike what Ruether says about “cooperation and interdependency being the primary principles of ecosystems,” and what Midgley says about “fittest” as being the most “social,” that “The best life insurance for any species in an ecosystem is to contribute usefully to sustaining the lives of other species, a lesson we are only beginning to learn as humans.”

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107 Midgley, Solitary Self, 11.
108 Elisabet Sahtouris, “The Conscious Universe,” in When Worlds Converge: What Science and Religion Tell Us about the Story of the Universe and Our Place in It, eds. Clifford N. Matthews, Mary Evelyn Tucker and Philip Hefner (Peru, Ill.: Open Court Publishing Company, 2002), 69. Sahtouris speaks of research that investigates genetic alteration at cellular levels, “as intelligent responses to changing environmental conditions in multi-celled creatures” (69). Scientists are finding that DNA is freely traded in the world of microbes to benefit both individuals and their communities. This idea of gene trading, she maintains, suggest that we should give a lesser import to Darwinian natural selection, as gene trading shows how organisms can cope with unpredictable and extreme environments by transmitting to the offspring behavioural traits. She posits that “we are closer to the much-discredited Lamarck than to Darwin” in this sense. Midgley is making a similar observation in reading Darwin’s works. She notes Darwin was perturbed by oversimplified misrepresentations of natural selection as being the exclusive reason for species modification. She adds, “No doubt one reason why this oversimplification bothered him was that he always remained interested in Lamarck’s idea of the inheritance of acquired characteristics,” Midgley, Solitary Self, 102.
109 Sahtouris, 70. It should be noted that in Darwin’s later work he sees “struggle” more as contending with the elements. Sideris quotes Darwin on his observation of a plant in extremely dry conditions. The plant is “said to struggle for life against the drought […] though more properly it should be said to be dependent on the moisture” (Sideris, Environmental Ethics, 222, quoting from Darwin’s The Origin of Species). She concludes from this that “Dependence and struggle go hand in hand because the resources upon which an organism depends are not always provided by nature. Food that is abundant one year may be extremely scarce in another” (222). Compare Sideris’s
Taking a broader, more holistic cosmological look at evolution has enabled Berry to understand the universe as a communion of differentiated subjects. A cosmological approach revealed to our four Christian authors that we are star dust, sisters and brothers with all creatures, connected not only to the first living cell, but to the super nova whose implosion led to the creation of solar system. Our four Christian thinkers affirm this broader, more holistic approach ardently in their writings. Diarmuid O’Murchu, for example, makes a point of charting the three principles (differentiation, autopoiesis, and communion) with all their dimensions: cosmological, biological, and philosophical, explaining that in this manner:

[T]he dynamics involved in the process of cosmogenesis, with key concepts of Darwinian theory reconceptualized to provide a fresh synthesis. The résumé suggests that instead of modeling the grand sweep of evolution on a biological (animal pattern), the biological pattern itself reflects the creative unfolding of the greater reality.  

Such a wider approach, one with fluid boundaries, specifically within the Gaian perspective, has Lovelock conclude,

Our interpretation of Darwin’s great vision is altered…. It is no longer sufficient to say that ‘organisms better adapted than others are more likely to leave offspring.’ It is necessary to add that the growth of an organism effects its physical and chemical understanding of this passage with how Midgley understands it. Midgley repeats the same passage by Darwin we read above but adds the sentences preceding and following it, and it is worth repeating here to appreciate the difference:

I should premise that I use the term Struggle for Existence in large and metaphorical sense, including dependence of one being on another [emphasis added by Midgley], (which is more important) not only the life of the individual but success in leaving progeny… A plant on the edge of a desert is said to struggle for life against the drought, though more properly it should be said to be dependent on the moisture… When we reach the Arctic regions, or snow-capped mountains, or absolute deserts, the struggle for life is almost exclusively with the elements (Midgley, The Solitary Self, 46, also quoting from Darwin’s The Origin of Species).

Here, Midgley, noting the term “struggle,” while replete with military undertones which makes it misleading, as it allows for any kind of difficulty or effort, concedes it can indeed include fighting. But, she adds, “it can equally include cooperation in the face of natural stresses” (Midgley, The Solitary Self, 46). While Sideris would agree with Midgley that there is more than one meaning to “struggle,” that is, not simply a struggle amongst animals but between animals and “the very conditions of life” (Sideris, Environmental Ethics, 222). Midgley’s reading of Darwin – which is more in keeping with Kropotkin’s – places more emphasis on struggle, especially in Darwin’s later work, as contending with the elements. Midgley concedes Sideris’s main point where, in Midgley’s parlance, “cooperation and competition go together as two sides of the same coin” Midgley, Gaia: The Next Big Idea, 35). O’Murchu, Evolutionary Faith, 67-68. Berry himself spoke about this when, as we saw in his employment of Gaia theory, he suggests Gaia alone, without the larger cosmological context, is insufficient.
environment; the evolution of the species and the evolution of the rocks, therefore, are tightly coupled as a single, indivisible process.\(^{111}\)

The Gaia theory, which undergirds a good portion of our interlocutors’ ethical vision, has reframed how we understand evolution. The theory is referred to by physicist John Ziman as, “The Challenging, Inspiring, Irreducible Pluralism of Gaia.”\(^{112}\) He sees the pluralism of the sciences not so much a weakness of the human intellect – for it is that – but as the “product of the physic-bio-psychic history of our Gaian abode.”\(^{113}\) I agree with him when he suggests that Gaia is the natural domain for discussion amongst the sciences, a place where the world of life, the world of consciousness and the world of the social come together and engage. Moreover, I argue it is emblematic not only of the broader scientific approach to life and evolution, but an affirmation of the commingling of the mysterious spiritual thinking with the scientific empirical thinking so needed today.

While the Gaia theory has gained the acceptance of a good portion of the scientific community, thus elevating it from its previous status as hypothesis, the theory is still not without controversy amongst scientists: its very name evokes hostility for some, as it implies Earth is a living entity; others note that reference to Earth as a goddess creature has sanctioned some “flaky” interpretations from a diverse population of writers.\(^{114}\) Some, like Peter Sale, who still refer to it as a hypothesis, reject the theory, as he is critical of notions of balance in nature and group selection. Yet, he does not reject all self-regulating mechanisms. By placing emphasis on the individual mechanism and not the group mechanisms,\(^{115}\) he is fine in accepting the “far

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\(^{111}\) Midgley, \textit{Gaia: The Next Big Idea}, 38. Midgley, in another writing (“Concluding Reflections,” 966), adds that Gaia is a religious as well as scientific concept and, as such, “God and Gaia, theology and science, even physics and biology are not separate but a single way of thought.”


\(^{113}\) Ibid., 11.

\(^{114}\) Midgley, “Concluding Reflections,” 966.

\(^{115}\) Sale, 196; Sale himself underlines his preference for individual selection and not group (173, 177), adding, “the work of geneticists, who showed convincingly that self-interest wins over altruism every time when natural selection is involved” (171). Another point to consider is the one brought forth by Boff (and Hathaway). They challenge the notion that struggle for survival is less teleological than self-regulation to some end (i.e.: balance). Yet, this contradiction does not seem to surface in the minds of many scientists: Sale maintains there exists no mechanism working to force a forest back to its previous state (196); yet, in the same breath, he affirms there is a mechanism for “survival of genomes.” Without belabouring this point too much further, it should be noted that Sale’s – and Sideris’s by that matter – over-emphasis on natural selection to account for evolution is misguided. Midgley, in \textit{Solitary Self}, 7, puts its well: “Just like strainers strain out coffee ground, no filter (competition or self-interest) can be the sole cause of what flows out of it.” Midgley also points out (12-13), that scientists Brian Goodwin and Simon
simpler mechanisms in play that continue the survival of particular genomes,” but rejects, for instance, to there being any mechanism working to force the forest back to its previous state after a fire. Along similar lines, Richard Dawkins criticizes the theory because the group mutualisms that lead to optimal conditions for life pose a problem for evolutionary theory, that is, they are susceptible to “cheats” (organisms not contributing to optimal conditions for life, but participating in the benefits). Such cheats, “would outreproduce [their] more public-spirited colleagues and genes for public-spiritedness would soon disappear.” Dawkins cannot see how Gaia itself can be a product of natural selection.

6.3.1 Revisiting the Gaia Theory

Given the above contentions as well as the prominence Gaia theory plays in the ethical vision of our four Christian thinkers, then, it behooves us to inquire about the manner in which our four authors have approached the theory. Have they demonstrated a coherent and sophisticated understanding of the evolutionary theory and Gaian theory? Have they given critical attention to potential incompatibilities between empirically-based assertions and metaphysical claims? This last question is significant as each of our authors finds within the Gaia theory not only an acceptable scientific way of understanding planet-wide homeostasis, but a spiritual paradigm that serves as a transformative praxis for helping humans to live more harmoniously within creation.

One of the problems in discussing the scientific issues behind Gaia is that the discussions are ongoing and new insights, definitions frequently arise. A further challenge surrounding

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Conway Morris, along with philosopher Jerry Fodor, have noted that some organisms display active tendencies in their formation “that are unmistakably independent of natural selection.” She concludes, “Self-organization – natural creativity – which appears even at an inorganic level in such things as crystal formation, clearly accounts for many obvious features of organic form and seems likely to have played a part in more subtle ones as well.”

Sale, 196.

Wilkinson, 72.

discussions of the theory is the inherent interdisciplinary nature of the topic. Until a few decades ago, the editors of a volume of discussion that came out of the Second Chapman Conference on Gaia in Valencia, Spain, tell us that the Earth sciences, for the most part, approached its research through disciplinary lenses: biology, chemistry, geology, atmospheric and ocean studies.

Physicist John Ziman ponders why scientists might find Gaia disconcerting, which could explain, in part at least, Sideris’ misgivings. He suggests that scientists find that it “can’t be squeezed into any of their established pigeonholes: It mixes together concepts from the chemical, biological and physical sciences,” which makes it difficult to combine these into a coherent, unified representation or vision. He suggests that “this intrinsic pluralism is one of its glories and fascination.”

Yet, as Lynn Margulis points out, the theory itself cannot be understood without collaboration from biologists, especially microbiologists, geologists, geochemists, atmospheric chemists, and even meteorologists in order “to understand science outside their own fields.”

Margulis appears to imply the same reasoning when she quotes geneticist Theododius Dobzhansky saying, “nothing in biology makes sense except in the light of evolution;” yet, Margulis goes on to qualify, “Evolution is simply all of history” (original italics), adding “The study of evolution is vast enough to include the cosmos and its stars as well as life, including human life, and our bodies and our technologies.”

On the positive side, the editors of the volume mentioned above note, “Happily, the evolution of interdisciplinary science into the mainstream and the ongoing development of Earth system science have promoted scientific inquiry seeking and elucidating Gaian – and nonGaian – mechanisms within the Earth system.” In fact, they suggest, in the Kuhnian framework, that Gaia is “exiting its

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119 John Ziman, 10.
120 Margulis, Symbiotic Planet, 125.
121 Ibid., 24.
122 Ibid., 24.
123 Ibid., 24.
‘revolutionary’ phase – of vociferous controversy and ostracism from the scientific establishment – and is entering its phase of ‘normal’ puzzle-solving science.”

While conclusive statements regarding Gaia continue to elude the scientific community, it is interesting to note that the objections raised above have been considered by other scientists. David Wilkinson, for instance, posits that contrary to criticism of Gaia by evolutionary biologists, such as Dawkins (who cannot see Gaia being a product of natural selection), biosphere regulation is theoretically possible. If we shift our attention from “investment mutualisms” (where both organisms provide some service to their partner at some cost to themselves), to “by-product mutualism” (where a waste product of one organism is used by its partner), he reasons, “regulation can emerge in a system without active selection for regulation.” Rather than looking at this process within Gaia as a process of natural selection, he suggests that we see it as an emergent property of a complex system, thus challenging notions that Gaia is necessarily teleological in character. In other words, he maintains that criticisms from scientists like Dawkins do not hold, as Gaian systems do not have to be a product of natural selection.

Scott Turner takes a physiological view of the emergent process for arriving at homeostasis and, from insights gained on studying termite-fungus symbiotic relationship he suggests that metabolic complementarity (as seen with the termite-fungus relationship where together they produce more efficient enzymes to break down woody material), could play a large role in emergent homeostasis. He suggests that there could be a co-opting of the physical environment, modifying, for instance, fluid densities, wind speeds, concentration of particular substances, through emergent processes to arrive at homeostatic conditions. Such co-opting, evident within the termite-fungus association can be transferred onto a Gaian physiology, thus potentially accounting for the homeostatic condition of the planet. He also suggests that there is within the biotic systems an ecological inheritance whereby “Gaia may require a sort of

125 Ibid., xiv.
extracorporeal genetic memory, shaping the selective milieu in which the biosphere’s many extended organisms operate.”\(^\text{128}\) Certainly with regard to the termite-fungus association, “the modifications of the soil environment associated with the colony outlast any individuals within the colony, and the success of future generations of workers and fungi depends in part upon the structural legacy left to them by previous generations.”\(^\text{129}\) Such hypotheses suggested by Turner could address Sale’s concern raised above, as they offer possible explanations why forests, after devastating fires can revert back to their previous states.\(^\text{130}\)

Finally, scientists Francesco Santini and Lodovico Galleni tell us that the assumption that Gaia theory and evolutionary theory are incompatible has proven false. They and other evolutionary theorists are increasingly finding compatibilities between the Gaian and Darwinian theories.\(^\text{131}\) In all, there is now widespread consensus amongst scientists that life can drastically effect or “regulate” the biosphere. Few today would argue against Margulis when she says, If the earth’s surface were not covered with oxygen-emitting bacteria, algae, and plants, as well as methane- and hydrogen-producing bacteria and countless other organisms, its atmosphere would long ago have degenerated to the same carbon dioxide-rich steady state that today can be found on Mars and Venus.\(^\text{132}\)


\(^{129}\) Ibid., 68. Interestingly, Turner also suggest, though he underlines this is more speculative, that there could exist in Gaia a “telesymbiosis,” which appears to me a variation of Rupert Sheldrake’s morphic resonances. There is, though, evidence within nature that some communication of sorts exist amongst organism separated by vast distances, “a sort of symbiosis-at-a-distance,” Turner says.

\(^{130}\) Of interest, Sale discusses how organisms “gamble against the variability of the environment,” by spreading their offspring at different times (into future seasons) and in different places. This “bet-hedging,” as he calls it is, I suggest, in a cosmological framework, pure creativity on the part of the organism, as Berry would understand it. This more autopoietic feature of the natural world was not mentioned. Might Sale’s overemphasis on individual struggle for survival – as opposed to the more nuanced autoipoiesis – explain why he also fails to mention that the organism that places “resting eggs” in several places could be said to be co-dependent with those several places in commumion? (192-193).

\(^{131}\) Francesco Santini and Lodovico Galleni, “Stability and Instability in Ecological Systems: Gaia Theory and Evolutionary Biology,” in Scientists Debate Gaia: The Next Century, eds. Stephen H. Schneider et al. (Cambridge, Mass.: MIT Press, 2004), 353-362; they posit that the key is to consider all components of ecological systems and not solely biota when modeling ecosystem functioning, or what they call, the “biospheric” perspective (361). It should be noted that Lovelock himself admits the early version of his hypothesis was indeed at odds with Darwinian thinking as it did not sufficiently account for natural selection. It was later in years that he developed the “Daisyworld” computer model that would help account for natural selection within Gaia: see Lovelock, The Revenge of Gaia, 29-32.

\(^{132}\) Margulis and Sagan, 354.
Controversy persists however, and probably will remain for some time, on how and why a system regulates.\textsuperscript{133} So while scientists can agree with the Gaian science that the Earth has maintained a relatively constant surface temperature over the past four billion years, despite the fact that the sun’s heat on Earth has increased 30 to 50 percent in that time period,\textsuperscript{134} they are not yet in agreement on why and how all this happens. Nevertheless, theoretical arguments that regulation is fully product of chance, Wilkinson notes, is becoming increasingly difficult to maintain. He himself rules this out, as recent modeling studies “hint at the possibility” that it is more than “luck” that life has survived so long on Earth.\textsuperscript{135}

What is certain about the Gaia theory, given the planetary context of environmental degradation in which it arises, its inherently interdisciplinary nature, and the import of its name, is that any discussion of this theory can never be fully or even satisfactorily addressed by one scientific discipline. The theory has taken a multi-dimensional character that necessarily comprises the natural sciences, philosophy, religion and environmental ethics. Mary Midgley argues that this broader union between the empirical and the mystical or spiritual is exactly what we need to address our environmental crisis. The theory in both its scientific, metaphoric or mythic form, “Suddenly open[s] the window which, for a century, had been firmly closed between modern scientific thinking and the spiritual world that our ancestors, and most other human cultures, had always assumed was there around them.”\textsuperscript{136} Midgley, who understands the powerful relationship between myths and science, reminds us that not all myths are good. Gaia can serve as an excellent myth and therefore a bridge not only amongst the various branches of natural sciences, but between the natural sciences and philosophy, and we can include here religion.

The idea of Gaia – of life on earth as a self-sustaining natural system – is a powerful tool that could generate solutions to many of our current problems. It does not just lead to new applications of science and technology. It can also counteract the corrosive forms of social atomism and individualism which infuse much current scientific thought. Its

\textsuperscript{133} See Wilkinson, 75, and Lenton, 15.
\textsuperscript{134} Hathaway and Boff, Tao, 263.
\textsuperscript{135} Apart from referencing some papers that attest to this, Wilkinson offers the weak anthropic principle as another reason to conclude that not all is due to chance (72-75).
\textsuperscript{136} Midgley, “Concluding Reflections,” 966.
approach, once fully grasped, makes a profound difference, not just to how we see the
earth but to how we understand life and ourselves.\textsuperscript{137}

As we have seen, Larson agrees: charged with symbolism, “Gaia is a positive form of
personification that focuses on our relationship with our home planet.”\textsuperscript{138} Such a metaphor could
then allow us to begin to question other predominant paradigms such as the mechanistic view of
our world.

Ostensibly, as Midgley puts it, the notion of evolution can seem like a game of chance, as
Jacques Monod believes, or more mysterious and having some kind of order. This latter type of
thinking is how Darwin saw the universe, she insists. Such an approach to the world fits well
with the approach of many physicists today “who are struck by the coincidences that are
emerging in the cosmic order.”\textsuperscript{139} One can repudiate the Gaia theory, as Sale does, or refute its
ability to provide normative guidelines as Sideris does, but this is becoming increasingly harder
to justify on scientific grounds and arguably on ethical grounds too. Science writer Fred Pearce,
on discovering in 1994 that Lovelock was considering changing the name of the theory because
of its mystical connotations, wrote the following in \textit{New Scientist},

\begin{quote}
Gaia as metaphor; Gaia as a catalyst for scientific enquiry; Gaia as literal truth; Gaia as
Earth Goddess. Whoever she is, let’s keep her. If science cannot find room for the grand
vision, if Gaia dare not speak her name in Nature, then shame on science. To recant now
would be a terrible thing, Jim. Don’t do it.\textsuperscript{140}
\end{quote}

Lovelock, in fact, chose to keep the name in the end, not wanting to lose the poetry and emotion
it evokes, as these “keep[] us in good heart while the battle goes on.”\textsuperscript{141} Gaia holds promise as a
scientific theory, and wields transformative power as an ethos.

Deciding the exact role and manner in which the Gaia theory ought to play in the creation
of an ethical vision is not straightforward. It requires us to keep in mind how science is
structured and how it knows the world and communicates its findings. If, as Bronowski puts it,
science is more like art in that we do not “copy” nature but re-create nature, then, like any art,

\begin{footnotes}
\textsuperscript{137} Midgley, \textit{Gaia: The Next Big Idea}, 11.
\textsuperscript{138} Ibid., 214.
\textsuperscript{139} Midgley, \textit{Solitary Self}, 11-12.
\textsuperscript{140} Fred Pearce, quoted in Midgley, \textit{Gaia: The Next Big Idea}, 22. Originally found in “Gaia, Gaia, Don’t Go
\textsuperscript{141} Lovelock, \textit{Gaia}, xiii.
\end{footnotes}
our spirituality and temper cannot be overlooked. We cannot afford to dismiss Gaia. Nor can we afford to approach it without scientific rigor. Have Ruether, Boff, O’Murchu and Berry taken the Gaia theory seriously? I believe they have. Have they taken the whole of science they appropriated seriously? We will turn to this question in our final section.

6.4 Assessing Appropriations of Science

With the exception of Diarmuid O’Murchu, our interlocutors do not deal at any length with Darwinist thinking on evolution. This is unfortunate, as Midgley points out how Darwin’s thinking can deepen our understanding of how connected we are to the natural world, especially animals. However, this is not problematic – certainly not as problematic as Sideris claims – since, as we will see below, all four of our authors maintain a balance between the hope that comes from reading science and the dark paradoxes that, they insist, we must accept.

6.4.1 Ruether’s Appropriation of Science

To be sure, there is some legitimacy to Sideris’s contention that Ruether’s writings do not seem to pay sufficient attention to the darker side of natural (at least non-human) processes, focusing instead on the darker side of human actions – a claim we can, to a degree, attribute to Boff as well. But does this mean they entirely ignore this darker side to nature? To answer this, we have to look at Ruether’s other writings, which were not consulted by Sideris (she seems to consult only one of Ruether’s writings: Gaia and God).

Recalling what we learned in Chapter 1, Ruether does mention that the logic of nature suggests that any sentimentality for the second pelican that is pecked to death by its parent would be misplaced. A more contextual reading of Ruether’s employment of the passage by Isaiah, 143

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142 See O’Murchu, Evolutionary Faith.
143 This accusation of Ruether not seeing the dark side of a situation seems somewhat incongruous on one level, since, as an ecofeminist, she is only too cognizant of the dark, finite realities of existence. Nevertheless, from the stance of Ruether’s appropriation of the science, in a personal interview with Ruether, she reiterates the darker side to nature underlining that, “the habit of nature tends to kill off the weak.” Ironically, again, as we have seen in Chapter 1, Jay B. McDaniel echoes a similar concern to that of Sideris but in theological terms, by asking whether Ruether’s understanding of nature can itself be seen as “fallen” apart from human folly. McDaniel asks, [D]oes ecofeminism nevertheless recognize a tragic dimension in nature itself? Consider the fox chasing the rabbit. From an outside perspective, of course, this predator-prey relation is part of a larger harmony.
cited by Sideris above, leads us to somewhat different conclusions about Ruether’s appropriation of science than those arrived at by Sideris. While it is true that Ruether quotes Isaiah, she also notes (at the beginning of the chapter with which Sideris seems to have most difficulty), that Ruether’s intention was to “explore two lines of the biblical thought and Christian traditions that have reclaimable resources for an ecological spirituality.”

Important to note, and something Sideris fails to mention, is Ruether’s caveat preceding this point regarding the resources in both biblical thought and the Christian tradition:

I am *not* assuming that these are the only or the best religious traditions for ecological ethics and spirituality; and I am *not* assuming that these traditions can be reclaimed and made usable without change…Both these traditions are marked by a legacy of patriarchalism and must be reinterpreted.

The italicized words above are found in the original version by Ruether. In fact, Ruether demonstrates her doubt that such a legacy can even be purged and, in reference to all past traditions, adds:

The radical nature of this new face of ecological devastation means that all past human traditions are inadequate in the face of it. Whatever useful elements…must be reinterpreted to make them usable in the face of both new scientific knowledge and the destructive power of the technology it has made possible.

In keeping with her larger motif in her writings of maintaining dynamic tensions, Ruether is not accepting any simple throwing-away-of-the-baby-with-the-bath-water mentality: her aim is for the Christian not to forsake the tradition entirely, as some wisdom for our time can still be found

But how about from the rabbit’s perspective? Is the rabbit’s will-to-live not frustrated, is the rabbit’s eros for life not cut off? Is there not something violent, cruel, perhaps even tragic about life as we know it?

Jay B. McDaniel, “Four Questions in Response to Rosemary Radford Ruether,” in *An Ecology of the Spirit: Religious Reflection and Environmental Consciousness*, ed. Michael Barnes (Lanham, N.Y.: University Press of America; College Theology Society, 1994), 59-60. This seeming lack of consistency in Ruether’s thought could be explained, in part at least, by the fact that Ruether’s views on the darker side of nature appear to have evolved since having written *Gaia and God*, the sole source Sideris uses on Ruether. In fact, Ruether’s recognition of the darker dimensions of nature, at least in regard to the second pelican, comes sometime after McDaniel’s questions above, suggesting that her thinking indeed recognized the darker elements within nature. See Rosemary Radford Ruether, “Ecofeminism: The Challenge to Theology,” 109. Another possible reason could be her appropriation of the writings of Berry, as mention of Berry in her own writings does not appear – as far as I can tell – until later, 2003:

“Ecological Theology.”

Ruether *Gaia and God*, 205, the beginning of Chapter 8, “Healing the World: The Covenantal Tradition.”

Ibid., 205.

Ibid., 206.
within it. With the above in mind, it does not seem entirely correct to assign romantic tones to Ruether’s ethical vision, as she does recognize the reality of cruelty in nature. Sideris, for instance, does not mention Ruether’s criticism in *Gaia and God* of the deontological approach to animal rights advocated by ethicist Tom Regan:

To attempt to derive this mandate [an animal’s inherent right to life] from “nature” runs into the contradictory reality of predation as an unavoidable part of nature. Not only do carnivorous animals depend for their existence on eating other animals, but all life forms exist through an interdependency of consuming and being consumed. Nor is it sufficient to claim that one does not eat beings with whom one can have an interpersonal relation.147

If anything, it appears more like Sideris is misreading Ruether by focusing on her one book and, even then, not in its entirety or accurately.148

Moreover, Sideris relies much on one writing of Lynn Margulis and Dorion Sagan to critique Ruether’s interpretation of the Gaia theory (then hypothesis) as illustrating a world that is harmonious and life-sustaining. Margulis and Sagan’s work, “God, Gaia, and Biophilia” – part of a larger volume looking at Edward O. Wilson’s biophilia hypothesis – focuses on the mistaken ideas of the human role in causing destruction to Gaia, and not, as would be expected, on Gaian evolution.149 Nevertheless, the topic of Gaian evolution is still discussed and Sideris is certainly correct in pointing out, as do Margulis and Sagan, that “Gaia is Darwin’s natural selector;”150 yet, Sideris does not mention that within the same article Margulis and Sagan also write, “Gaia is simply symbiosis seen from space.”151 Again in that same work, Sideris fails to mention a significant point made by Margulis and Sagan – which we discussed above – that were Earth’s

147 Ibid., 223-224; Ironically, Ruether, in keeping with the writings of biologists Paul and Anne Ehrlich, is arguing that Regan does not take into account the consumer-consumed relation that is an “inevitable part of the biotic condition” (225). But is this not what Sideris claims Ruether herself fails to take into account? Sideris is aware of Ruether’s note of predation (see Sideris’ footnote 24, p. 275); however, Sideris claims Ruether needed to add much greater discussion on this matter. I do not think, given Ruether’s aim, much more discussion is necessarily warranted, however.

148 Using *Gaia and God* to critique Ruether’s ethic does not seem – at first glance – as grave an omission if one considers *Gaia and God* is the main work where Ruether develops her understanding of science; however, it is not a sufficient source to appraise Ruether’s overall ethic, as my exploration of Ruether in Chapter 1 affirms. What is interesting is that a more thorough exploration of Ruether’s ethical vision shows how she ostensibly eschews notions of eschatological redemption (as would be inferred from reading Isaiah’s passage), for a more Earthly liberation.


surface not covered with oxygen-emitting bacteria, its atmosphere would long ago have degenerated. Yet, this point seems to support Ruether’s claim about cooperation.

Notwithstanding the omissions of these more cooperative and harmonious aspects of Gaia, the point I wish to raise here is that the actual works Ruether employs in *Gaia and God* to discuss evolution and Gaia are not incorporated into Sideris’ critique. With regard to Ruether’s reliance on Margulis and Sagan, it was their larger work, *Microcosmos: Four Billion Years of Evolution from Our Microbial Ancestors* that Ruether accessed. Some investigation into its main points will help us understand that Ruether’s putative “panglossian” view of the science – if we were just to base it on this particular work by Margulis and Sagan alone – is not so misguided and that Ruether does not appear to misrepresent the “science” as much as Sideris claims. Recall earlier where Sideris quotes Ruether as saying cooperation and interdependency are primary principles of ecosystems. Sideris claims this is a misrepresentation of the science, yet, we find Margulis and Sagan telling us:

> Although we would be foolish to propose that competitive power struggles for limited space and resources play no role in evolution, we show how it is equally foolish to overlook the crucial importance of physical association between organisms of different species, symbiosis, *as a major source of evolutionary novelty* [my emphasis].

In fact, the authors add:

> It is folly not to extend the lessons of evolution and ecology to the human and political realm. Life is not merely a murderous game in which cheating and killing insure the injection of rogue’s genes into the next generation, but it is also a symbiotic, cooperative venture in which partners triumph.

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152 Ruether, for instance, borrows heavily upon the writings of Anne and Paul Ehrlich, such as their book, *Earth* (New York: Franklin Watts, 1987); in reading this work, she would have been well informed about the wisdoms behind evolutionary nature. In fact, the Ehrlichs declare that there exists an “abyssal ignorance” of evolution and biotic systems (189). The Ehrlichs conveyed this message in an earlier book, *Extinction: The Causes and Consequences of the Disappearance of Species* (New York: Random House, 1981), 248.


154 Ibid. The authors go on to suggest that humans ought to see themselves not as lords over nature but as “partners” (16), and that the “illusion of the independence of humans from Nature is dangerous ignorance” (23). While Ruether does not discuss evolutionary processes at the biotic level, her reliance on the works of Paul and Anne Ehrlich denotes that she was well versed on this notion. While the Ehrlichs speak of the survival of the fittest being key to evolution, they also talk of “mutual co-evolutionary associations” where the carnivore gets more efficient at killing as the prey gets more efficient at escaping the carnivore, or plants that learn to hide; see Anne Ehrlich and Paul R. Ehrlich, *Earth* (New York: Franklin Watts, 1987), 39-40. The Ehrlichs also speak almost like there is a hidden wisdom behind evolutionary nature: i.e.: “dinosaurs became extinct at a time when evolutionary processes were capable of replacing them with mammals;” see Ehrlich and Ehrlich, *Extinction*, 9.
While the brief investigation above might demonstrate that Ruether has not necessarily misread her sources, a larger question remains: has Ruether misrepresented reality as understood by the science? Consider the matter of self-regulation within ecosystems discussed above by both Sideris and Sale. While Sale and other ecologists might not be able to find evidence for self-regulation, we cannot ignore what ecologists Paul and Anne Ehrlich say about the seeming self-regulating capacity of soil. Soil fertility is maintained by a conversion process within complex ecosystems in which fragments of rock are mixed with waste products of organisms. Indeed, a gram of rich soil contains myriad tiny organisms, more than 80,000 single-celled protists (algae, protozoa), 400,000 fungi, 2.5 billion bacteria. A square meter could contain 45,000 minute relatives of earthworms, 48,000 mites and insects and 10 million round worms. The Ehrlichs point out that “some of these inconspicuous microbes often live in intimate association with the roots of plants in the legume family (peas and beans): in return for energy-rich products of the plants’ photosynthesis, the bacteria enrich the soil with nitrogen.”

In the end, Sideris was not incorrect in challenging Ruether for her omissions of details on how ecosystems work or in finding remnants of anthropocentric thinking in her writing. In my analysis of Ruether’s ethical vision, I already discussed the problems with having humans act as “gardeners” to the rest of creation. And Sideris’s critique of Ruether for her “hopes for a final restoration of nature that will usher in right relations among all creatures, thus “healing nature’s enmity,”” while arguably problematic, viewed within the whole of Ruether’s writings, is less challenging. We also discussed in Chapter 1 Ruether’s simple explanations of some scientific aspects, such as the definition of the Gaia theory. She refers to Gaia as being “alive,” a “living planet” which, at the metaphoric level is fine; but left at that, ignores, as Lovelock himself has gone to great lengths to explicate, the importance of precision in scientific reasoning. And, as

155 Anne Ehrlich and Paul Ehrlich, *Earth*, 49. According to soil scientist Hans Jenny (1899-1992), considered by many as the godfather of American soil conservation, soil is not be looked upon as a dead inert object but in the context of a living, dynamic ecosystem:

Soil contains over a thousand different species of lower animals, the earthworms, pill bugs, nematodes (microscopic worms) millipedes, termites, ants, springtails, and amoebas, not to mention the millions of molds, and bacteria. …these soil organisms consume oxygen from the soil air and give off carbon dioxide, and the summation of the multitudes of respirations characterize the metabolism of a soil individual. Hence, I designate soil as a living system.


mentioned in Chapter 1, Ruether incorporates little of the scientific details of the Gaia theory, as explained by Lovelock, in her work.\textsuperscript{157} The intricacies of how the atmosphere, biosphere, lithosphere, hydrosphere and barysphere form a single self-regulating cybernetic system are not dealt with. Also, Ruether’s incorporation of the science, while fairly broad in scope, is limited in quantity. Her understanding of ecology was solely from the Ehrlichs, and her treatment of cosmology minimal. There was very little in the way of systems theory or quantum physics. Moreover, after \textit{Gaia and God}, she does not seem to continue her research, relying on the same research in subsequent writings.\textsuperscript{158}

As I noted in Chapter 1, her reading of the ontological differences between the human animal and other-than-human animals does not take into account more recent research from primatologists on this subject. Even a competent reading of Darwin’s findings on the matter – as both Sideris and Midgley demonstrate – shows that the difference between them and us is far less than presumed. Had Ruether incorporated Darwin’s own understanding of our kinship with animals, her writings on the differences between animals and humans might have been cast in a different light. However, Ruether’s non-inclusion of Darwinian science does not necessarily mean she misrepresented reality; the writings of the scientists she did consult, it would seem for the most part, conveyed a fairly coherent view of nature.

\textsuperscript{157} Lovelock deals with this issue in his books. He explains it in the foreword to Midgley’s \textit{Earthy Realism}, 1-2, worth repeating here:

\textit{[Gaia] sets us free to wonder if the Earth is alive. Scientifically correct biologists define life as ‘something that reproduces and corrects the errors of reproduction through natural selection’ but that must be far too limiting a definition. At the lowest level in physics it could be said that anything that has a lifetime must be alive; so is the atom of a radioactive element alive? Is mortality or impermanence part of the definition of life? Physicists have defined life as an open but bounded system that sustains low internal entropy. By this definition, Gaia, the system of all life and the Earth’s surface environment, is alive. Much more than that, Gaia has all the usual properties of life; it metabolizes, it self-regulates its climate and chemical composition, and has sustained for nearly 4 billion years an utterly improbable low entropy. Does something that has lived a third of the age of the universe need to reproduce?}

In short, I am not objecting to the metaphor of “alive” here, but given its powerful force I suggest that any use of it must be accompanied by an explanation as given above. On this issue, only Berry is not at fault (although as I explain, in \textit{Tao}, Hathaway does make this clarification; it is not found in Boff’s other writings though).

\textsuperscript{158} For instance, see her more recent books, \textit{Christianity and Social Systems}, which is a compilation of her many years teaching social ethics at Garrett-Evangelical Seminary, which contains a chapter entitled “Ecology: The Context for All Social Systems.” While she re-affirms, as the title suggests, ecology’s vital role, the chapter serves more to give an account of the ecological crisis we are in and to provide some policies and suggestions to turn things around. The book ends, not surprisingly, with the Earth Charter, reproduced in its entirety. The Charter, which serves as an ethical guide – and presumably a substitute for the science of ecological systems – to a sustainable way of life that can inspire commitment, cooperation, and change, was the collaborative work which involved in its drafting the collaboration of – amongst others – scientists and theologians.
6.4.2 Boff’s Appropriation of Science

While a larger Gaian and cosmological framework challenges Sideris’s and Sale’s arguments on ecosystems, like Ruether, Boff, as we have discussed, can be faulted for an unnuanced account of nature being in “balance.” Further, Sale’s discussion about the ephemeral nature of communities within which the component species struggle amidst an array of non-human disturbances, does make Boff’s pointing to the human as the almost exclusive perpetrator of its disturbances less convincing.

However, Boff’s research, unlike Ruether’s, is far more comprehensive (notably in his collaborative work with Mark Hathaway, who has a background in science) and, it would seem somewhat ongoing, as his later writings examine newer research from biologist Umberto Maturana. We are fortunate to have the reflections from physicist Fritjof Capra on Boff (and Hathaway’s) *The Tao of Transformation*, who finds in the book some mutual incompatibility of ideas, and some incompatibility of ideas with the framework Capra has developed. On the mutual incompatibility of ideas, Capra is most critical of Boff’s consideration of Sheldrake’s ideas on morphic fields. He believes it to be too unscientific, “a sophisticated form of vitalism.” He believes Boff misunderstands “attractors.” Capra suggests Sheldrake’s morphic fields are more easily understood within a systems theory framework where fields are “analogous to the idea of an attractor that creates a kind of boundary for forms and behaviors.” And in contrast to Capra’s own conceptual framework, while Boff states that the mathematics of chaos theory does not exactly explain why creativity seems to be inherent in the very fabric of

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159 Moreover, one wonders why Boff could logically even speak of a “balance of nature” while simultaneously supporting the Prigoginian systems view that finds disorder, instability, disequilibrium, and nonlinear relationships as being the norm in reality.

160 The information from Capra I gained in a personal communication I had with him over email in January 2012. Capra mentions some points – but does not go into detail – in the forward he wrote for Boff and Hathaway’s book, *The Tao of Liberation*.


162 For a good description of attractors, see W. Teed Rockwell, *Neither Brain nor Ghost: A Nondualist Alternative to the Mind-brain Identity Theory* (Cambridge, Mass.: MIT Press, 2005), Chapter 10: Attractors are those patterns that a system tends to settle into. Think of the motion of a pendulum which, over time, settles at the lowest and middle point of the swing. Capra prefers to see an attractor as a kind of mathematical description of a morphic field.

163 I am not suggesting that Sheldrake’s morphic fields’ hypothesis is not a viable way of looking at the world here, only on how it is presented within a framework of scientific credibility. To be fair to Boff and Hathaway, they do make this distinction.
the cosmos, Capra believes to some extent it does, “as it explains the process of emergence, i.e. the creation of novelty, which is a characteristic of all nonlinear systems.” These incompatibilities, Capra stresses, while some are “esoteric and definitely outside the scientific mainstream,” are not major. In fact, he concludes, “Nevertheless, they succeed admirably in demonstrating the emergence of a new coherent scientific understanding of reality.” He adds that Boff (and Hathaway) argue correctly that “the emerging scientific cosmology is fully compatible with the spiritual dimensions of liberation.” In short, the incompatibilities mentioned above, according to Capra “do not detract from the overall value of the book.”

6.4.3 O’Murchu’s Appropriation of Science

Of our four interlocutors, O’Murchu appears to be the most avid in maintaining an ongoing research into what the latest science research is telling us. However, at times, the inferences he draws from reading the latest science are not always empirically verifiable. For instance, we saw in Chapter 3 how he takes Danah Zohar’s conclusion from quantum holism as indicating that power relations are not the only, or perhaps even the most effective, way that people and events can be linked in society, and that the politician or the manager who tries to influence or control events may be less effective than one who can be “sensitive to the spontaneous emergence of social or political trends.” While admirable as an principle, the suggestion that this notion can be found through a study of quantum physics, is stretching the science. And it also seems a stretch of the science to affirm, as business consultant Margaret Wheatley does, that we can take concrete lessons from quantum physics to guide us in our daily actions. O’Murchu tells us how Wheatley’s growing sensibility of a quantum universe affects her organizational life. Wheatley does this by disciplining herself to remain aware of the whole and

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164 Boff and Hathaway, 214.
165 Capra in his foreward to Boff and Hathaway, xviii.
166 Personal communication I had with Capra. While Boff’s explanations and use of science are satisfactory for the most part, I find his collaboration with Hathaway portrays a more nuanced and precise explanation of the science. Take, for example, the notion of Gaia being alive. It is only in The Tao of Liberation that the nuance about alive, as expressed by Lovelock is mentioned.
167 This is evident in his writings as well as personal conversations I had with him. He was consistently recommending to me new books dealing with new research into various matters, which were not found in his writings.
168 O’Murchu, Religion in Exile, 136.
to resist her “well-trained desire to analyze the parts to death.”\textsuperscript{169} To this list of more imaginative interpretations of the science, we could also apply Capra’s critique of the incorporation of Sheldrake’s morphic fields, which is something O’Murchu does. In short, O’Murchu’s insistence on applying the imagination and intuition which, as we have learned, is not incompatible with appropriating the science, is nevertheless too generous – especially in cases where there exists a “paucity of facts”\textsuperscript{170} – to a point where the scientist might not recognize the science behind the conclusions. In other words, the care with which he attends to potential incompatibilities between empirically-based assertions and metaphysical claims is not always consistent.

Finally, in light of Sideris’s main contention, we should point out O’Murchu’s keen understanding of paradoxes – that darker side of reality that comes from taking nature seriously that Sideris deems many thinkers gloss over – that are inherent in reality. He does not attempt to marry naïve Christian eschatological hopes to make us feel better about death and destruction, as Sideris claims many Christian ecotheologians do. Rather, his ethical vision constructs a hermeneutic for embracing the dark, the paradox.

\section*{6.4.4 Berry’s Appropriation of Science}

Lastly, of our four interlocutors, Berry is, undoubtedly, the most precise in his appropriation of science. His assertion that science is ultimately mythic in nature, serving as a meaning-giver and driver of action, is not fanciful metaphysical thinking. Instead, as we have learned, it is an accurate description of how science operates. Similarly, when Berry says there is a belief component to science, the writings of Kuhn and Putnam confirm this to be accurate. Where Berry also conforms to a method of scientific rigour is, like O’Murchu, the acceptance of the dark side to nature, underlining that there is a cost to creativity. As a matter of fact, O’Murchu stresses that he is much indebted to Berry and Swimme, whom he considers to be the best contemporary scholars to have understood the paradox of creation and destruction as being part of life. O’Murchu writes, “Contrary to other theorists, they do not seek to get rid of the violence, and neither do they accept it as a fait accompli, in the face of which we feel powerless.

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\textsuperscript{169} Ibid., 37.\\
\textsuperscript{170} O’Murchu, in talking about the “dreamer,” states that she/he must at times continue down scientific inquiry even “despite the paucity of facts” (\textit{Ancestral Grace}, 17).
\end{flushright}
and all seems helpless.” Berry received his greatest compliment from mathematical cosmologist and collaborator Brian Swimme who writes,

Thomas Berry’s achievement is to position himself within the knowledge that scientists and all the rest of us regard as obviously true. His starting point is natural selection and genetic mutation, the second law of thermodynamics, the initial singularity of spacetime, the innate releasing mechanism of neurophysiological response. His starting point is the universe as it has been discovered by contemporary scientific modes of understanding, by taking the universe as primary, he is able to work out a cosmology that is meaningful to anyone educated in modern ways of knowing.

Swimme maintains Berry avoids conclusions not supported by current scientific evidence, adding “He is not interested in adjusting the world of the sacred to fit categories of thought.”

Might not Sale’s argument also challenge Berry’s discussion on niche creation, which he likens to subjectivity, autopoiesis, self-organization, and self-articulation? Berry’s understanding of niche creation undergirds his own view of how the bison and horse live together in a biotic community. And recall Berry’s discussion of a single pair of aphids, each requiring an influx of energy so as to sustain itself: if their desires were not held within a “fecund balance of tensions,” problems would arise. Does Sale’s view, which greatly downplays self-regulation within an ecosystem, along with his challenge to niche development, mean Berry is incorrect in his assumptions on the science?

To begin with, Berry nowhere – as far I can tell – speaks simply of “balance.” Actually, with regard to the aphids, as we have seen in Chapter 4, he speaks of a “fecund balance of tensions” (my emphasis), that hold constraints on creativity under a larger state of “creative disequilibrium.” In other words, with a careful reading of Berry’s understanding of niche and “balance,” we find a far more nuanced interpretation that appears more in line with ecosystems existing primarily in a non-equilibrium state. In the end, we can conclude, Berry’s appropriation of science is certainly comprehensive and thoughtful.

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171 O’Murchu, Transformation of Desire, 79.
173 Ibid., 83.
Conclusion

Throughout this chapter, we have examined the manner in which our four Christian thinkers have appropriated science. The work of Lisa Sideris has been fruitful in pointing out some of the contentions shared by scholars when Christian thinkers appropriate science in order to formulate an ethical vision. But in the analysis, it became apparent that in order to judiciously pass judgment on our Christian theorists’ appropriation of science, and to judge the reliability of Sideris’s claims, we needed to have a better understanding of how science is structured, and some of its processes for knowing reality and communicating its findings. We discovered that the scientific process is not purely a rational process, but one that entails the entire spectrum of human experience: it takes place within a fragmented social community, with social forces, habits and biases, and within a particular culture that influences what science is carried out, and within a certain paradigm that is rarely questioned.

It also became clear, in discussing the role of myths and metaphors, that a viable approach to science, when it is the liberation for the entire planet we are seeking, is likely one that is wide in scope, inclusive of multiple scientific branches, and one that takes into account the myths and imaginations that surround the broader issue. The Gaia theory, which continues to meet many of the challenges presented to it by scientists, addresses the above requirements, not exclusively, nor fully, but certainly uniquely and adeptly. That our four thinkers rely on it in forming their ethical vision, then, seems understandable and judicious.

In the end, I submit that what Fritjof Capra says of Boff’s work applies to all four of our interlocutors: the incompatibilities and imprecisions found in their work do not detract from the overall value of their ethical visions. In fact, each of our four Christian thinkers, while varying in degrees, demonstrates a remarkable level of seriousness when appropriating the wisdom of science. We find, on the whole, a coherent and sophisticated understanding of the current scientific theories. It is seldom that our interlocutors “misread” or (in the case of O’Murchu and his somewhat promiscuous inferring) “misrepresent” the work of scientists. But what happens when details are not quite correct, as this does happen? Might the scientist her or himself, in choosing the wrong metaphor be somewhat at fault, as Larson points out above? Historian and scholar of philosophy of science, Mara Beller, presents an intriguing argument that places some of the blame for the excesses of the postmodernist critique of science – with regard to the Sokal
affair – on the philosophical pronouncements of scientists themselves, such as Bohr, Born, Heisenberg and Pauli. If scientists – and the venerated ones – are responsible for some of the excesses, the challenge to Christian ethicist in appropriating science becomes that much more demanding.

While this cannot excuse someone from misreading the science, it does point out how exacting and time consuming is the task of the non-scientist when accessing the works of even prominent scientists. It would seem that a fairly high level of scientific literacy is required in order to maintain a critical hermeneutic of suspicion when engaging with any scientific work. Engaging science, especially for the non-scientist, is a demanding task. It requires not only that the author demonstrate a coherent and sophisticated understanding of the current scientific theories but that the author remain abreast of new theories, or challenges to current theories. To avoid making conclusions not supported by current scientific evidence requires that one’s engagement with science remain a never-ending research endeavour, or as Kuhn refers to it, continuous puzzle-solving enterprise.

This might sound overly demanding, but I do not think there is any other way around it. None of our interlocutors delve into string theory, for instance. Should this matter in future discussions of ethics? And how might the recent findings concerning the Higgs boson particle, often referred to as the “God particle,” impact on our understanding of how the universe

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174 Mara Beller, “The Sokal Hoax: At Whom are We Laughing?” Physics Today 51, no. 9 (September 1998): 29-34. Beller has us consider, for instance, the following extrapolation of Heisenberg’s uncertainty and Bohr’s complementarity into the political realm:

The thesis ‘light consists of particles’ and the antithesis ‘light consists of waves’ fought with one another until they were united in the synthesis of quantum mechanics. ...Only why not apply it to the thesis Liberalism (or Capitalism), the antithesis Communism, and expect a synthesis, instead of a complete and permanent victory for the antithesis? There seems to be some inconsistency. But the idea of complementarity goes deeper. In fact, this thesis and antithesis represent two psychological motives and economic forces, both justified in themselves, but, in their extremes, mutually exclusive. ...there must exist a relation between the latitudes of freedom $df$ and of regulation $dr$, of the type $df \cdot dr = p$. ...But what is the ‘political constant’ $p$? I must leave this to a future quantum theory of human affairs.

She punctuates this quote by writing,

Before you burst out laughing at such “absurdities,” let me disclose the author: Max Born, one of the venerated founding fathers of quantum theory. Born’s words were not written tongue in cheek; he soberly declared that “epistemological lessons [from physics] may help towards a deeper understanding of social and political relations.” Such was Born’s enthusiasm to infer from the scientific to the political realm, that he devoted a whole book to the subject, unequivocally titled Physics and Politics.
In regards to our relation as a species to non-human animals, only O’Murchu seems to continue research into the works of various ethologists like Marc Bekoff and primatologists such as Frans de Waal, and the work of various paleontologists to discern our common ancestry with other species. Yet, the contributions of the works of ethologists and primatologists could prove significant when considering Christian understandings of meta-ethics, a point to which we will return to in the conclusion of this dissertation. I mention this specifically because it is O’Murchu’s ethical vision that is, of the four we have seen, the least anthropocentric. Might this worldview have something to do with which branches of science he employs? After all, just with regard to the voices from science alone, it seems, no one viewpoint, no one appropriation can do justice to our understanding of nature.

Perhaps the discrepancies we found over how science is understood amongst our four Christian thinkers and Lisa Sideris – and we should include here our other interlocutors, such as Mary Midgley – speak, at least in part, to the paradigm each interlocutor choses to embrace: one where the universe is either mechanistic, reductionist, and dualistic with no discernible purpose, or one in which the universe is deeply relational, a communion of subjects such that parts of the universe cannot be known separate from the whole, and knowing occurs not only at the verbal level but at the intuitive, aesthetic and affective level as well. The former paradigm tends toward fragmentation, leaving the work of science to the experts. The latter paradigm tends toward an interdisciplinary approach, incorporating the larger population into the process.

We are at a point now where we can understand why Ruether is so adamant in her call for a scientist-poet, that ecological leader “who can retell the story…in a way that can call us to wonder, to reverence for life, and to the vision of humanity living in community with all its sister and brother beings,” and why Berry invokes the way of the poet or artist with reference to his appropriation of science. Recall he says, “We might think of a viable future for the planet less as the result of some scientific insight or as dependent on some socioeconomic arrangements, than as participation in a symphony or as renewed presence to some numinous presence manifested in

the wonderworld about us.”176 It is for this reason that Larson calls for the realization of a postnormal science.177 It would seem that our interlocutors are engaging with a kind of science that is more democratic in how it chooses its metaphors, inviting the larger population to engage in the process. It is a science that understands that the way we imagine the world determines what we think is important in it. Indeed, it is a science that is concerned with the liberation of all creation.178 Finally, the science embraced by our four Christian thinkers, is also a science that is open to taking Christianity seriously, an aspect of our larger investigation to which we will now turn our attention.

176 Berry, Great Work, 20.
177 Here he borrows upon the phrasing of Silvio Funtowicz and Jerome Ravetz, which, in Larson’s case, not unlike what we disused earlier in this chapter, refers to science becoming more democratic in its decision-making process and, thus, a move away from the Kuhnian model which sees it rather secluded from society (12 and 234, footnote 15). Larson correctly points out how this process occurs at the informal level:

   Because of their ordinary roots, scientific metaphors travel between and among scientific disciplines, public policy forums, and disparate social groups. Science is not just some abstract entity; rather it is conducted by actual people who go home to their spouses, children, neighbors, and newspapers. Conversely, much of the general population is exposed to some science nearly every day. Hence, metaphors move back and forth between these domains on the scale of individual people interacting and talking to one another (41).

Chapter 7
Toward a Serious and Sustained Reflection on the Christian Faith

Introduction

It might seem odd that we investigate in this chapter whether Christian theorists take their own faith seriously. Yet, a good number of Christian theologians, like Van A. Harvey, and even ecotheologians, like Michael Northcott, suggest that there is a limit to the degree to which Christian beliefs can be revised to accommodate modernity, postmodernity or new findings from scientific research. In fact, our four Christian authors are very critical of many current Christian beliefs and practices. They argue that their tradition cannot address the environmental and social crises alone and that it must undergo a profound change. Moreover, they engage their faith with a view to arriving at an ethical vision that seeks the liberation of all creation, while simultaneously profoundly appropriating insights from science. In light of the criteria for taking and integrating something seriously, then, such an engagement with liberation, environment and science should implicate current Christian beliefs and practices in some way. But as Harvey suggests, while some challenges are to be expected and are nourishing to a religion, is there a limit to the degree a religion can change? How are we to discern whether, in critically approaching environment, liberation and science, our four Christian thinkers are also approaching their faith with thoughtfulness, constructive resolution and critical attention?

1 Van A. Harvey, “The Pathos of Liberal Theology: Blessed Rage for Order: The New Pluralism in Theology by David Tracy,” The Journal of Religion 56, no. 4 (October 1976): 382-391, accessed January 2012, http://www.jstor.org/stable/1201996; Ian Barbour (Religion in an Age of Science [San Francisco: HarperSanFrancisco, 1990], available online, http://www.religiononline.org/showchapter.asp?title=2237&C=2064, accessed 19 November 2012), implies a similar question. Barbour outlines two broad options in this regard: “If the points of contact between science and theology refer only to basic presuppositions and boundary questions, no reformulation will be called for. But if there are some points of contact between particular doctrines and particular scientific theories (such as the doctrine of creation in relation to evolution or astronomy), and if it is acknowledged that all doctrines are historically conditioned, there is in principle the possibility of some doctrinal development and reformulation, not just correlation or consonance.” Hans Küng (“Paradigm Change in Theology: A Proposal for Discussion,” in Paradigm Change in Theology: A Symposium for the Future, eds. Hans Küng and David Tracy, trans. Margaret Köhl [New York: Crossroads Publishing, 1989]), points out that traditional theology at all times and in all places has been extremely suspicious of “the novum.”

2 As a note of further explanation from my Introduction, I use Christianity and faith here interchangeably for ease of argumentation. Making this equivalency is not necessarily assured though. For instance, one could take
We need to understand first that consistently reflecting upon their faith in light of the realities they have seen, heard and, in one form or another, experienced, Ruether, Boff, O’Murchu and Berry – notwithstanding having or not having “official status” as theologians – are doing theology. If we take theology broadly to mean “faith seeking understanding,” we find in their writings that there is a close, almost dialogical relationship between what they believe (faith) and a thirst to understand it in light of the times (theology). Since they approach Christianity with a faith commitment, to assess the manner in which they have approached their tradition, we have also to assess the quality of their overall theological undertaking.

This query is not as straightforward as it might seem, however. As will become apparent in this chapter, Christian theology is pluralistic, employing a multiplicity of methods and cognitive models. Even amongst our four interlocutors, we find a range of theological approaches: from ecofeminist theology, to eco-liberation theology, to radical liberal eco-theology, to historical and cultural and ecological interpretations of faith. What is more, the Catholic tradition, as a subset – albeit the largest – of the Christian tradition, to which our four interlocutors belong, is also characterized by diverse and even conflicting interpretations of the Christian faith. We will see that there does not exist one “orthodox” understanding of Christian beliefs and practices, or any one theological approach from which to measure with any degree of satisfaction the quality of the theological reflections of our four authors. Instead, as I propose here, if we recognize this multiplicity to Christian theology, the various points of view and

Christianity seriously, which could merely entail following rules, practices and beliefs. However, faith, could refer, as it does for Boff and O’Murchu explicitly, and to Ruether and Berry implicitly, to a larger belief in a numinous, loving, just and personal God, making particular practices and beliefs secondary. Faith for our four interlocutors is more important than the institutional aspect of their religion. Ideally, their faith and their religion (the means to living out their faith) would be harmonized. This is not the case here. But since such a harmony between faith and religion is something for which they are striving, and since religious critics, such as Harvey, usually refer to the religion and its tradition when they assess whether others take Christianity seriously, I am here using the terms synonymously.


We should also note that for Boff, a liberation theologian and Ruether, an ecofeminist liberationist thinker, theology is a second act. The lived experience of the poor and solidarity with them come first.

These are loose categorizations I use here. As our previous investigation has shown, one single classification will not capture what they do.
cognitive models that undergird it, and take this understanding of doing theology in our current historical context as a starting point for theological reflection – as many theologians, especially those involved in the ecumenism and interreligious dialogue, affirm we must do – we can recognize a more viable way of assessing their approach to Christianity.

Borrowing upon the writings of Gregory Baum, Leonard Swidler and David Tracy, I will discuss the merits of a relational model for assessing truth in order to discern the quality of their theological reflection. The model takes the plurality of viewpoints and cognitive models that characterize current Christian theology as its starting point and, thereafter, seeks only to arrive at a relative adequacy of conclusions. Moreover, a relational model views dialogue as being the most viable method for arriving at communal understandings. In this light, we can adapt our criteria for assessing whether something is taken seriously to the relational model of doing theology, and ask ourselves the following: do their reflections serve as thoughtful corrections to current thinking and practices? Do their reflections pay critical attention to hidden or silenced perspectives, different points of view and cognitive models? Is there a provisional character to their reflections? Within this framework, it will become clear that they approach their faith with thoughtfulness while simultaneously approaching the liberation of all creation and science with constructive resolve. We find evidence that Ruether, Boff, O’Murchu and Berry not only have their faith, in one way or another, clarify, affirm, qualify and inform liberation and science, but that they allow these domains to clarify, affirm, qualify and inform their faith. Notwithstanding this integration, I contend that they are not only thoughtful in their approach to Christianity, but actually drawing heavily from its wells, wanting to bring it into an intense conversation with science so as to arrive at an ethical vision that fosters liberation for all creation.

In searching for possible reasons to help us understand what it is about their faith which so inspires them to seek liberation for all creation, and to engage profoundly with the empirical natural sciences, I suggest three probable explanations. All three underscore the Catholic nature of their faith: their predilection toward natural theology, which sees God as immanent in creation, and its close-related natural law tradition, which purports that normative claims about human nature can be found within nature through the use of reason; the influence from Catholic priest and scientist Pierre Teilhard de Chardin, whose writings present a world imbued with a sense of the divine, and lay an important foundation for the development of an epistemological
model to engage science and Christianity in a deep conversation; and finally, their Catholic imagination, as explained by author and sociologist Andrew Greeley, which has cultivated within them a deep “ease” with the natural world.

Since the works of Leonardo Boff, Thomas Berry, Diarmuid O’Murchu and Rosemary Radford Ruether lie on the margins of their own denominational church thinking, however, we will need to begin our investigation by identifying more clearly what exactly it is they declare that so challenges their faith, followed by a discussion why this does not necessarily signify that they do not approach their faith seriously.

7.1 Challenges to Christian Orthodoxy

While the works of Leonardo Boff, Thomas Berry, Diarmuid O’Murchu and Rosemary Radford Ruether do lie on the margins of their own denominational church thinking, arguably, we could say, this is because the powers-that-be within the Church, in large measure, wish to keep them there. And this should not surprise us: our four interlocutors do not mince their words when they declare that their own Christian tradition cannot address the environmental and social crises we face alone nor without profound changes, which entails extending much more authority to the wisdom of science. Moreover, as we have seen, it is not the wisdom of science alone that our four interlocutors embrace. Whether the Tao, ecopsychology, ecofeminism, deep ecology or the wisdoms found in indigenous traditions, all these play a role in fostering a planetary transformation, as well as, what O’Murchu calls, the development of a more “adult” faith, one that recognizes the individual as a feeling, embodied, thinking subject, living and negotiating life in communion with a diversity of other subjects. A brief overview of how each has challenged traditional beliefs and practices will serve to help us understand why the powers-that-be within the Church might wish their writings to remain on the margins of their own denominational Church thinking.

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6 This is certainly the case for Boff and to a lesser extent for O’Murchu too. And while neither Ruether nor Berry has suffered official censorship or rebuke, they achieved this by being strategic: Ruether by refusing to teach at a Catholic institution and Berry by maintaining that his thoughts are based on his work as a geologist and not a theologian. Of further import is that O’Murchu and Berry have received protection from their superiors, as both are ordered priests. To be sure, while Boff initially received such protection as an ordered priest, he decided on his own to leave the order and the priesthood when the confrontations from Rome occurred a second time.
Leonardo Boff’s earlier works on liberation theology had caused many theologians, including then Archbishop Ratzinger, head of the Sacred Congregation of the Doctrine of Faith, to accuse him of reducing human life to the political realm. Yet, Boff has remained firm that the attention to the political and corporeal elements of the human is necessary in order to address the grave situation in Latin America where a majority of its peoples are non-persons. Liberation is a political as well as social and economic issue, and not something theology alone can deal with. The incorporation of Marxist theory into liberation theology, which had caused – and still does – some to question the authenticity of the theology, has always served as a mere tool for analysis. But it was Boff’s ecclesiology – notably in Church: Charism and Power, which comprised essays in “militant ecclesiology” – which placed stronger emphasis on the Holy Spirit in granting validity to ecclesial structures than to ecclesial authority that raised more concern from the Vatican. In more recent works, building upon evolutionary theories from Ilya Prigogine and Pierre Teilhard de Chardin, Boff – and here we can include to various degrees our other interlocutors – envisions a new global civilization or paradigm coming to fruition, one in which the traditional Christian Church that centralizes power in the hands of clergy, excludes women from roles of leadership, and relegates community-based Christianity to a passive role plays no role. Boff continues to be very critical of the hierarchical Church in his blogs, citing, “The present Catholic Church is submerged in a rigorous winter.”

We recall how Thomas Berry maintains that the current geocide perpetrated on this planet cannot be critiqued, nor addressed effectively from within the Christian traditions: our cultural coding, out of which our religious traditions were built, needs to conform to our genetic.

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9 Boff reaffirms this thinking in Cry of the Poor, 163-169; see Robert McAfee Brown, “Leonardo Boff: Theologian for All Christians,” The Christian Century 103, no. 21 (July 2-9, 1986): 615. It is interesting to note just how significant the issue of ecclesiology is to some within the Catholic hierarchy. McAfee Brown tells us about Cardinal Ruffini who, during the debates at the Vatican II Council on the role of the Holy Spirit, responded, “We don’t need the guardianship of the Holy Spirit; we have the hierarchy.” To this, McAfee Brown advises theologians, somewhat kiddingly, to stay away from writing on ecclesiology, and if still inclined to do so, certainly avoid incorporating words like “militant” (615).
coding. In *Befriending the Earth*, Berry questions our “excessive concern with the individual, historical Jesus,” adding his dislike for the idea that “any one religion has the fullness of revelation.” Berry also suggests that Christians “shelve” the Bible for a couple of decades so as to reorient themselves to the universe as primordial revelation. For these reasons, he has received rebuke or disapproval from the conservative Catholics or mainstream Christians who feared he was not “Christ focused and human focused.” The former director of the Environmental Justice Program for the U.S. Catholic Conference of Bishops, Walter Grazer, for instance, believes Berry is “far too left” to effectively influence American Catholics. And despite Berry referring to himself not as a theologian but a geologist, people like Grazer believe his “impropriety” in suggesting that we shelve the Bible, only adds fuel to those who consider environmentalism as pagan and therefore idolatrous. Berry does not see paganism as idolatrous, though. In fact, he states, “the salvation of Christians lies in the unassimilated elements of paganism.” He suggests, for instance, that we extend the ritual of Christian baptism, which traditionally brings humans into a relationship with the divine as well as within the religious (human) sacred community, to the Earth. Berry puts forth the Omaha Indian ceremony as a good example of this: it has the infant presented to all regions of the universe, imploring the spirits of the Earthly world and the subsoil, as well as the spirits of the heavens, to make the path of the child smooth. In this

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11 Berry, *Befriending the Earth*, 77.
12 Ibid., 78.
13 Taylor, 47-49. Taylor recounts a negative article by a reporter who questions Berry’s credentials as a Christian thinker. The reporter “suggests that many of these pantheistic, naturalistic dynamics may have crept into the environmental movement precisely because the Church’s absence has left the door open to ideas and philosophies not guided by appropriate Christian beliefs” (47).

In the great wave of reaction against traditional religions, specifically the Judeo-Christian heritage of the West, many have revisited ancient indigenous, traditional, pagan religions. … From the point of view of Christian faith, it is not possible to isolate some elements of New Age religiosity as acceptable to Christian while rejecting others. …Since the New Age Movement makes much of a communication with nature, of cosmic knowledge of a universal good – thereby negating the revealed contents of Christian faith – it cannot be viewed as positive or innocuous. …It is necessary to accurately identify those elements which belong to the New Age movement, and which cannot be accepted by those who are faithful to Christ and his Church.
instance, the trees, animals and insects, along with humans are implored to take care of the child.\textsuperscript{16}

Diarmuid O’Murchu, reflecting upon the deep time characterizing human evolution, advocates abandoning many previously thought sacred and eternal teachings and practices from religion as a necessary step in our spiritual maturation. O’Murchu, as we recall, stresses – and arguably more so than our other three thinkers – that if theology wants to retain a degree of relevance and meaning, “it must now adopt the great paradoxical pathways it has so often advocated for its adherents,” and, “die to its own supremacy.” While it is true that all four thinkers believe Christianity, as O’Murchu puts it, “must become the servant of a higher and more embracing wisdom,” and that it must learn to mediate new truths that are dawning upon our world, allowing itself – in conjunction with all the other sciences – “to be born anew!,”\textsuperscript{17} O’Murchu is most vociferous in the call for Christians to outgrow what he terms “adolescent” attitudes toward religion. The tradition, as it stands for him and presumably for his many followers (recall he is a much sought after facilitator, especially for women religious orders), no longer nourishes him; it is “not big enough” for him.\textsuperscript{18} “We need to let go of the monotheistic, patriarchal dogmas of our recent past, he states, adding, “No matter how well they may have served us, they are no longer appropriate or adequate for the emerging world [from what new science is showing us] of our time.”\textsuperscript{19} How we do theology, O’Murchu concludes, is changing rapidly and dramatically. It is far more participatory and, as we have seen in his study of quantum theory, for instance, far more open to the findings from the natural sciences.

No less outspoken on Christian patriarchal teachings, Rosemary Radford Ruether maintains that the radical nature of this new face of ecological devastation means all past human traditions, and not only Christianity, are simply inadequate in the face of it. She is candid about her disagreement with Church hierarchy on women’s ordination, contraception, and – like O’Murchu, Berry and Boff – she is very critical of a religion that does not treat its followers as adults. Early in her academic career, Ruether had published \textit{The Church against Itself: An

\textsuperscript{16} Berry, \textit{Befriending the Earth}, 48.
\textsuperscript{17} O’Murchu, \textit{Quantum Theology}, 217.
\textsuperscript{18} O’Murchu, \textit{Religion in Exile}, 16.
\textsuperscript{19} O’Murchu, \textit{Quantum Theology}, 66.
Inquiry into the Conditions of Historical Existence for the Eschatological Community, where she refers to a “crisis theology” or modern dialectical theology that is needed to create a viable theology of radical change – something, she points out, the hierarchy cannot do as long as it clings to outdated doctrines from the past. And as we have seen, Ruether suggests, like Berry does with regard to the Bible, a sort of shelving of any other-worldly understanding of eschatology so as to foster greater emphasis on a this-worldly liberation.

Reading the above challenges, it is not unreasonable to ask whether our four thinkers have taken their Christian ethics, beliefs and structures seriously, in short, its theology. While the focus of our study remains on the ethical Christian visions of our four thinkers, none of their individual visions escapes touching upon at least some of the central Christian theological matters: the role of scripture, ecclesiology, Christology, soteriology or eschatology. In all four cases, all four thinkers believe Christianity, in one form or another, as O’Murchu puts it above, “must become the servant of a higher and more embracing wisdom…to be born anew!” Is there indeed, as Harvey suggests, a limit to the degree Christian beliefs and practices can be “born anew”?

As we will see in the following section, however, Harvey’s question and the criticisms that have come from others cited above, appear misguided. For one, notwithstanding the above challenges our four thinkers present to Christianity, it should be noted that all four remain firmly planted in its soils, and not merely Christian soils but the loams of the Catholic tradition. In fact, despite being silenced by Church authorities and renouncing his priesthood, Boff remains a Catholic. Ruether and O’Murchu remain steadfastly within the Church, as did Berry until his death. Moreover, Boff’s theology, notwithstanding his ecclesiology – in my opinion – remains, in many ways, fairly orthodox: the divinity of Christ as the son of God, the resurrection of the body, and the afterlife, while interpreted from a liberationist viewpoint, are not doubted; and the Trinitarian framework plays a vital role in his theological framework. Berry – somewhat

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21 Marie A. Conn, “Plurality in Unity: The Ecclesiology of Leonardo Boff in Honor of His 70th Birthday (December 14, 2008),” Theology Today 66 (2009): 7-8; Boff has continued to profess his love for the Church. He states that he did not leave the Church but the ministry; and, as we discussed in Chapter 2, he merely “promoted himself to the state of laity” (see footnote 16, Chapter 2).
ironically – refers to himself as a “conservative Christian.” In fact, while their works remain on the margins of denominational Church thinking, within various Christian circles their works are well received. As a result, a simple evaluation of whether our four interlocutors take Christianity seriously, then, will prove to be more difficult than merely assessing their status within their faith tradition. Not unlike our discussion on science, it will be necessary first to understand what we mean when we speak about the Christian theology. What indeed, is the nature of theology? And can we speak of Christian theology in such monolithic terms?

7.2 Understanding the Nature of Christian Theology

Theology can be described simply as faith seeking understanding, as we described above, or more precisely as the study or systematic reflection of God and the relationship of everything else to God. Yet, such unassuming descriptions do not seem to relay the full weight of its meaning. Peter C. Hodgson writes, “There is something intrinsically radical about theology. After all, it purports to make assertions about God, about the ultimate meaning and purpose of things, and it offers strong judgments about human behavior from a prophetic perspective.” Even with this more far-reaching description, we are still left with the problem that there is no one standard or “orthodox” systematic theology from which to assess the quality in which they approach their faith. Currently in Christianity – and many would argue since its inception – there co-exists a multiplicity of doctrinal utterances, practices, and beliefs, each understandably claiming to have approached their faith, and even the world, with thoughtfulness, resolution and critical attention. What is more, we find today a pluralism of cognitive models employed by theologians. Thus, it is not solely the controversies over the ultimate meaning and purpose of just about everything within the universe that abound, but the ways in deriving these meanings and purposes. It is this pluralistic nature of theology which merits discussion first in order for us to appropriately decide whether Berry, Boff, O’Murchu and Ruether, have taken their faith seriously.

22 See Berry, Befriending the Earth, 144 where he states: “We need the capacity to sustain the ambivalence of the religious structure without abandoning it.” If that is the case, perhaps a qualifier such as “progressive” might be in order.
As theologian David Tracy states, “Any observer of contemporary Christian theology cannot avoid noticing how pluralistic, how diverse, even how conflicting are the theological interpretations of Christianity in our period.” This is neither an understatement nor a new phenomenon. Theologian David F. Ford portrays an image of theology that is so fragmented that even the definition of theology itself is open to debate:

Christian theology since 1918 has been immensely varied. This has not just been a matter of diverse approaches and conclusions, but also of fundamental differences about what theology is, what modernity is, and what Christianity is, and which questions within these areas are to be given priority.”

Ford accounts for such diversity in our times by listing the multitude of historical events with which Christianity has had to grapple throughout the past centuries: the Reformation, the colonization of the Americas, the Enlightenment, the American and French Revolutions, the Industrial Revolution, the rise of nationalism, and the rise of the natural sciences, technologies, medical and human sciences. In this list he includes the combined impact of the rise of constitutional democracies, new means of warfare and communication, mass education and public health programs, and movement in the arts and philosophy. He concludes that by the beginning of the last century, the context for doing theology had permanently changed.

To capture this diversity, Ford categorizes theologies into five main types. Imagining a continuum, at one end we find an “extreme” type of theology that attempts to repeat a traditional version of Christianity with little to no recognition of the realities of the time, nor the varied perspectives that have arisen. At the other end, we find another “extreme” theology where the modern reality is given priority (perhaps in the form of a secular philosophy or worldview) and Christianity becomes valid insofar as it conforms to that reality. Between these two radical types

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26 Ford is not clear why 1918 is chosen as the cut-off date, though a work by Robert M. Price suggests that the First World War marked a transition from classical Liberal theology to Neo-Orthodoxy as brought forth by Karl Barth. See Robert M. Price, “Major Theological Issues Before the Great War,” available online: [http://www.robertmprice.mindvendor.com/art_major_theo_great_war.htm](http://www.robertmprice.mindvendor.com/art_major_theo_great_war.htm), accessed 15 June 2013. He is also unclear on what he means by modern.
27 Ford, “Introduction to Modern Christian Theology;” as Ford himself admits, the Frei scheme is too neat and does not fully represent the reality, but it is helpful in portraying a broader picture.
we find theologies that differ in the degrees to which they give primacy either to Christianity or to fostering a dialogue between modernity and the Christian tradition.

David Tracy also suggests five models employed in contemporary theology, each employing its own style or type of reasoning. The models range from the orthodox – which does not come to terms with the cognitive, ethical and existential counter-claim of modernity – to the liberal, which attempts to reconcile modernity’s values and reinterpretations of Christianity’s historic claims. Newer models continue to come into existence since Tracy has written, suggesting that a typology that describes only five models of theology might be imprecise. The recent growth of Radical Orthodoxy, constructive theology, along with contemporary calls for a new Radical Liberalism is a case in point. Notwithstanding the magnitude of models or types or even schools of thought that characterize Christian systematic reflection upon God, we find within recognized categories themselves, further varieties of theologies and even some inconsistencies.

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28 Tracy, Blessed Rage, Chapter 2. Tracy, for instance, adopts a method for doing theology that he terms “revisionist.” In this regard Tracy lies in the same category of other theologians such as Ian Barbour, John Polkinghorne, and Arthur Peacocke, who also promote a revisionist theology according to Niels Henrik Gregersen and J. Wentzel van Huysteen (Rethinking Theology and Science). Tracy sees his revisionist model as being one of five models employed in contemporary theology: there is the orthodox model at one end which, he suggests, does not come to terms with the cognitive, ethical and existential counter-claims of modernity; and at the other end, the liberal, which attempts (unsuccessfully) to reconcile modernity’s most basic value commitments and proper reinterpretations of Christianity’s historic claims to truth and value (he cites Friedrich Schleiermacher as an exemplar of one who follows this model); a neo-orthodox model, while departing from the orthodox by asserting faith is radically experiential, is mostly critical of the liberal enterprise which is unable to account successfully for those negative elements of the human condition such as terror and tragedy. The theologians in this model, he writes, have been able to refine certain contents of Christian theology, but have left un-analyzed others, such as the Christological doctrines (Karl Barth, Rudolph Bultmann and Paul Tillich as Protestants, and in Catholic circles, Karl Rahner are among its adherents); radical theology targets understandings of God as wholly other as this hinders authentic human liberation, which Tracy dismisses as a dubious starting point for a Christian theology.

29 See Hodgson, Liberal Theology and Rosemary Radford Ruether and Marion Grau, Introduction, Interpreting the Postmodern. There is also the rise of Contextual theologies to consider; see Albert Nolan, Contextual Theologies: One Faith, Many Theologies (Toronto: Regis College, 1991). A recent work edited by theologians Deane-Drummond and David Clough, entitled Creaturely Theology (Introduction to Creaturely Theology: On God, Humans and Other Animals, Deane-Drummond and David Clough eds. [London: SCM Press, 2009]), diverges from the past practice of Christian theology, which emphasized our differences to animals only to leave the discussion there. Instead, the book attempts to start from what it is we have in common, which leads it to engage in what they term “creaturely theology.” The authors state that doing theology conscious of one’s creatureliness forces on the theologian a certain humility and forces her/him to recognize those other creatures as being, at a fundamental level, like humans.

30 For instance, Peter Hodgson (Liberal Theology); and Gary Dorrien (The Making of American Liberal Theology: Crisis, Irony, and Postmodernity, 1950-2005 [Louisville: Westminster John Knox Press, 2006]), while both referring to emancipationist theologies as falling under the category of liberal theology, their respective
The point of this brief exposé is not to sort our four Christian thinkers into any one category – for this issue will be addressed more appropriately in our next chapter – but to make it clear that when speaking about theology, there is no clear “orthodox” account to which one can measure the “correctness” of others whether in content or method.\textsuperscript{31} Indeed, as Rosemary Radford Ruether and Marion Grau clarify “a ‘persistent multiplicity’ of doctrinal utterances, practices, and beliefs coexisted with the assertions for orthodoxy throughout the centuries and millennia.”\textsuperscript{32} To this end, they cite the words of historian Rebecca Lyman:

‘Christianity’ defined as ‘orthodoxy’ rests uncomfortably on a history of inner conflict and persistent multiplicity. This intractable problem of diversity together with the ideological claim of unity only reinforces the cultural uniqueness or ideological paradox of Christian exclusivity in late antiquity.\textsuperscript{33}

understanding of what Liberal theology is are not identical. Further discrepancies in defining categories can be found in how Hodgson and Tracy view Revisionist theology. The former see Revisionist theology falling under the larger category of Liberal theology, while Tracy (Blessed Rage), decidedly delineates between these two categories. Dorrien notes theologians use the terms Liberal and Progressive interchangeably (6). On this issue of inconsistencies, I wish to convey an anecdotal example as evidence. At a workshop encounter in San Francisco in 2011, comprising approximately thirty Christian religious-theological-environmental scholars from Canada, United States, England and South Africa, of which I was a participant, the common denominator amongst the participants was a concern for environmental issues in their research, teachings and writings from a Christian vantage point. The starting point from which each began his/her research, however, differed amongst the group – a few individuals taking Earth and evolution as his/her starting point, and the majority of scholars taking a faith in Jesus Christ and scriptures as his/her starting point, and some, ecumenism as a starting point. One could say the split was mainly between those ascribing to a natural theology (minority) and those ascribing to a theology of nature (majority). At one point in the three-day discussions, the conversation seemed to have reached an impasse (at least for many hours). It appeared evident to me that one of the reasons for this impasse was this difference in starting points when, at break, I spoke confidentially to one participant, a biblical scholar, who confided in me – in contrast to the view of another scholar who was arguing steadfastly against making her starting point the Bible or faith in Jesus Christ – that (theoretically, he emphasized) were he ever to discern from within the Bible a directive for humans to destroy the Earth, his faith in the primacy of scriptures would impel him to follow that dictate. While I do find this stance personally remarkable, I offer this anecdote not to denigrate the thinking of any of the scholars, but to point out that even amongst prominent Christian eco-theologians, the degree to which they differ can be large and even when they fall under the same grouping.

\textsuperscript{31} This, however, does not mean we cannot therefore speak of Christian theology. Despite this diversity, we can still speak of Christianity with at least a rough resemblance of agreement or coherence. Tracy likens this plurality of theological interpretations to how the English language might function were it a forest: “an incredibly dense forest of syntax, grammar, history; a forest which grew not in the manner of the gardens of Versailles – the manner of theory – but in the manner of history itself into ever-changing, ever-stable possibilities of meaningful communication” (Tracy, Analogical Imagination, 373). In this light, while pronunciations differ widely for reading and writing, there is nevertheless a syntax and a grammar which have remained relatively stable that allow one to speak of the Christian reflection on religious experience as a single expression with rough coherence. Other theologians, such as Leonard Swidler (Toward a Universal Theology of Religion [Maryknoll, N.Y.: Orbis Books, 1998], 30), parse Christianity down to even more elemental unit: Jesus (he does not say Christ).

\textsuperscript{32} Ruether and Grau, vii.

\textsuperscript{33} Ibid., vii.
Ruether and Grau appropriately posit that such a conclusion raises the question whether there has ever existed an orthodox Christian theology. The task of judging the quality of their theological reflection, therefore—at least by means of deciding how well it measures up to any one norm—becomes difficult, if not impractical.

One might argue that since all four of our interlocutors are Catholic, a ready “orthodoxy” exists from which to measure their systematic reflections upon God, and the relationship of everything else to God. But this is a simplification of how the Catholic Church understands revelation and misrepresents the state of current Catholic theology, which is widely understood as being pluralistic itself, as David Tracy declares. Moreover, the notion of sensus fidelium, along with the primacy given to a Catholic individual’s conscience in matters of faith, which surfaced at the Second Vatican Council, make it clear that the one percent of clerics and bishops who lead the now 1.2 billion Catholics of the world can never realistically represent the standard orthodoxy. Most disturbing to many theologians today is that the majority of lay theologians—who are entrusted with faithfully interpreting the sensus fidei—are not consulted by the Magisterium when deciding upon theological questions. Writing on Roman Catholic theology

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35 One can easily see that on the one hand, whatever authority that exists is not always followed. For instance, a recent Gallup poll found that eighty-two percent of U.S. Catholics say birth control is morally acceptable, available on http://www.gallup.com/poll/154799/americans-including-catholics-say-birth-control-morally.aspx.

36 Currently, a malaise exists between theologians and the Magisterium (the teaching authority of the Church). Two prominent Catholic theologians, Catherine E. Clifford and Richard R. Gaillardetz co-authored and co-presented a paper at the Catholic Theological Society of America’s annual gathering in 2010 entitled, “Beyond Presumption: Reimagining the Ecclesial-Prophetic Vocation of the Theologian.” One can read very clearly the discontent amongst Catholic theologians at the top-down approach—or as Gaillardetz puts it, “a kind of ‘spiritual Reagonomics’ or ‘trickle-down theory’”—to official theology. The authors state,

One of the tragic anomalies of our current theological context is that while Catholic theology has never been as diverse in perspective and seldom as rich in content, the ecclesiastical context for the practice of theology remains dominated by suspicion. Sadly, too many theologians report that they are seldom consulted by their local bishops on theological questions. In some regions, lay men and women find themselves almost systematically denied the necessary nihil obstat [official approval] to teach in ecclesiastical faculties. Many bishops continue to prefer the counsel of those clergy who possess advanced theological training, often obtained in Rome. They are the auctores probati [approved authors] of our time, but their approval is less a matter of scholarly competence and creativity than unwavering fidelity to the ecclesiastical status quo. This suspicion of all but a privileged few “safe theologians” is but one of many indications of a widespread ecclesiastical suspicion of the contemporary theological project.

Clifford and Gaillietz go on to note that the 1990 Vatican document “Instruction on the Ecclesial Vocation of the Theologian” Donum veritatis, which set out to clarify the role of the theologian only “briefly acknowledged the role
after Vatican II, Paul D. Murray notes how there has been a concerted effort from the post-conciliar popes to reverse the central thrust of the theology put forth at the Second Vatican Council. Murray comes to the conclusion that the Catholic Church finds itself in “a dysfunctional situation:” on moral issues alone (initiated in large measure by the issuing of *Humanitae Vitae*), he believes the Church is in crisis.37

It is clear, then, that “orthodoxy” (or whatever systematic or constructive reflection on God one believes represents it) cannot assist us in assessing how they have approached their faith. Might accepting this multiplicity of theologies, then, be a fundamental starting point for our analysis? First, it might be helpful to understand better why such diversity exists – apart from Ford’s analysis above. For, a case can be made that the current situation in Christian theology is not simply a matter of recognizing a multiplicity of points of views brought on in part by a world in flux, but a diversity of cognitive models that underscore how theology is approached. Few theologians would espouse the neo-scholastic intellectualism so prominent in the medieval era (though not absent today). It viewed revelation as a store of mysterious supernatural teachings of the *sensus fidelium*, [and…] failed to take into account the way in which the *sensus fidei* stands as a privileged mode by which all Christians receive [original italics] God’s Word and make it their own.” They conclude that theologians can exhibit loyalty to the Magisterium of the Church insofar as the Church Magisterium “exhibits its own proper service to God’s Word.” What these authors suggest is that there be “a mutual exchange, a give and take, in which bishops, clergy and lay people receive from and give to others within the whole body,” something theologian Yves Congar suggested fifty years ago, and a communal conversation I suggest our four interlocutors are promoting as well (only much broader and inclusive than Congar had imagined): “The multiple witness of the church on earth, expressed diversely in the authoritative teaching of the Magisterium, in the reflections of theologians, and in the teaching and witness of all the baptized coalesce into a “symphony.” Available at, [link](http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDIQFjAB&url=http%3A%2F%2Fwww.ctsaonline.org%2FConvention%25202010%2FClifford_Plenary_2010_Convention.pdf&ei=sSq_UevKB1neqQHZmYG4Bw&usg=AFQjCNE4FeScqobKXTUucVixJhm7kvN8kg&bvm=bv.47883778,d.aWM), accessed 17 June 2013.

37 Paul D. Murray, “Catholic Theology after Vatican II,” in *The Modern Theologians; An Introduction to Christian Theology Since 1918*, ed. David F. Ford with Rachel Muers, 3rd ed. (Malden, Mass.; Oxford: Blackwell Publishing Ltd., 2005), 276. This 1968 Vatican document on the Church’s teaching on married love, parenthood and sexual reproduction prohibited the use of contraceptives. It was landmark document that left many Catholics – including not a few bishops – confused, as the *sensus fidei*, which was overwhelmingly in favour of artificial contraception, was unilaterally over-turned by Pope Paul VI. Despite this, few Catholics obeyed this edict and many thinkers today consider this a pivotal moment in Catholic history, as the authority of the Magisterium has been since then eroded in the minds of many Catholics. See a good précis on this offered by PBS which did an in-depth film on the story: available at [link](http://www.pbs.org/wgbh/amex/pill/peopleevent/se_humvit.html), accessed 17 June 2013; cf.: Richard R. Gaillardetz *Teaching with Authority: A Theology of the Magisterium in the Church* (Collegeville Minnesota: Liturgical Press, 1997), 168, 181-2, 186, 235, 255-6.
that were pondered through reason. Currently, though, it is not solely reason but increasingly the totality of the human that is often employed when reflecting upon God.\textsuperscript{38}

In their edited volume \textit{Rethinking Theology and Science: Six Models for the Current Dialogue}, editors Niels Henrik Gregersen and J. Wentzel van Huyssteen argue convincingly that there exists a diversity of cognitive models at work within Christian theology today which, in turn, have helped to foster the theological pluralism we have discussed above. This phenomenon is not unlike what we have seen in the previous chapter with regard to how science is carried out: various methodologies and styles of reasoning fashion how each branch of science develops. Gregersen and van Huyssteen reason that this cognitive pluralism is especially problematic when religion and science are in conversation:

With the inescapability of theological pluralism, it has rendered it almost impossible to talk about the ‘theology’ side of ‘theology and science’ as if the existence of one true theology could still be posited in such a generic uncomplicated way.\textsuperscript{39}

The authors submit that a number of factors have led to this situation: the postmodern jettisoning of the grand narratives of modernity, the role that discrete experiences increasingly play in theological reflection, and the increase of specific, local theologies (liberation, feminist, womanist, and various eco-theologies) have all rendered any simple evaluation of different theologies unfeasible.\textsuperscript{40}

This phenomenon is no less evident when we look at Christian ethics. In \textit{Reviewing Christian Ethics: The Catholic Tradition}, Michael E. Allsopp concludes that the state of ethics in the Christian community is “bedeviled by a lack of any clear understanding of how Christians ought to approach moral problems.”\textsuperscript{41} Allsopp notes that Christian ethics in the last one hundred years has undergone tremendous change: it is less rationalistic, far more attuned to the social wellbeing of individuals and mindful of context. For this reason it has necessarily become more

\textsuperscript{38} Clifford and Gaillardetz, 55; the authors demonstrate the irony that this very view comes from Ratzinger in his early years when he was writing commentary on the Vatican II documents, in this case, \textit{Dei verbum}.

\textsuperscript{39} Niels Henrik Gregersen and J. Wentzel van Huyssteen, 4.

\textsuperscript{40} In Catholic circles over half of the theologians today are lay women and men, of which women are in the majority (Clifford and Gaillardetz, 43). This demographic change assuredly accounts for many new insights arising out of the academy.

modest and tentative in its claims than it used to be. How Christians do theology, as O’Murchu suggests, does indeed appear to be changing.

7.2.1 Defining a Relational Model as a Way of Doing Theology

Not surprisingly, the cognitive pluralism along with the multiplicity of viewpoints that characterize much of theological discussion today have contributed to the reevaluation – and perhaps end – of absolutism. The ecumenical movement that began in the 1960s helped to generate this reality. Gregory Baum writes that when he studied Thomistic theology in the early fifties, he was “firmly convinced that [he] was acquiring the concepts and the method [he] would use in theological research and reflection for the rest of [his] life.”42 It was the rise of the ecumenical movement that “profoundly affected” his theological thinking and understanding of truth. It introduced him to the understanding of dialogue as a way of truth: “Dialogue opens ourselves to perspectives hidden from us before.”43 Baum concludes that dialogue “gives theological reflection a certain provisional character.”44

Taking this understanding of how truth is arrived at further, Leonard Swidler points out the dramatic shift in the understanding of truth that has taken place through the nineteenth and twentieth centuries, first in Western civilization, and subsequently beyond it.45 Swidler outlines the limitations surrounding the discernment of truth that many Christian thinkers have come to understand: truth and the meaning of something have to be understood in relationship to the historical context, the intention of the speaker, the speaker’s standpoint, and the paradigm in which she or he works. Indeed, the very limitations of language, he adds (as Wittgenstein and others have shown us), contribute to the “de-absolutization” of truth, for, although reality can be viewed from many perspectives, language is limited in what it can express. Further, as we discussed in our previous chapter, he notes that we do not simply receive reality but frame it and give it specific categories.

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43 Ibid., 8.
44 Ibid., 11.
45 Swidler, 3.
46 Ibid., 3.
Swidler concludes from this that Christianity can only work within a new relational model of truth. He, like Baum, maintains that the model for arriving at truth is dialogic in character and, therefore, necessitates dialogue. Paul Knitter, also renowned for his work on religious pluralism, writes about a new model developing in how theology is carried out:

In the new model, truth will no longer be identified by its ability to exclude or absorb others. Rather, what is true will reveal itself mainly by its ability to relate to other expressions of truth and to grow through these relationships: truth defined not by exclusion but by relation. The new model reflects what our pluralistic world is discovering: no truth can stand alone; no truth can be totally unchangeable. Truth, by its very nature, needs other truth. If it cannot relate, its quality of truth must be open to question.

Renowned for his work on religious pluralism, David Tracy seems to affirm the views above. He finds different perspectives and cognitive models not as dissents, but as healthy “correctives” or warnings to the larger community that it has dangerously narrowed its perception of the whole and, in so doing, has not quite “got it right;” such an embrace, he insists, can serve as a positive role. In doing so, we accept only the “relative adequacy” of any-one point of view, system, concepts or understandings, and never proffer them any claim to “final adequacy.” With such a view in theology, David Tracy recognizes that a great turn must also occur in how theology is done. He acknowledges that in the past, traditional Christian theologians, of whatever tradition, “preached and practiced a morality of belief in, and obedient to the tradition and a fundamental loyalty to the church-community’s belief.” In contrast to this obedience, he maintains, the modern historian and scientist – whether in the natural or social sciences – must preach and practice a decidedly divergent morality, which cannot have a theologian investigate a cognitive claim with intellectual integrity while insisting simultaneously,

\[47\] Baum, “Personal Experience and Styles of Thought,” 11; this is why he can say theological reflection, therefore, becomes ineluctably “provisional,” adding, “In order to do theology, it is necessary to transcend the boundaries of one’s own limited world” (42).

\[48\] Quoted in Swidler, 8.

\[49\] Gregory Baum, “David Tracy: Pluralism and Liberation Theology,” in Essays in Critical Theology (Kansas City, Mo.: Sheed & Ward, 1994), 36-37; Baum clarifies that it is not a relativistic pluralism Tracy espouses, which considers all views as necessarily equal, but one in which the Church permits itself “to be seriously challenged…to recognize its own tradition as a vital, dynamic, self-constituting process, not free of ambiguity, in which conversation with others must play an essential part” (38).

\[50\] David Tracy, Blessed Rage for Order, 6.
“that the claim is believable because the tradition has believed it.”

Tracy claims that most Christians recognize today that much of the traditional Christian manner of understanding the cognitive claims made in the Christian scriptures “should be rejected by the findings of history and the natural and human sciences.”

But Tracy goes beyond mere rejection of a literalist account of scripture. The method he presents, which perhaps stretches the boundaries of a relational model of theology described above, subjects the cognitive claims for its central symbols of revelation, God, and Christ, to an open-ended inquiry, autonomous judgment, critical reflection, a skeptical hard-mindedness, and a “willingness to follow the evidence wherever it may lead,” even if such conclusions, “may, in fact, negate a particular traditional belief.”

Tracy concludes from all this: “There is no intellectual, cultural, political, or religious tradition or interpretation that does not ultimately live by the quality of its conversation.” It is for these reasons above that Tracy maintains, “Conversation is our hope,” and, thus, the ability to listen becomes key.

It is the relational model for doing theology, one that understands dialogue as a way of arriving at truth and one, borrowing from Tracy, that must therefore accept the “relative adequacy” of any one understanding, avoiding claims to “final adequacy,” that I suggest we employ to evaluate the quality with which our four Christian thinkers have approached their

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51 Ibid., 5; Tracy describes what the Victorians called the “crisis of belief” which he designates a crisis of “cognitive claims.”
52 Ibid., 5.
53 Ibid., 7; He cites the Lonergan formulation of imperatives in method: “Be attentive, be intelligent, be rational, be responsible, develop and, if necessary, change” (12).
54 Ibid., 6.
55 Tracy. The Analogical Imagination, 363. Reviewing Tracy’s method for use in adult education, Barbara Fleischer suggests Tracy teaches us that, “[L]ack of openness to change kills conversation. Only when we place current understandings at risk can we enter into true conversation, either with a text or colleague,” Barbara J. Fleischer, “A Theological Method for Adult Education Rooted in the Works of Tracy and Lonergan,” Religious Education 95, no. 1 (January 2000): 36, doi: 10.1080/0034408000950104. Such a turn to openness and humility, Fleischer suggests, would not necessarily have occurred had contemporary Catholic theologians not have placed more careful attention in last many decades to human experience and historical praxis as vital sources for theology. Fleischer says of Tracy (and applies it to Lonergan as well):

What Tracy […] encourage[s] is a profound humility and acknowledgment of human limits in relation to Mystery, Ultimate Reality, God. Our understandings are human and therefore always partial, always conditioned by the finite realities of our histories, social location, and previous understandings. Yet these two theologians share a bedrock belief, rooted in their experience, that Ultimate Reality continually manifests itself, that God is continually self-communicating (36).
56 Tracy, Analogical Imagination. 395, 396, 447.
faith. I say this not solely for the force of logic behind it, or because it happens to resonate with the ethical framework of our four Christian thinkers, which is itself relational in character, but because this model appears to be the way in which Christian theology, in large measure, is being done.  

57 In fact, given the existence of a plurality of points of view that underscore theological reflection, and given the plurality of cognitive models for engaging with reality, and given the absence of any one “centre” from which to come to theological truth, I contend a relational-type model is the most feasible vantage point from which to evaluate any Christian reflection at this point in time.

7.2.2 Assessing the Integration

In light of the relational model, we ask the following: do we find evidence within the work of our four Christian thinkers that their reflections serve as thoughtful corrections to current thinking and practices? Do their reflections pay critical attention to hidden or silenced perspectives, different points of view and cognitive models? Is there is a provisional character to their reflections? And since we also want to assess the quality of integrating issues, dynamics and concerns from the other domains, some of which are divergent, we should ask: do we see evidence that our interlocutors have allowed each domain not only to affirm and clarify but also to inform and qualify the others?

Boff’s emphasis, much like we have seen with our other interlocutors, is on finding a way of experiencing church in a world where the poor and the natural world are crying from oppression. When he criticizes the present authority structure of the Church, which does not assign enough significance to the role of the Holy Spirit in revelation, we should remember that he makes a distinction between Christianity and his faith, much like O’Murchu distinguishes religion from spirituality. Official Christianity, he believes, has committed the mistake of identifying itself with faith, when, in reality, faith is larger than any one religion can embrace.  

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58 Boff suggests this mistake occurs in other religions as well. See Boff, Global Civilization, especially Chapter 5.
When Boff criticizes ecclesial structures, he is not against the notion of a hierarchy per se; he sees it as essential, but only if “it does not subsist in and for itself.” In other words, Boff is pointing out that the Church hierarchy is not paying critical attention to different perspectives and silenced points of view that are themselves listening and discerning the messages of the Holy Spirit. We find also with Boff that he has clearly demonstrated an openness to allowing liberation concerns to inform and qualify aspects of his faith. We have seen the fallout from this when he received condemnation from the Vatican for espousing a more participatory and liberationist ecclesiology. And while Boff also readily employs the Gaia theory and cosmology to clarify and affirm why St. Francis could call all beings brothers and sisters, his emphasis on the Franciscan spirituality, one grounded in a mystical experience of the sacred, is key to dispelling false consciousness when anyone – including a scientist – engages with science. Indeed, Boff looks at the complementarity of spirituality and science, stating that great scientists themselves gain a spirituality when they come face to face with the complexity of reality.

When Ruether is critical of the logic of domination that permeates the Christian tradition and states that Christianity must be reinterpreted to “make [it] usable in the face of new scientific knowledge,” she is bringing our attention to the deep wells within the tradition whose waters have become “toxic or at least complicit in Earth destruction.” These toxic elements that surface in the form of distorted creation myths, hierarchical social and legal codes, dualistic philosophies, and dysfunctional cosmologies, have become imbedded into institutional structures. Science serves as a considerable corrective in countering the logic of domination that distorts the tradition. It also affirms that we are “star dust:” therefore, Earthlings. Ruether, while not explicitly eschewing salvation in the afterlife, puts the matter aside for the present so that we place our focus on being Earthlings and place our energies on facilitating liberation of women and all subjects that are dominated in the here and now. This last point attests to the degree in which Ruether, like Boff, readily allows liberationist concerns to inform and qualify her faith. The ecological concerns that stress a finite planet, in contrast to what is implied within current Catholic teachings on birth control, also inform her view on population control. But it is also her

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59 Ecclesiogenesis 24.
60 Ruether, Gaia and God, 206; recall that Ruether is also critical of science which has created the destructive power of various technologies.
faith in a world imbued with the presence of God that she has informing and qualifying how science is done. The scientist who does nothing but describe will fail to capture the full import of her experience, she notes. This is why Ruether calls for an embodied practice, be it meditation or just taking time to sit under trees and look at water. These bring the scientist-poet – indeed all of us – back to wonder, to reverence for life and to know that we stand on holy ground.

If Berry says the salvation of Christianity lies in the unassimilated elements of paganism, he is suggesting that such wisdom could serve as a corrective to the excessive other-worldly attitude prevalent within Christianity that ignores the divine presence on Earth. Moreover, he points out – correctly – that assimilation has been part of the Christian heritage: Christians have assimilated Greek wisdom and even Oriental wisdom in the form of meditation techniques. Similarly, when Berry suggests “shelving” the Bible for a while, he does not suggest that it be abandoned for good. This is a provisional measure, however, as our disproportionate concern with salvation and the savior personality, Jesus Christ, has led us to ignore the immediate crisis on Earth and the divine revelation that is found within the natural world. Berry also says we should put Webster’s Dictionary on the shelf because we need a new language to guide us into an ecological future. In this sense he is consistent when he warns us that “we cannot deductively get our guidance form the past,” a new revelatory experience that comes to us in large measure through science is giving us a new sense of life and what it means to be Christian. He likens the situation to a sinking boat: when it gets a hole, we place our attention on fixing that first and foremost, adding, “Excessive concern with the historical Christ is presently just not that helpful.” Berry puts forth an understanding of Jesus as a “cosmic person,” which, if allowed to be differentiated, could serve as a religious shared phenomenon.

Certainly more than Boff or Ruether, Berry demonstrates much openness and readiness to allowing the lessons from science to inform and qualify Christian tenets of faith. But he is also

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62 Ibid., 75.
64 Berry, Befriending the Earth, 7.
65 Ibid., 75.
66 The notion of cosmic Christ has biblical roots and is a theme popularized by Matthew Fox (also Catholic). It is a belief that an aspect of God pervades all of creation, the Christ whose church “is his body, the fullness of him who fills all in all” (Ephesians 1:23); cf.: Cry of the Earth, Chapter 9.
very clear why this is the case: our cultural coding, out of which our religious traditions were built, needs to conform to our genetic coding. And it is science that is providing us knowledge of the latter. Berry is equally adamant that the primordial capacity for language at the elementary level of song and dance is needed by humans in order to listen to and hear what is – ostensibly for him – revelation. Here we find not so much Christianity, but the larger religious phenomenon or dream, informing, qualifying and enriching the scientific endeavour. It is the dream that awakens in us of a sense of ultimate mystery and to the numinous powers ever present in the phenomenal world about us, powers that possess us in our high creative moments.

When O’Murchu speaks to the spiritual malaise that is afflicting humanity, he does not see Christianity itself being the problem, but a Christian religion that is not open to context. Our desires have been corrupted or frustrated by patriarchal, anthropocentric and dualist thinking. A turn to science, he insists, can aid us in cultivating a truer understanding of who we are really meant to be as humans on Earth, and to provide us with guidelines to direct our behaviour so that we relate to the planet in a more harmonious way. The teachings of Jesus, for instance, are not eschewed by O’Murchu, but much revered. The difference is that O’Murchu pays critical attention to the “rebellious subversive” Jesus who he finds manifest aptly through the medium of poetry. O’Murchu is trying to correct the excessive concern for a religion that dominates and excludes other ways of knowing (recall that he is equally harsh with a science that does the same). In its place, he points to spirituality in all its expressions as being the path of enlightenment and liberation. This is O’Murchu’s message to scientists and religionists: the deep search we seek cannot be explained in mere rational terms, but demands a contemplative mystical gaze that relies on other ways of knowing, including intuition.

In the end, I think we can conclude with reasonable assurance that the reflections of our four interlocutors are serving as thoughtful correctives to Christian beliefs that give excessive concern to the human at the expense of the non-human. Their reflections pay critical attention to hidden or silenced perspectives and cognitive models of the majority of humans as well as to the voices of the natural world, thus forcing the Christian tradition to re-examine how it does

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theology. In fact, the challenges to Christianity and theology from our four interlocutors, and the firmness with which each engages his or her own faith, appear not as a trivialization of Christianity, but more like the fruit of an intense conversation with it in order to equally engage with the social and ecological realities facing our planet, and pre-eminently with findings from “new science,” with the ultimate purpose of uniting a liberationist agenda with an environmental ethic. We find evidence that while the concerns for liberation for all creation can inform their Christian doctrines and beliefs, so does their Christian faith inform a love for Earth and all its inhabitants. Just as science informs and qualifies their religion, so does their religion show science the power of the dream.68

7.3 Their Ethical Visions and Attitude toward Science Arising from Their Faith

It may seem at this point that all four of our Christian thinkers are less concerned with demonstrating the viability of the Christian religion and far more preoccupied with discerning the viability of the human and the role science plays in authoring an ethical vision, one that fosters liberation for all of creation. This view is not entirely incorrect, as liberation figures most prominently within their visions. However, to make a clear distinction between their faith and their attitude toward science, and their love and concern for the environment and for human beings, especially those most side-lined in the local and global societal decision-making processes, would be a mistake. In fact, I contend that their loving relationship with creation, their call for the liberation of all Earth subjects, and their embrace of science as a co-author of an ethical vision arises in large measure because of their faith.

Here, I wish to discuss three inspirations, which are more specifically Catholic in orientation, to make my case: the approach to understanding their faith and moral guidelines

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68 While I conclude that our four thinkers have taken seriously Christianity overall or particular aspects of their religion, it bears mentioning that I do not necessarily conclude that they have applied the same critical attention to all aspects of their religion, or to the overall integration of the concerns and dynamics that arise from the domains of environment, liberation and science with theology. Each has approached Christianity from her or his specialty. To be sure, Leonardo Boff, much more than the others, has written on Trinitarian theology, the pneumatology, Christology, and ecclesiology in light of his liberationist ethical vision. See for instance, Leonardo Boff, Jesus Christ Liberator: A Critical Christology for Our Time, trans. Patrick Hughes (Maryknoll, N.Y.: Orbis Books, 1978). Ruether has applied the bulk of her attention to conducting feminist historical analysis to biblical narratives and patristic documents. O’Murchu focuses on spirituality and Berry directs much attention to the larger cultural narrative that has framed and still frames Christianity: See O’Murchu, Jesus in the Power of Poetry, and Berry, “The Christian Future and the Fate of the Earth.”
through natural theology and the natural law tradition; the writings of Pierre Teilhard de Chardin; and the Catholic imagination, as described by Andrew Greeley. I do not suggest these are exclusive markers of their particular orientation to their Christian faith, the employment of science and the love and concern for all of creation. But there is a reason, I suggest, why we find these particular four Christian thinkers take the environment and liberation and science and their faith seriously, while other Christian thinkers, notably some Protestant theologians, do not. I wish to suggest that the catholicity that marks our four Christian thinkers plays a large role in this. A short discussion of each of the inspirations identified above should suffice to make my point.

7.3.1 Natural Theology and the Natural Law Tradition

It is difficult to slot theorists into neat categories – as will become clear in our discussions in Chapter 8. However, as a way of trying to portray broadly the thinking of our four Christian thinkers in regard to how they approach the world and their faith, we could say that they tend to follow a natural theology method. And when trying to arrive at moral norms, they, in broad terms, employ the natural law tradition. While neither is exclusive to the Catholic tradition, both, mainly the latter, are used by Catholic thinkers who are sensitive to the notion that revelation from God is not exclusively found in scripture.

Natural theology, in its widest sense, refers to the study of God and God’s nature with the understanding that these can be interpreted through God’s work, or creation. Many thinkers employing this theology begin their study from nature – and correspondingly through scientific data – and reflect upon these observations in light of their faith. Natural theology emerges out of the medieval view that distinguished between insights about God from nature and supernatural revelation (that included that which was revealed in scripture). While I do not wholly place our four Christian thinkers within this theological category, it is fair to argue that all four view

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69 See Ian Barbour, *When Science Meets Religion: Enemies, Strangers or Partners?* (New York: Harper Collins, 2000), 27-38; Barbour, it should be noted, places Ruether more in the theology of nature category, which does not start from science, as natural theology tends to do, but from a religious tradition based on religious experience and historical revelation and applies these to reformulation in light of current science. Arguably, none of our interlocutors falls into either category. Barbour assigns an entirely different one, which, as we will see in Chapter 8, is more in line with his category of “systematic synthesis.”

creation as a means for arriving at understandings about God. As a case in point, as we discussed in Chapter 4, Berry surmises that we have such a wonderful idea of God because we live in such a gorgeous world. Were we to live on the moon, our ideas would change, as “Our sensitivities would be dull because our inner world would reflect the outer world.”

The natural law tradition, at least in Catholic thought where it is most employed, maintains this nature-revelation distinction found in natural theology. While there are many versions of natural law, making a definitive definition difficult, by and large it holds that moral obligations, norms, and values “should reflect the reality of the human condition.” These truths are discovered, and then subjected to evaluation through natural human reasoning capacities without the aid of supernatural revelation. The implication here is that facts are not morally neutral. We can see how such thinking challenges the naturalistic fallacy we discussed in Chapter 5, as the natural law tradition does hold that an “ought” can be derived from and defended in terms of an “is.” While it is clear from our examination of the ethical visions of our four Christian thinkers that they do indeed believe that moral norms can be derived from nature, or even that nature is somehow an extension of the mind of God, the natural law tradition, as it is currently, and popularly understood does not adequately describe what our interlocutors do.

For one, natural law as currently and commonly understood, is less about following nature and more about “practicing norms of our [human] nature,” as James A. Nash points out. Such an approach raises the human being above and beyond the natural world, and stresses the

71 Berry, *Befriending*, 9; cf.: footnote 111, my Chapter 4.
73 Nash, 230. Having roots in early Greek tradition through stoicism, natural law was also employed in Thomistic thought, Enlightenment thought and various Protestant versions (228).
74 Nash points out that because norms and values are discovered through reason, natural law should not be confused with relativism or emotivism (231).
75 To be sure, Ruether in my interview with her believes she follows natural law. See my footnote 53, Chapter 1. Thomas Clarke, in conversation with the writings of Berry in *Befriending the Earth* (29, 59), believes there is continuity between Berry’s thinking and natural law, with which I agree. Berry himself, though he makes much use of the thinking of St. Thomas, does not espouse following a natural law, nor – as far as I can tell – do Boff or O’Murchu. It should be mentioned that natural law has been used in the past to promote slavery, racism and gender inequality (Nash 229). This could explain one reason why it is not used by some scholars: it discounts other ways of knowing and highlights the human and above and beyond nature. Some theologians eschew its use for other reasons. Allsopp, for instance rejects it because it is not Christocentric enough (Allsopp, 67).
use of reason over other ways of knowing the world, thus giving it a strong anthropocentric character. However, Nash and other proponents propose that natural law can be revised in such a way that the human is viewed as being part of nature and that our approach to the world could be inclusive of a broad epistemology. Still, even within this more ecological-friendly skin placed on natural law, some scholars have their doubts about its efficacy, as it can be too static or hierarchical. Disagreement on its relevance also arises from what scientists are saying about the strangeness and counterintuitive character of the natural world.

Notwithstanding these inconsistencies between natural law and the approach to ethics by our four Christian thinkers, I think it is fair to say that we find continuity between their visions and this primarily Catholic concept – with its underlying theories, shared with the vision of natural theology which finds God in creation.

### 7.3.2 The Inspiration from Pierre Teilhard de Chardin

It is precisely a world viewed as enchanted, imbued with a sense of the divine, which underlies the writings of Pierre Teilhard de Chardin. Teilhard de Chardin sought out to find a scientific understanding of the world that did not involve a separation between the sacred and the profane. Teilhard de Chardin was a Catholic Jesuit priest, a brilliant paleontologist, as well an inspired thinker whose writings tremendously influenced not only our four Christian thinkers, but an entire generation (and continues to do so). We recall from Chapter 3 how O’Murchu had felt after first having read the writings of Pierre Teilhard de Chardin: “Truly, my heart burned within me; everything I read resonated with a depth and conviction I had not known for many years.” In fact, in *Divine Milieu*, which has so inspired O’Murchu, Teilhard de Chardin writes:

> To repeat: by virtue of the Creation and, still more, of the Incarnation, *nothing* here below *is profane* for those who know how to see. On the contrary, everything is sacred to the men who can distinguish that portion of chosen being which is subject to Christ's drawing power in the process of consummation.

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76 Nash, 232 ff. Michael S. Northcott is also a proponent of a revised natural law (*The Environment and Christian Ethics* [Cambridge: Cambridge University Press, 1996]).

77 See Bakken, Engel and Engel, 21.

78 See my discussion on Carl Sagan in footnote 76, Chapter 6; cf.: Brian Swimme, *The Hidden Heart of the Universe*, 24, 77, 93.


John Grim and Evelyn Tucker tell us that as a Catholic and a scientist, Teilhard de Chardin “sought to unite his scientific affirmation of the world of matter with his formative Catholic faith in the divine.”\(^8^1\) As Teilhard de Chardin puts it, “There is a communion with God through the earth.”\(^8^2\)

Teilhard de Chardin was the first person, however, Grim and Tucker remind us, to describe the universe as having, from its beginning, a psychic-spiritual and physical-material dimension. This, as our four theorists insist, allows the humans story to be identified with the universe story. Human beings can now see themselves as being fully Earthlings within a cosmogenesis. Hence, one of Teilhard de Chardin’s remarkable legacies is that he presents an intellectual and affective synthesis of evolution that draws in the domains of religion and science:\(^8^3\)

He dramatically shifted Christian theological agendas from an exclusively redemptive focus on the historical person of Jesus of Nazareth toward one cognizant of the dynamic picture of creation given by evolutionary sciences. His sense of the Cosmic Christ embedded within and drawing creation forward constitutes a creative reading of the Gospels, the epistles of Paul and the Church Fathers.\(^8^4\)

Teilhard de Chardin had originally set out to shift dramatically the science of his day which was analytical.\(^8^5\) Interestingly, in the course of trying to give a scientific description of the whole (phenomenon of the human being), he viewed religion with its sense of the mystical as completing the act of knowledge.\(^8^6\) In fact, Teilhard de Chardin regarded the convergence of science and religion as inevitable, as one needs the other to develop “normally:”

Neither in its impetus nor its achievements can science go to its limits without becoming tinged with mysticism and changed with faith…religion and science are the two conjugated forces or phases of one and the same complete act of knowledge.\(^8^7\)

\(^8^2\) Ibid., 158.
\(^8^3\) Grim and Tucker, “An Overview of Teilhard’s Commitment,” 162.
\(^8^4\) Ibid., 160.
\(^8^5\) Teilhard de Chardin, *The Phenomenon of Man*, 312.
\(^8^6\) Deane-Drummond, “Theology and the Biological Sciences,” 363.
\(^8^7\) Teilhard de Chardin, *The Phenomenon of Man*, 311 and 313. Teilhard de Chardin uses “convergence” much in his treatise and not always in the epistemological sense. Convergence broadly can denote “the tendency of mankind, during its evolution, to superpose centripetal on centrifugal trends, to prevent the centrifugal differentiation that is a result of evolution from leading into fragmentation,” according to Sir Julian Huxley, who introduces *Phenomenon of*
He writes more on the notion of this convergence in his preface to *Phenomenon of Man*:

Like meridians as they approached the poles, science, philosophy and religion are bound to converge as they draw nearer to the whole. I say ‘converge’ advisedly, but without merging, and without ceasing, to the very end, to assail the real from different angles and on different planes.  

Teilhard de Chardin thus helped lay an important foundation for an epistemological model for engaging science and Christianity in a deep conversation. This and his view of an enchanted world, one imbued with a sense of the divine, are two important inspirations for our four interlocutors.

### 7.3.3 The Catholic Imagination

While I place the Catholic imagination as an inspiration in its own category, a reasonable case could be made that would place it as the larger vision under which we could suitably place natural theology, natural law and the work of Teilhard de Chardin. Since the concept of the Catholic imagination is very useful in helping understand the distinction between it and the Protestant heritage, it merits a more exclusive discussion. The Catholic imagination, as posited by Catholic writer and priest Andrew Greeley, is a view of the material world that is enchanted and sacramental, infused with the creative and providential work of God. Such a view nourishes not only a loving relationship with the physical Earth and indeed the universe, but moderates the distinction between the sacred and the profane. With his concept of the Catholic imagination, Greeley offers an insight into what underscores the work of our four Christian thinkers and what facilitates for them a more profound rapport with the natural sciences as a means of engaging with the material world.

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*Man* (14). In fact, Teilhard de Chardin is concerned with maintaining “variety-in-unity” (15), on all levels, be it energy, thought, consciousness, matter: these all arise from a single evolutionary process. With regard to religion and science, as Huxley himself affirms, “it is no longer possible to maintain that science and religion must operate in thought-tight compartments or concerns separate sectors of life; they are both relevant to the whole of human existence” (28).

88 Ibid., 32. Earlier on the same page, Teilhard de Chardin states, “During the last fifty years or so, the investigations of science have proved beyond all doubt that there is no fact which exists in pure isolation, but that every experience, however, objective it may seem, inevitably becomes enveloped in a complex of assumptions as soon as the scientist attempts to express it in a formula.”

Greeley writes that Catholics tend to see the world as enchanted, “a world of statues and holy water, stained glass and votive candles, saints and religious medals, rosary beads and holy pictures.” Whether practicing or lapse Catholic, to such a Christian, he avers, these “paraphernalia are mere hints of a more persuasive religious sensibility which inclines Catholics to see the holy lurking in creation.”\(^{90}\) He notes that this view could also be called sacramental, as “it sees reality as a ‘sacrament’, that is, a revelation of the presence of God.”\(^{91}\) Yet, by using “imagination,” he seems to convey the understanding that Catholics actively participate in an enchanted milieu. Greeley does not limit this enchantment to our planet, though, as “black holes, dark space, the non-locality of particles, big bang inflation and the great attractor suggest that science may have an enchantment of its own.”\(^{92}\) In fact, according to Greeley, “Everything in creation, from the exploding cosmos to the whirling, dancing, and utterly mysterious quantum particles, discloses something about God and, in so doing, brings God among us.”\(^{93}\)

In distinguishing between the Catholic imagination and the Protestant heritage (or Protestant imagination), Greeley is not stating that belief necessarily separates the two. Rather, the former invests these common Christian beliefs with their distinctive sensibility, “developing Easter lilies and Santa Claus, and the Feast of Corpus Christi.”\(^{94}\) Such sensibilities arise as the Catholic imagination emphasizes the metaphorical nature of creation where the material world “hints” at the nature of God to us and “makes God in some fashion present to us.”\(^{95}\) So while the Catholic imagination stresses what is similar through metaphor, or analogy, the Protestant imagination emphasizes what is not similar. He takes the work of Protestant theologian Paul Tillich as an example. Dissatisfied with anthropomorphic language to define God, Tillich tries to avoid this by talking about a “God beyond God, about whom nothing at all could be said or known except negatively.”\(^{96}\) In fact, it is the negative or dialectical that describes the Protestant imagination in contrast to the analogical that describes the Catholic imagination.\(^{97}\)

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\(^{90}\) Ibid., 1.
\(^{91}\) Ibid., 1.
\(^{92}\) Ibid., 2.
\(^{93}\) Ibid., 7.
\(^{94}\) Ibid., 4.
\(^{95}\) Ibid., 6. Greeley uses metaphor interchangeably with analogical.
\(^{96}\) Ibid., 8.
\(^{97}\) Greeley credits his insight on the Catholic imagination, in large part, to the work of David Tracy (*The Analogical Imagination*), who noticed that the classic works of Catholic theologians tend to emphasize God’s
Greeley proposes that probably the most significant difference between Catholics and Protestants – apart from most of the latter dismissing votive candles, stain glass, and religious medals as “superstition and perhaps idolatrous”98 – is that the former tends to accentuate the immanence of God while the latter the transcendence of God. In placing God in creation, Protestants emphasize that we risk superstition and idolatry. Contrarily, in placing God outside creation or as only marginally present, Catholics move into a dangerous world where God is remote.99

There is evidence to support Greeley’s claim that the Catholic imagination plays a role in how Ruether, Boff, O’Murchu and Berry approach the material world.100 We recall in Chapter 5, when discussing the living relationship with all creation, how each of our Christian thinkers had formed, at a relatively early age, by a loving, even reverential relationship with nature and, initially at least, a specific place – the San Bernardino Mountains, the Irish countryside, the Amazon forest, a North Carolinian meadow. The universe for them is enchanted, sacramental, and this continually forms their love for it, which, in turn, fosters an urgency to seek liberation for all creation. By way of example, the Catholic imagination infuses Berry’s writings, most notably through the Universe Story, which sees the universe as the primary religious reality, and with his concern for assimilating elements of paganism, which sees within creatures and trees, “revelations of the divine and inspirations to our spiritual life.”101 To be sure, Berry is less concerned with “statues and holy water, stained glass and votive candles,” and more concerned with falcons and rivers. Yet, the main point holds: the primordial revelation is the universe and

presence in the world, while the classic works of Protestant theologians tend to emphasize God’s absence from the world. Neither Tracy nor Greeley emphasizes that this makes one imagination better than the other; both are necessary.

98 Greeley, 5.
99 Ibid., 11-13. Greeley notes that the Protestant Reformation was, in part, “a protest of a segment of a clerical elite and the newly emerging middle class against the continuation of paganism at a time when the Dark Ages had been definitely left behind” (13).
100 See Greeley form 16-21 where he outlines what his essay is not, such as a definitive account of how all Catholic see the world; nor is his a theological treatise.
not scriptures. To this end, he often refers to Thomas Aquinas who writes about the “perfection of the universe” and his use of the analogical character to human knowing as a way of learning about the universe and our role in it.

Boff, likewise, sees reality as a sacrament and, therefore, a revelation of the presence of God. He writes, “The sacred texts and traditions that attest to revelations are only possible because the sacred and the revelations are first in the world,” adding, “It is because things speak and are charged with sacramentality that enthusiasm, poetry, painting, invention, and all the inspiration present in each type of knowledge up to the most formal knowledge of modern physics are all possible.” His panentheistic views of creation, as well as his cosmic Christology, attest to this. In my interview with O’Murchu, he suggests – admitting that he had only anecdotal evidence for his observation – that Catholics, even when they leave the Church, tend to be more reflective people, “very grounded, Earthy, very human, very creative.”

In my interview with Ruether, she recounts an incident that, at least to her, reflects why her Catholicity has influenced her ethical vision. She tells of the time when she was teaching at Berkeley and at the Sophia Center (for Culture and Spirituality) in 2006. The Sophia Center was, at one point, not sure if it could continue where it was based (at Holy Names University), so members from the Center were casting around for an alternative venue to locate themselves. The Sophia Center, for Ruether, was a place she felt comfortable speaking about the Universe Story, ecology and ecofeminist thought. Since the Graduate Theological Union (GTU) at Berkeley had taken in a lot of programs in the past, she thought she would make an inquiry as to whether the Sophia program might locate itself there. The story she recounts is interesting, and it lends

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105 Boff, *Cry of the Earth*, 151.
106 Ibid., 159.
107 Ibid., 153. Panentheism, in contrast to pantheism which sees all as God, sees God in all, and all in God. In other words, God is both immanent and transcendent (152-154).
anecdotal support to Greeley’s hypothesis, as resistance to the idea came from one Protestant denomination:

The Pacific School of Religion [which is a participating member of the GTU] has the United Church of Christ as one of its affiliations and, basically, the answer from the college was “no” and rather hostilley. And it was not clear whether they saw Sophia as using a kind of language that was unacceptable to them. I was totally surprised because we were talking about nature in sacramental terms which was something that they, as Protestants, couldn’t accept. I was really kind of surprised, because it was almost like they were harking back to [the] old history of their tradition that really had not recognized this kind of dimenion. I was actually surprised [as] what was kind of sacramental language of nature [which we used at the Sophia Center] was taken for granted at Holy Names, which was really hard for them. There were several people that spoke forcibly [against the application, but] they didn’t know how to counteract it. That was the end of the Sophia Center’s application there.\textsuperscript{108}

While a far more thorough account of the Catholic imagination would be needed to discern the exact influence it has upon the ethical visions of our four interlocutors, I submit that their views of a world that is enchanted and infused with sacredness and their proclivity to finding analogies between creation and God have greatly inspired their visions. Their Catholic imagination has served not only to help foster a love for all creation, but to find readily within the material world a platform from which to learn about creation, God, humans, and our role on Earth. And since science is the quintessential means to learn about the world, it receives a preeminent role in fostering an ethical vision.

Might not this same worldview stem from a Protestant imagination as well? It certainly can, and Greeley himself does not discount this, and certainly the works of Sallie McFague and Michael attest to the deep concern and love they share for creation. Furthermore, we should not forget, as discussed in the Introduction to this dissertation, that Catholic bishops in the United States, as late as 1999, were still “uneasy” with the use of the term “sacramental” within pastoral letters on the environment. Greeley, however, suggests that Catholicism is unique as religion as it “most at ease with creation.” He writes:

\textsuperscript{108} In the end, Holy Names University decided Sophia Center could stay and the issue was closed. I should note that the question I asked Ruether, which elicited this response did not mention the Catholic imagination. Instead, I only asked her, “How much do you suppose your Catholicity comes into play in regards to [the formation of your ethical vision]?”
Of all the world religions which emerged in the last half of the millennium before the Common Era and the first half of the first millennium of the Common Era, Catholicism is the most at ease with creation. It has never been afraid (at least not in principle) of ‘contaminating’ the purity of spirit with sensible and often sensual imagery.\textsuperscript{109}

To this, we might add that in their critical survey, Bakken, Engel and Engel note that a comprehensive review of the response to environmental issues in American Protestantism from 1970 to 1990 found on the whole that “a major shift toward environment concern within Protestantism to be internally divided, unclear about its ‘community’ model of the ethical life, lacking in philosophical and scientific rigor, and politically naïve and uninformed.”\textsuperscript{110} We might also point out that the criticisms Lisa Sideris raises with ecotheologians misappropriating science are directed at (with the exception of Ruether) Protestant ecotheologians: for instance, Michael Northcott, Sallie McFague, John Cobb, Jürgen Moltmann, and Charles Birch.\textsuperscript{111} Sideris recognizes this and suggests as one reason for this,

\begin{quote}
May be that Protestantism has been more closely wedded to scripture and its significance for orthodoxy than has Catholicism. As such Protestants have also been an easier target for critics who trace environmental destruction to certain key scriptural passages that seem to encapsulate and perpetuate the ‘Christian’ anthropocentric, instrumental attitude toward nonhuman life.\textsuperscript{112}
\end{quote}

While the anecdotal evidence seems to steer us to accept Greeley’s conclusion that amongst religions Catholicism is\textit{ most} at ease with creation, I am not prepared to accept such a sweeping claim. I think it better to say that there is a way of viewing the world, one predominantly embraced by the Catholics, though not by all Catholics, nor exclusively Catholics. And that this worldview is very conducive to cultivating within individuals an “ease with creation.” After all, as Greeley astutely notes, a metaphor is a two-way street: when we use metaphors as tools to understanding God, these in turn affect how we view the world. Romeo, who compares Juliette to the sun in the Shakespearean play, as Greeley notes, is thereafter going to look at the sun in a different way.\textsuperscript{113} Similarly, the clover St. Patrick uses to describe the Trinity, once accepted, is more likely to thereafter be viewed in a fresh light and arguably with

\begin{footnotes}
\item[109] Greeley, 10.
\item[110] Bakken, Engel and Engel, 3.
\item[111] Sideris, \textit{Environmental Ethics}. We note that her later work on the scientific method was directed primarily at the Evangelical Christian tradition.
\item[112] Sideris, \textit{Environmental Ethics}, 4-5.
\item[113] Greeley, 10.
\end{footnotes}
more reverence. The metaphors of *Pacha mama* or Gaia for Earth, as we discussed in Chapter 6, imprint within us a different way of approaching the planet. Carolyn Merchant has described this phenomenon in her historical analysis of human views of nature in *The Death of Nature*: “The image of the earth as a living organism and nurturing mother has served as a cultural constraint restricting the action of human beings.”\(^{114}\) She explains how miners, before seeking metals within “the uterus of the Earth,” “offered propitiation to the deities of the soil and the subterranean world, performed ceremonial sacrifices…observed fasting before violating the sacredness of the living earth by sinking a mine.”\(^{115}\) And, as we have seen on our discussion on metaphors, and what Merchant acknowledges, when the mother image of Earth turns into that of a “wicked stepmother,” as happened in Saxony, the metaphor can be used to serve commercial interests.\(^{116}\)

**Conclusion**

We have examined in this chapter whether our four theorists have taken Christianity seriously, a question that is not entirely unwarranted given the great degree to which they are asking their religion to change to meet the needs of a planet. It became clear that there is no one “orthodox” view of Christianity or methodological and cognitive model for doing theology – and more importantly, could not be – in which we could assess the question at hand. The plurality of approaches and viewpoints, as well as cognitive models used in theological deliberations that characterize the current state of theology precludes this simple approach. Instead, we found that a relational model for discerning truth could serve as a viable way of discerning the quality in which our four thinkers have approached Christianity. The model takes the plurality of viewpoints and cognitive models as its starting point, and thereafter seeks only to arrive at a relative adequacy of conclusions. Dialogue becomes the most viable method for arriving at mutual understandings. As such, we inquired whether their reflections serve as thoughtful corrections to current thinking and practices. We asked whether their reflections pay critical

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\(^{115}\) Ibid., 4.

\(^{116}\) Ibid., 33, 41.
attention to hidden or silenced perspectives, different points of view and cognitive models. And we questioned whether there is a provisional character to their reflections.

While it became clear that our four interlocutors have taken Christianity seriously within the framework provided above, we found that they have also taken the integration of environment, liberation, science and their faith with care. Each of these four domains has been allowed to affirm, clarify and, more importantly, to qualify and inform the others. In fact, the challenges to Christian theology from our four interlocutors, and the firmness with which each engages his or her own faith, appear not as a trivialization of Christianity, but more like the fruit of an intense conversation with it in order to *equally* engage with the social and ecological realities facing our planet, and pre-eminently with findings from science, with the ultimate purpose of uniting a liberationist agenda with an environmental ethic. Evidence suggests that while the concerns for liberation for all creation can inform their Christian doctrines and beliefs, so too does their Christian faith inform their love for Earth and all its inhabitants. Just as science informs and qualifies their religion, so too does their religion show science the power of the dream and the importance of embracing a certain mysticism when exploring the universe. There appears to be no simple grafting occurring here.

Finally, we queried why we find these particular four Christian thinkers taking the environment *and* liberation *and* science *and* their faith seriously, while other Christian thinkers, notably Protestant, seem to struggle with the task. I suggested that their gravitation toward a form of natural theology, and natural law might play a role in this. Through reason, both these methods purport to find evidence of God and the values humans are to follow within creation. Neither, however, fully explains the force with which our four Christians engage with science, nor the ease with which they relate to all of creation. The writings of Teilhard de Chardin that have inspired the ethical visions of all our thinkers, I suggested, have further inspired their understanding of an immanent God and have laid a ground work for an epistemological model for engaging science and Christianity in a deep conversation.

However, we found that it is notably the Catholic imagination that seems to capture the overall inspiration behind the ethical visions of our four Catholic thinkers. The Catholic imagination, according to Greely, conceives a world that is enchanted and infused with sacredness. It seeks analogies between what is found in creation and what one believes about
God. The Catholic imagination that inspires our four Christian thinkers has served not only to help foster within them a love for all creation, but to see the material world as a platform from which to learn about creation, God, humans, and our role on Earth. And since science is the quintessential means to learn about the natural world, it receives a preeminent role in fostering an ethical vision. Does the Catholic imagination sufficiently account for why the Christian thinkers who take liberation, environment, science as well as their faith seriously happen to be Catholic? Not necessarily, but, as we have seen, it could explain why Ruether, Boff, O’Murchu and Berry seem to be so at ease with all creation and the employment of science and why their ethical visions are so grounded in the realities here on Earth.

The question posed at the beginning of this chapter remains: is there a limit to the degree to which Christian beliefs and practices can be revised to accommodate the pressing realities of our time and, more importantly, new findings from scientific research? This is a question to which I will return in the conclusion to this dissertation. As suggested in Chapter 5, Ruether, Boff, O’Murchu and Berry appear much less concerned with arriving at an approximation of truth, and far more concerned with arriving at an assessment of truth. Whether it is the concept of redemption in the afterlife, ecclesiology, Church dogmas, or the employment of the Bible in our current daily lives, any “truth” must be assessed in light of whether or not it fosters liberation for all of creation. Just as the concept of liberation needed to become open to change so that it could be more inclusive of all creation, the positive science with its discursive mathematico-logical reason needed to become open to other ways of knowing the world, including the mystical, so that it could more adequately describe the world. So too is Christianity being asked to be open to accepting the relative adequacy of its promulgations, which requires of Christians an open-ended inquiry, autonomous judgment, critical reflection, a skeptical hard-mindedness, and a “willingness to follow the evidence wherever it may lead.”

For now, a more pressing examination of the communal conversation that these four Christian thinkers generate between their religion and science needs to take place. Apart from the Catholic imagination that fosters a hermeneutics of ease with the material world, and therefore concern for its welfare and an openness in employing science that explores it, there is more at play here that has allowed our four Christian thinkers to integrate their faith with science. We find a deep convergence occurring that is characterized by a vast communal conversation. It is no
longer clear in this conversation when the domain of Christianity starts speaking and when the domain of science stops. Describing this conversation and its characteristics is the aim of our last chapter.
Chapter 8
Identifying a New Typology

Introduction

In this last chapter, I wish to stand back and assess what it is we have observed happening in the previous chapters. Our four theorists appear to be fostering a close and seemingly permanent connection between their religion and science as two significant ways of knowing the world. The conversation they envision is widely inclusive of a multitude of ways of apprehending reality, and comprehensive of the concerns and needs of a vast number of subjects, both human and other-than-human. The goal of all this is to arrive at an ethical vision that fosters liberation for all creation. In regard to Christianity and science, there is something distinctive about the manner in which knowing occurs, as the epistemological boundaries between these two domains appear blurred. In fact, I suggest that the image we discussed in the last chapter where Teilhard de Chardin depicts religion, philosophy and science seemingly converging “like meridians as they approached the poles,” captures fairly well the epistemic dynamics we are observing here between religion and science.

This notion of a convergence between religion and science, and more specifically between Christianity and science, is an idea shared by many. Alfred North Whitehead speaks of Christianity and science converging to address pressing issues.1 More recently, scholars attending a forum at the 1999 Parliament of the World’s Religions, concerned about the current ecocrisis and the religious implications of science, produced a book with the title, When Worlds Converge: What Science and Religion Tell Us about the Story of the Universe and Our Place in It. And while “convergence” is “clearly in the wind,” writes Jim Kenney who concludes the book with his chapter, “On Convergence,”2 the manner and form in which a convergence between religion and science will occur is all but settled.

1 Whitehead (see my Introduction, footnote 47).
Kenney employs the analogy of spokes in a wheel, following the Hindu story of the sacred wheel, “a symbol of the richly variegated human quest.” The rim represents knowledge at the most superficial level. The hub represents the common source and deepest level of each and every way of understanding. He explains:

And as one moves ‘along a spoke’ and ‘toward the center’, one begins to apprehend the necessity and the power of encounter and dialogue with the other. As the distance between spokes diminishes, as their convergence becomes more apparent, it becomes increasingly urgent to reach out and engage the other way of knowing. 

While a helpful metaphor of a convergence, what is not clear is what exactly about religion and science is converging. Interestingly, Teilhard de Chardin in his analogy of meridians uses the word convergence “advisedly” because there is no merging. Given his credentials as a scientist, as well as a Christian thinker, we can take this to mean that the definitional integrity of each body is somehow preserved. In Teilhard de Chardin’s parlance, differentiation is maintained, but in unity. This analogy appears to be more in tune with what Ruether, Boff, O’Murchu and Berry are suggesting. If there is a type of convergence, then, but no merging, what is it that is occurring?

I set out here to answer that question. In so doing, I will demonstrate the central thesis of this dissertation: that the communal conversation that these four Christian thinkers have generated between their religion and science reveals a new epistemological framework for Christianity and science, one I am calling convergent knowing. It is a framework formed by an epistemic convergence between Christianity and science, marked by a close and seemingly permanent connection between their religion and science. This framework serves as the epistemological means that has facilitated the thoughtful and, at times, bold integration process whereby each domain of the four-fold nexus – Christianity-science-environment-liberation – is allowed to not only to affirm and clarify, but to inform and qualify the others.

Open Court Publishing Company, 2002), 369. To be sure, the matter of convergence between religion and science is the subject of the last third of the book, while the second third deals with the convergence of religion and ecology, and the first third deals with larger cosmological issues.

3 Ibid., 368.
4 Ibid., 368.
To demonstrate this, I will begin this chapter by briefly recounting the epistemological framework our four theorists have employed, as we have investigated in Chapters 1 to 4. Given the great similarity amongst their frameworks, referring to them as a whole will not be problematic. I will then set out to classify what we see in relation to current typologies that theorists are employing to describe how religion and science relate. As will become evident, however, what our four interlocutors are promoting does not fit readily into any one established classification of the religion-science relationship. One reason for this is that the relationship between Christianity and science being promoted is specifically an *epistemic* convergence. Another reason is that current typologies are not chiefly concerned with the environmental and social context of our time, which is paramount for Ruether, Boff, O’Murchu and Berry. More often than not, we find an implicit or explicit goal of proving the plausibility of God (the strong anthropic principle, for instance) or the relevance of Christianity. The question of what kind of science or Christianity we need in order to address our pressing problems is not as paramount. I offer a new typology that positions this question at the forefront of the debate.

Building upon the biological scaffolding presented by biologist Lynn Margulis with her theory of endosymbiosis, I explain convergent knowing through metaphor. Notwithstanding the merits of the metaphors employed by Teilhard de Chardin and Kenny (meridians and spokes of a wheel), I suggest that such a metaphor describes more adeptly what it is we are seeing. I will conclude by discussing the implication of convergent knowing as an epistemological framework and its potential benefit to Christians who are engaging with the natural sciences and the broader Earth community in order to arrive at an ethical vision that fosters harmony amongst humans and between humans and other-than-humans.

### 8.1 A Unique Epistemological Framework

Reality for all four interlocutors, we recall from our discussion in previous chapters, is relational. This means we cannot fully know any subject without entering into some form of relationship with that subject and perceiving the subject from her, his or its own perspective. Indeed, each subject has her, his or its own relational paradigm (temporally and spatially) with the rest of the universe, which must be taken into account. Since such a feat is ultimately impossible to achieve, we accept that there are limits to our knowing. Employing a variation of critical realism that acknowledges the contextual nature surrounding truth, which forever escapes
our grasp, our four Christian theorists accept a multi-dimensional character to the universe. Everything might tell a story, but a multi-dimensional nature to reality implies that there are many layers to the story, each layer manifesting itself differently and simultaneously: as myth, fact or feeling, for instance. “To know” means to embrace an integral relationship amongst the past and present of a subject along with her, his or its dreams and desires of a future. As this directionality of reality also extends spatially, we are to embrace the participation from voices of subjects from the entire globe, which includes the entire natural world. The immensity of this embrace is delimited by the importance given to bioregionalism, wherein the greater part of the conversation occurs. Finally, given the simultaneous multi-strata to the story, knowing must occur in chorus with commensurate ways of apprehending reality: through sensory observation, at one level, for example or, in some cases, at an intuitive and even visceral level; dance, song and poetry are used alongside rational discourse in the process of knowing.

What is key to note here about this vast epistemological paradigm that our four thinkers propose is that there is no distinct separation amongst these facets of knowing. Nor does there appear any defined hierarchy to ways of knowing: while the scientist obviously makes use primarily of a discursive scientific rationality in reaching her or his conclusions, there is no sharp delineation as to how she or he arrives at conclusions. Knowing is ultimately an integral enterprise of engaging a multi-dimensional epistemological dialogue. It is indeed, as Berry says, a shared communal “symphony” of truths that requires of us, first and foremost, a healthy competence to listen. In short, in their utilization of science, our four Christian thinkers present a framework whereby the epistemological boundaries between religion and science are blurred. What we are seeing, I wish to suggest, is not a synthesis of the disciplines of science and religion – as each maintains its definitional integrity. Nor is what we are seeing a mere merging of two “separate orientations” to our cosmos or “orderings of reality” that humans are capable of experiencing. It is, as Teilhard de Chardin and Kenny describe, more a convergence of sorts. Allow me to explain, as the distinction here is important.

Anthropologist Stanley Jeyaraja Tambiah, for instance, greatly influenced by the work of Lucien Lévy-Bruhl, a philosopher whose thoughts on the human mind challenged
contemporaneous assumptions on the “primitive” and modern mentality, proclaims that there are at least two modes of understanding our world. He labels these two modes “participation” and “causality” with the former representing the more relational and affective dimensions of reality, while the latter refers to the rules and methodological processes of positive science with its discursive mathematico-logical reason. While accepting two complementary orientations to our universe acknowledges that there are other viable ways of knowing the world, the two in Lévy-Bruhl and Tambiah’s viewpoints remain distinct. I suggest that holding such a rigid distinction between ways of knowing the world might explicate some if not many of the problems we have in arriving at viable ethical visions for our planet. Even in cases where scholars define a very strong dialogue between religion and science, too often a strong epistemological divide is maintained between these two domains, leaving science to “describe” the world and religion to “prescribe” how we ought to be and act in it. Such a rigid distinction between ways of knowing the world, especially on matters pertaining to “logical reasoning,” is more likely to be exclusive. Moreover, as we discussed in Chapter 5, this demarcation is somewhat artificial, as we arrive at an understanding of our world by means of a whole system of thought. Might recognizing the integral and inclusive nature of knowing make a difference in how theologians approach science, the environment and liberation?

I suggest it might indeed. If we return to the discussion that opened this dissertation in the Introduction, we can now more readily see that maintaining this demarcation between ways of knowing the world could be a main reason why, as Bakken, Engel and Engel noted, the process

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5 Stanley Jeyaraja Tambiah, *Magic, Science, Religion and the Scope of Rationality* (New York: Cambridge University Press, 1990), particularly Chapter 5. I am not comfortable using the term “primitive” and am conscious of the baggage it carries. I use it here as it is the wording Lévy-Bruhl and Tambiah use themselves.
6 Ibid., 107-108; causality represents the cognitive aspects of distancing and neutrality while participation identifies a relationship of closeness in space or time occurring amongst persons, groups, animals and natural phenomena. This relation of contiguity can manifest itself in many ways: through people’s identification with the land of their ancestors, communion with nature, protection of land from pollution, memorials and even amulets: “an ensemble of relationships,” as he puts it.
7 The “dialogue” typology Ian Barbour (When Science Meets Religion, 24-27) employs, for instance, names a number of authors that find methodological and conceptual parallels between these two domains, but a greater integration of how each knows the world is denied. An epistemic demarcation between religion and science is clearly demarcated. See also Whitney Bauman, “Religion, Science, and Nature: Shifts in meaning on a Changing Planet,” Zygon 46, no. 4 (December 2011): 777-792, ATLA Religion Database with ATLASerials, EBSCOhost (accessed February 3, 2014). Bauman argues well how religion and science in dialogue complement the process of arriving at meaning in our world; science may even suggest new ways of relating to the rest of the natural world, but science does “not indicate what or ‘how’ we ought to become…” (788).
of integrating ecology and justice and the Christian faith has been a struggle. As long as these orientations to our world remain distinct, I suggest that we are more likely to continue hearing that ecotheology is “unbiblical” and therefore heretical in its view of God, humanity and nature. Without such an understanding of the integral nature of knowledge, it seems more likely that we will continue to hear some scientists use the adjective “theological” in pejorative terms, so as to designate a vague or ill-formulated belief. Under such circumstances, the likelihood that scientists will recognize the power of the dream and the importance of embracing a certain mysticism when exploring the universe remains distant. Such scientists are more likely to assign numbers to the animals they observe, rather than names. It is also more likely that these scientists will continue to employ metaphors uncritically, such as the “selfish gene,” ignoring the normative aspects that are built into the term. I suggest, as well, that with such a demarcation theologians are more likely to continue to be challenged by physicalist accounts of reality, ones that view life as the product of a blind process of replication and selection, thus relegating humans and animals to being mere robots or machines.

Equally as important, without an inclusive way of knowing, policy makers are apt to continue their inaction on debt cancellation for the millions of peoples of Mozambique and/or climate change for the peoples of Bolivia, ostensibly sanctioning their suffering and arguably even their death. If the rivers of the world remain excluded from conversations on sustainability – as is likely the case in an epistemological framework that excludes their “voices” from the decision-making processes – the rivers are more likely to continue to be dammed and to run dry before reaching open water ways.

Such a rigid distinction between ways of knowing the world is the antithesis to the thinking of our four interlocutors. Instead, they understand there to be no thought-tight compartmentalization between how religion and science are arriving at truths; the epistemological distinction between the two domains or orientations to our world becomes less distinct; the exchange of understanding the world between them is more fluid than supposed. What is more, when focused on the liberation of all creation, the conversation is inclusive of the larger Earth community. Knowing becomes an integral and inclusive process, realized relationally.
We could say that the kind of science our four Christian thinkers believe we need today and for our future is akin to a postnormal science, as described in earlier chapters. This is a science that eschews reductionist and mechanistic assumptions, and challenges assumptions that science produces final, precise estimates about reality that are free from uncertainty. It is a science that is broader in scope: it is also inclusive of normative social values and informed by inputs from community and stakeholders. At the same time, the kind of Christianity our interlocutors believe we need today and for our future is one that maintains an open-ended inquiry with science and with all of creation, and one that upholds the liberation of all of creation. It is evident, then, that our four Christian thinkers are espousing a specific relationship between their faith and science. What is not evident, though, is where within the current religion-science nexus we can locate this relationship.

8.2 Classifying the Framework

Classifications are difficult, especially as not all scholars define categories similarly. Many authors recognize this. Writing on the theme of naturalism, for instance, neurobiologist Owen Flanagan presents an argument that there are far too many meanings of naturalism (religious or secular) in use today to make any strong demarcation of who could be classified under that category. A generally well-accepted classification of the many perspectives on the religion-science nexus comes from Ian Barbour, who posited in 1990 four models for understanding the relationship between religion and science: conflict, independence, dialogue and integration. The epistemological approach of our Christian thinkers appears to fall within his last classification, which Barbour sees as a more systematic partnership between science and religion. Authors falling into this category call for extensive and systematic reformulations of traditional theological ideas, which is certainly true of our thinkers.

Barbour further divides his integration category into three subsets: natural theology, theology of nature and a systematic synthesis. This is where difficulty arises in trying to characterize the epistemological dialogue our four Christian thinkers are pursuing. While Berry’s

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program appears similar to Barbour’s understanding of natural theology,\textsuperscript{10} and is consistent with the personal response of “awe and wonder” that Barbour affirms many scientists experience in their work, the way Barbour defines natural theology makes it consistent mainly with a God of deism, an intelligent designer that is far too remote from the world Berry understands.\textsuperscript{11} Moreover, the seeming uni-directional (as opposed to dialogical) epistemology understood in Barbour’s natural theology suggests it is inappropriate to serve as a characterization of Berry’s thinking: if one starts with science, for instance – which is what is implied – and then merges findings with less empirical ways of knowing, the world would have to be mediated first and foremost by science, which is not accurately depicting what Berry is saying.\textsuperscript{12} Conversely, Barbour defines theology of nature starting not with science but from theology. Again, at first glance, while this classification might include Ruether (which is where Barbour himself places her), Barbour appears too strict on the uni-directional ways of knowing: he holds science and religion as being rather independent sources, which is not what Ruether posits. Moreover, Barbour is far too conservative on the extent to which only some traditional doctrines need to be “reformulated” in light of current science. In light of Ruether’s ecofeminism, this demarcation whereby a primacy is given to historical revelation is too strict and anathema to Ruether’s program. Finally, while Barbour’s systematic synthesis, which has “both science and religion contributing to a coherent worldview elaborated in a comprehensive metaphysics”\textsuperscript{13} – a point that does suggest it could serve as a category in which all our thinkers could fall – Barbour delimits the parameters of inclusion by assigning process thought as the most “promising” paradigm of such a systematic synthesis. Notwithstanding the veracity of his stance on process thought, it precludes Berry from the list. Moreover, depending on how process thought is understood, the other interlocutors might also have to be excluded. Stephen Scharper, for

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\textsuperscript{10} Ibid., 28; he places Aquinas under this category.
\textsuperscript{11} As we discussed in Chapter 7, all four of our interlocutors could fall, at least loosely, within this category. While Berry does not speak much about God, unlike the other interlocutors, (preferring terms like “numinous”), it is clear his understanding of the numinous is closer to theism than deism; see Berry (with Clarke), 	extit{Befriending the Earth}, Chapter 1.
\textsuperscript{12} While it is true Berry does start with science, as we have clearly seen, one can only understand this within the broader context of how Berry sees science working as a myth. We find other discrepancies in Barbour’s classification; he has thinkers like John Polkinghorne falling into the dialogue classification while Polkinghorne himself makes a claim for a new natural theology. I am not saying Barbour is necessarily wrong, but this example further demonstrates how difficult it is to classify: John Polkinghorne, “Christianity and Science,” in \textit{The Oxford Handbook of Religion and Science}, ed., Philip Clayton, ass. ed. Zachary Simpson (Oxford: Oxford University Press, 2006), 57-70.
\textsuperscript{13} Barbour, \textit{When Science Meets Religion}, 34.
example, notes that in light of John Cobb and Jay B. McDaniel’s process theology, the human is positioned too hierarchically over the rest of creation, which is not what any of our thinkers wish to do.\textsuperscript{14} So while Barbour’s systematic synthesis comes close to serving as possible articulation for the epistemological dialogue that our Christian thinkers are pursuing, it is on one level too limiting with its inclusion of process thought, while on another level too broad to give meaning to the intricacies of our interlocutors’ program.

William B. Drees raises a good point with regard to Barbour’s categories: they do not pay sufficient attention to which kind of religion is supposed to be in conflict with, or independent from, or integrated with, which kind of science. He suggests it is better to focus on debates and contexts to understand the particular relationship between science and religion.\textsuperscript{15} In this light he presents a model that classifies the religion-science debate into nine relationships. While this breakdown certainly offers more precision on definitional matters, it also narrows the parameters of inclusion which, as Drees defines them, exclude our four Christian thinkers from coming under any one classification.\textsuperscript{16} We have with Drees, then, the same problem as we have with Barbour.

Similarly, Ted Peters presents an eight-fold classification. His first six categories that look carefully into the languages each domain uses, and the way each views reality, certainly allows us to see the conflict, independence and dialogue debates – as understood by Barbour – more

\textsuperscript{14} Scharper, \textit{Redeeming the Time}, Chapter 3. Scharper also finds difficulty within process thought to account for a God who also sustains a preferential option for the poor. The difficulty, Scharper emphasizes, is that “the God of life, in process thought, does not take sides but loves predator and prey equally” (105). Yet, while Ruether, for instance, argues that non-human animals function on a different plane of reality than human animals, she nevertheless would also argue that ultimately God does take sides in evolutionary patterns of suffering and does not solely feel and lament the pain of the subject that suffers but wishes to see it avoided.

\textsuperscript{15} William B. Drees, \textit{Science, Religion and Naturalism} (Cambridge: Cambridge University Press, 1996); the Galileo affair, for instance (54ff.), within his framework is not a conflict between the church and science – clergymen, Catholic institutions and academics can be found on both sides. The conflict had various intellectual dimensions, including social and psychological aspects, which had to do with facts as well as with issues of method and authority in science and in theology. Drees is not alone in his take on the Galileo affair; see Ronald L. Numbers, “Simplifying Complexity: Patterns in the History of Science and Religion,” in \textit{Science and Religion: New Historical Perspectives}, eds. Thomas Dixon, Geoffrey Cantor, and Stephen Pumfrey (New York: Cambridge University Press, 2010), 263-282.

\textsuperscript{16} I suggest this is because his ultimate aim is to present a radical naturalist position, which considers “metaphysical” epistemological claims as being separate from and not integral to the scientific endeavour. Drees’s denunciation of supernaturalism also increases the epistemological divide between science and religion.
clearly. His seventh category, “ethical overlap,” places the pressing social and ecological ethical issues at the forefront of the debate. Were he to leave it at such a broad definition – while arguably not very helpful in adequately explaining the epistemological paradigm of our Christian thinkers – we could certainly place them within this category; however, Peters also emphasizes a clear program of how theologians ought to approach the ethical problems within this category, advocating for an “eschatological redemption,” which is problematic certainly for Ruether and arguably for all four interlocutors. In his eighth category, “new age spirituality,” he assigns Berry as a prime candidate, suggesting that a certain meta-religious naturalism undergirds its ethos. Clearly none of the above classifications by Peters will do.

Concentrating more on methodological issues, John Polkinghorne presents a framework that portrays a “cousinly relationship” between science and religion. Helpful in this regard is his promotion of critical realism as the most viable method for religion-science relationship, as such a stance does not deny the existence of a reality independent of our thinking about it. While all my interlocutors do fall within that category to varying degrees, we are nevertheless left with a classification that is still far too broad. Moreover, Polkinghorne’s overall framework is far too focused on methodological similarities and his delimiting of the use of imagination in the realm of science presents problems, certainly in regard to how O’Murchu sees its use.

Philip Hefner presents six interpretive models based on the assumption that all models describing the religion-science interface relate ultimately to our human search for meaning in life. The resultant convergence or controversies that arise from debate are products of this more fundamental search. His model, entitled “postmodern/New-Age option: constructing new science-based myths,” incorporates many features of the epistemological paradigm of our four

18 Peters, 653.
19 Polkinghorne, Quantum Physics and Theology. He describes a critical realism that is similar in understanding to that outlined in Chapter 3:
   The philosophical position that mediates between modernism and postmodernism…the adjective acknowledging the need to recognize that something is involved that is more subtle than encounter with unproblematic objectivity, while the noun signifies the nature of the understanding that it actually proves possible to attain (5-6).
thinkers, such as the construction of a new science-based myth that gives meaning to humans. While this aspect certainly applies, to label our interlocutors under a postmodern approach is problematic. While it is true, as Hefner asserts, postmodernism “is impressed with the inadequacy of traditional religion to play its role as provider of a meaningful life-world,” given postmodernism’s tendency to reject meta-narratives, we would have difficulty placing Ruether, Boff and O’Murchu. Moreover, postmodernist claims (at least as Hefner sees it) to having “no specific ethic, racial, or gender grouping,” would force us to exclude Ruether. Finally, the New Age label also makes classification here difficult for all four thinkers. Hefner, like Peters, assumes Berry specifically is New Age. While neither Hefner nor Peters defines what exactly he means by New Age, the classification is definitely inappropriate for Berry, who himself refers to it as “ineffective.”

John F. Haught provides a brief typology of five different ways in which religion and science relate. His first three, conflation, conflict and contrast, do not apply here. Contact, his
fourth typology, forbids any confusion between science and religion, while recognizing that some interaction between the two is necessary; thus, cosmology can have an impact on theology. Confirmation, his fifth way of relating religion and science, seems to complement contact: it suggests that while keeping the two ways of understanding the world separate, theology can nonetheless “quietly confirm” the scientific enterprise.\footnote{Ibid., 120.} Haught’s typology is too narrow, as his contact follows a definite theology of nature paradigm, which for the same reasons outlined above with Barbour, precludes all our interlocutors. A more promising typology from John Haught comes in a later book of his that speaks specifically to religion and science as they deal with evolution.\footnote{It is not all clear to me why he sees the need to distinguish typologies dealing with science in general and evolution; nevertheless, the one dealing with evolution seems more embracing: John F. Haught, \textit{God after Darwin: A Theology of Evolution} (Philadelphia: Westview Press, 2008).} On this issue, Haught organizes the religion-science debate into three categories: opposition, separatism and engagement. Obviously it is his third category that concerns us. Haught presents a framework for a new evolutionary theology based on a metaphysics of the future (in a Teilhardian sense) which embraces the full force of evolution but within a decidedly Christian-process-thought paradigm. Apart from the import given to process thought, which as we have seen causes problems, there is still much within his presentation that resonates with the program of our four interlocutors, especially his understanding of reality as a cosmogenesis (though he does not employ that term himself). Nevertheless, his promotion of what appears to be a revised Christian orthodoxy makes his classification difficult to use. While he states an embrace of evolution implies a radical reinterpretation of Christian doctrine, for instance, many doctrines appear inviolable in his schema, and any reinterpretation he gives exhibits characteristics more of theological-tweaking than radical re-visioning. His emphasis on ecological eschatological promise is another example: while taken to mean more than just survival in the “next world,” but a totality of reality shaped by God’s presence, it does not capture the Earthy import of what all our Christian thinkers are conveying. What is more, such eschatology precludes Ruether from being included in this category. Also, Haught’s enthusiastic
embrace, albeit somewhat nuanced, of a hierarchy of beings within creation stands in contrast to what our interlocutors are trying to achieve in regards to the dangers of anthropocentrism. While, as we saw in earlier chapters, our interlocutors, to varying degrees, have not avoided anthropocentric claims altogether, nevertheless, they all do attempt to distance themselves from it, making Haught’s nuanced embrace of it problematic. Finally, Haught’s program clearly does not begin from either the ecological or social global crisis we are facing. His main aim appears more to prove the relevance of the Christian tradition within an evolutionary framework.

Finally, Stephen Bede Scharper constructs a typology of Christian thinkers which comes very close to classifying our four interlocutors, as it is expressly engaged with ecology. He separates Christian responses into three categories: apologetic, constructive and listening. In the listening category, authors are less concerned with defending the Christian tradition or reforming it by exhibiting its doctrine, images and beliefs in a new light. Instead, relying far less on its tradition or scripture, these thinkers, as Scharper puts it, “[Strive] to nurture a religious consciousness that ‘listens’ to nature and creation itself.” In this category, the human connection to nature, and indeed the cosmos, is highlighted and – not surprisingly – so are the natural sciences (though not so much the social sciences), along with non-Christian and cultural resources.

Scharper’s own contribution to this configuration is the inclusion of a political theology of the environment, which fully takes into account the economic, political, social and cultural concerns along with the pressing ecological issues. As a result, it is inclusive of the import of the ethical visions put forth by my interlocutors, as well as their over-arching approaches, such as

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28 He does, however, seemingly graft these issues into the ready-made theological and epistemological paradigm he presents.
29 Haught, *God after Darwin*, Chapter 9; cf. Haught (*Christianity and Science*), where he forcibly espouses a theology of nature that takes much of biblical and early church teachings as “givens” for his faith. This seemingly uncritical starting point causes Haught to undertake much mental gymnastics in order to make Christian beliefs such as miracles, Jesus’s resurrection, and divine providence compatible with science. It also explains why Haught’s typologies are not helpful in defining what our four interlocutors are aiming for.
30 Scharper, *Redeeming the Time*, Chapter 1. Christian authors in the first category contest Lynn White Jr.’s famous charges of anthropocentrism against Christianity, while the authors in the second category – which comprises the bulk of Christian writers on the subject – accept aspects of White’s claim as being valid, while maintaining that within the Christian tradition there are “deep wells” for producing an environmental theology (“Deep wells” is used by Scharper in “Ecological Theology,” in *New and Enlarged Handbook of Christian Theology*, eds. Donald W. Muser and Joseph L. Price [Nashville: Abingdon Press, 2003], 144).
liberationist, ecofeminist and Gaian systems. Nonetheless, the fit is not exact. For one, while Scharper places Berry squarely in this category, and we can add to it Boff and O’Murchu,32 ecofeminists — and by extension, Ruether — fall under the constructive category, which he describes as adopting a “self-critical perspective in dealing with the accusations leveled at the Judeo-Christian tradition by Lynn White Jr.”33 This is understandable as Ruether “expresses sensitivity to the wide variety of Christian practices, traditions, and expressions,”34 and tries to incorporate the ecological enterprise within the theological enterprise. However, a case could be made that Ruether could also fall under the listening category, as her embrace of Merchant’s Partnership model stresses that humans must learn “to listen to nature’s voice as revealed through ecological principles, ethics, poetry, and a reverence for our non-human partner.”35 Scharper’s typology also does not explicitly include the domain of science, which is problematic considering the preeminence Ruether, Boff, O’Murchu and Berry assign to it.36 But more importantly, the particular epistemological paradigm our four interlocutors are putting forth is not explained in Scharper’s typology.37 While we find much that is valuable in Scharper’s typology, the designation of listening as an approach, were we to place all our interlocutors there, while fitting in many ways, does not fully capture the multi-dimensional character of their epistemological dialogue. To be sure, Scharper grants much elasticity to his typology, recognizing that certain authors “write from several vantages.”38

32 Scharper does not expressly deal with O’Murchu; and Boff, while not exactly identified, as a liberation theologian, would naturally make theology a second act, while listening to the poor and the Earth are primary acts, Ibid., 181-182.
33 Ibid., 37.
34 Ibid., 37.
35 It should also be recognized that Scharper made this analysis in 1998. We have already identified how Ruether’s thinking has changed over the years. Arguably, it could very well be Ruether’s more recent work at the Sophia Centre (see footnote 108, Chapter 7), that would have her fit more appositely in the listening category.
36 Scharper does mention that one listens “not only to earth in its awesome mystery but also to scientists, ecologists, and in the case of Berry, environmental activists who are involved in the ‘justice struggle’ of nature,” Redeeming the Time, 182.
37 In a sense, this is not surprising as Scharper’s emphasis tends to lie more on ascribing a new ontology, a way of living “anthropoharmonically,” whereas my interlocutors, while not eschewing a new ontology, nor suggesting the two are not closely related, have their sights focused on new ways of knowing, one that recognizes a blurring of the traditional epistemological boundaries between religion and science.
38 Ibid., 25.
8.3 Formulating a New Typology

With this above survey, which is not meant to be exhaustive, but paradigmatic of the leading thrusts within the religion-science debate, we begin to see the difficulties inherent in classifying our four Christian thinkers under current options. Depending on where an author places particular emphasis, whether on the epistemological presuppositions or concepts behind assertions, or on methods used, and seldom on liberation or some sort of ecological justice context, we find categories to be either too narrow or too broad. Moreover, predominant within the writings (with the exception of Scharper), we find an implicit or explicit goal of proving the plausibility of God (the strong anthropic principle, for instance) or more often, the relevance of Christianity. While Boff and Ruether might partake in this undertaking at times in their writings, this is not their main impetus, not at all Berry’s concern, and something O’Murchu would consider an anathema. In fact, for all our interlocutors, we find first and foremost a deep concern for coming up with a new ethical vision and the means to make it work that dominates their programs.

Where does all this leave us? In Science, Religion, and the Human Experience, the debate is presented in a slightly different light. James Proctor, editor of this volume, challenges the two underlying models assumed by academics when speaking about the issues that are subsumed in Barbour’s typology – and we could, by extension, include the typologies of our other theorists. In brief, Proctor suggests that those who prefer to keep religion and science as two discrete domains, the former concerning itself with values and the latter with facts, try to assuage tensions by merely granting each its own separate validity. This, Proctor calls “conciliatory dualism.” Conversely, a “convergent monism,” as Proctor calls it, is promoted by those who propose a belief in the unity of science and religion in their claims on reality. Proctor believes neither domain works. One falls into a naive taxonomy of false distinctions, as in the case of conciliatory dualism, or meaningless, oversimplified unity, as in the case of convergent

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40 Proctor uses the example of paleontologist Stephen Jay Gould who sees these two domains as “non-overlapping magisterial” or NOMA. Peace can only be maintained by clearly demarcating facts from values.
41 He cites physicist Paul Davies; in this way, we can find science “speaking to the soul” and religion of “deeper truths about reality.”
monism. Proctor suggests a third option: bringing human experience into the forefront of our discussions of science and religion, which has the benefit of emphasizing that both science and religion are fully human enterprises. Proctor is taking a page from Whitehead’s philosophy when he places emphasis on process and experience. In Proctor’s framework, the dualist or monist understandings of the relation between science and religion fall; in its place we find the third option:

By bringing the human experience into science and religion, we have not so much gone from two to three, or two to one, but rather have found a point somewhere between one and two, somewhere between the denial of difference (and hence the possibility of relation) that so bedevils monism and the metaphysical gap that defines dualism.

While Proctor’s emphasis on experience does not help us locate our thinkers within any specific typology, it is valuable in showing us that all discussions of typology can only be derivative of a particular experience which precedes any understanding of the religion-science nexus. Is this not what Jacob Bronowski means (as discussed in Chapter 6), when he describes science as being a very human form of knowledge? Is this not also what Hefner is attempting to do in describing the religion-science interface as relating ultimately to our human search for meaning in life? Or what Drees is attempting to do in redirecting our attention to which kind of religion is supposed to be in conflict with, or independent from, or integrated with, which kind of science?

If this is the case, and I sense it is, before adequately classifying our epistemological dialogue within the larger science-religion debate, we will consistently have to ask, “What issue is at hand? Is it methodological, conceptual, metaphysical presuppositions, or cognitive claims that preoccupy us?” We would also have to ask, “What is the context?”, “Which science is being addressed?” and “Which religion?” In all cases above, Barbour, Drees, Polkinghorne, Peters, Hefner and Haught present their typologies based firmly on their observation about reality that ultimately fits their particular worldview and concerns. If left at that, there would be no problem, as these thinkers would merely be arguing from a particular point of view. Instead, each attempts to universalize his categories and, as we have seen, numerous exceptions and stipulations arise. I suggest that the reason fitting our interlocutors into their categories is so difficult is because there

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42 This notion is supported somewhat by Hilary Putnam who, as we have seen in Chapter 6, believes the fact/value dichotomy in religion and science is overinflated.

43 Proctor, 20.
is a presumption that their categories are objective and can sufficiently address the gamut of the religion-science debate. Clearly, this is not the case and such a conclusion should not surprise us. In our discussions above, we have already discussed the problems in assigning any universal objectivity to our knowing the world; why should our classification of categories be any different? In other words, to a large extent the standpoint of the author is the typology.

8.3.1 The Standpoint as Typology

I suggest that there is a clear distinction to be made between the religion-science debate in general and the one being carried out by our four interlocutors. Still, the religion-science debate, I think we have to remind ourselves, is not your ordinary academic endeavour: it relates to issues of life and death and – as is wont to be in regards to human nature – is always slanted in a particular direction. Philip Hefner states,

*The interaction between science and religion is a field in which individuals, cultures, and an entire historical epoch wrestle with some of the most fundamental issues of human existence. This is so because the science-religion conversation is a medium for our search for meaning today.*

This understanding of the religion-science debate leads me to wonder whether it would not be more fruitful to look at the debate squarely from the point of view of intent. It seems disingenuous to classify the science religion debate by trying first to be objective and then superimposing more subjective interpretations as a means to “resolve” the issue. Points of view and standpoints matter, especially, as Hefner suggests above, in the religion-science debate. And since epistemic claims underpin points of view, it appears to me that the best option is to create a new typology for the religion-science debate that rests squarely on the intentions and worldviews of our interlocutors: a typology, if you will, that is defined by what is most meaningful to those within it. Moreover, this in fact is what our four Christian authors are doing: meaningful to our Christian thinkers is the engagement with new science in order to unite a liberationist agenda with an environmental ethic. Specific to their intent, epistemological issues become paramount as they are not seeking so much to achieve an approximation of truth, but an assessment of truth, This understanding, then, must ground the typology we seek: for example, one I label convergent knowing.

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44 Hefner, 318.
8.3.2 Convergent Knowing Understood through Metaphor

It was in reading the work of microbiologist Lynn Margulis and her theory of “serial endosymbiosis” that I found a fitting metaphor for characterizing the particular epistemological dialogue that our four theorists are pursuing. I will need first to explain her theory here before presenting my adaptation of it. Margulis’s research, which entailed gathering much evidence and synthesizing a large number of contributions from hundreds of scientists and thinkers, led her to conceive her serial endosymbiosis theory (also known as SET). Etymologically, *endon* is the Greek term for “within,” *sym* refers to “together,” and *biosis* to “living,” which together denote the coming together of cells of different histories and abilities. “Endo” is key here, as it denotes an embedded merging. Margulis’s main thesis, and the reason why it was received with much difficulty from the scientific community, is that evolutionary novelty is explained in large measure by cooperation and not, as neo-Darwinian thinking proposes, by gradual accumulation of small random mutations, chromosomal alterations. In lay terms, the theory goes like this: billions of years ago single cells were eating other cells (perhaps due to harsh conditions, in order to survive). Margulis surmises the other cell, for some reason, could not be digested, or the cell served to help the consuming cell in some way; either way, the consumed cell remained intact but within the consuming cell and continued a cooperative relationship with that cell. This process explains, for instance, how chloroplast is found in plant cells: billions of years ago, non-digested green photosynthetic bacterium, once a free-cell that was able to obtain its food from the sun, was incorporated into another cell and became the chloroplast to that cell. Mergers, Margulis concludes, continued and the inner parts that we find within cells today, such as chloroplast but also mitochondria, are really “organelles,” that is, they were once free-living bacterium that became “symbionts.”

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45 While there are plenty of papers explaining her research in scientific terms, for the layperson, she presents her theory in her book, *Symbiotic Planet.*
46 See footnote 43 in my Introduction.
47 Lynn Sagan, “On the Origin of Mitosing Cells,” *Journal of Theoretical Biology* 14, no. 3 (March 1967): 225-274, doi: 10.1016/0022-5193(67)90079-3; here is an early rendition of her theory presented under her name by marriage to Carl Sagan, whom she later divorced and reverted to her maiden name, Margulis. Neo-Darwinians, as discussed in my Chapter 6, are seemingly wedded to the notion that genes in the nucleus determine all the characteristics of a being and that random gene mutations lead to overall evolution.
48 Margulis, *Symbiotic Planet,* 6, 28-29; mitochondria are the power house of the cell that create and convert food particles into the energy we living beings need to function.
Margulis notes that such partnerships happen always for a reason: “Often, hunger unites predator with the prey…” She gives an example of endosymbiosis occurring with a strange sort of seaweed found along the beaches of the English Channel. While it looks like a plant, it is really flatworms grouped together. They are all green because their tissues are packed with *Platymonas* cells, which are photosynthesizing algae, which room in the worm. As the theory goes, at one point in their evolution, the photosynthesizing algae was ingested but not digested and thereafter a relationship began: Margulis explains how this partnership works:

Sunlight reaches the algae inside their mobile greenhouses and allows them to grow and feed themselves as they leak photosynthetic products and feed their hosts from the inside. The symbiotic algae even do the worm a waste management favor: they recycle the worm’s uric acid waste into nutrients for themselves. Algae and worm make a miniature ecosystem, swimming in the sun. Indeed these two beings are so intimate that it is difficult, without very high-power microscopy, to say where the animal ends and the algae begin.

It is important to note that in her theory, these cells that merge are only distantly related, and the merger is permanent; neither can ever live without the other.

Where am I going with this? I am suggesting that in an analogous way, my interlocutors are promoting an epistemological dialogue between religion and science as a partnership that functions in the manner Margulis mentions above. To be sure, the analogy requires qualification: unlike what is implied with endosymbiosis, where one living entity lives *within* the body of *another*, there is no such order (implied by Margulis’s prefix *serial*). Here, both science and religion as two hitherto separate ways of knowing the world have epistemically converged (as “organelles”). These are unlike epistemologies brought into intimate and mutually benefiting relationship. It is not a new organism I am suggesting – that is, a merging of science and religion disciplines – but a new epistemological paradigm that, again, not unlike Margulis’s theory, has different ways of knowing come into partnership, under the circumstances of harsh conditions, in order to survive. The relationship or partnership, they seem to suggest, is permanent. Thus, just as Margulis can say, “The origin of new species is hypothesized to correlate with the acquisition,

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49 Ibid., 9.
integration and subsequent inheritance of such acquired microbial genomes…,”\textsuperscript{51} can we not say of the epistemological paradigm put forth that the origin of truths is hypothesized to correlate with the acquisition, integration and subsequent inheritance of such acquired ways of knowing? Can we not also say that just as the integrity of chloroplast is respected, and that it nevertheless shares a common denominator with the rest of the cell, so too the integrity of an empirical-rational epistemology is respected, yet it shares with other ways of knowing an underlying myth? Can we not consider that the partnership of the Platymonas cells where there exists a back-and-forth mutual engagement, serves as a metaphor for the back-and-forth mutual engagement amongst ways of knowing that our Christian thinkers are promoting?

I do not wish to belabour the analogy here, but only to characterize an apparent dynamic that helps us comprehend what Berry means when he says, “[S]cientific inquiry… establishes a basis for a new type of religious experience differentiated from, but profoundly related to, the religious-spiritual experience of the earlier shamanic period,”\textsuperscript{52} or what O’Murchu means when he maintains we need to break down barriers that presently fragment our ability to know the world, while empowering hitherto silenced voices, or what Boff suggests with the process of indwelling in bioregions whereby we let the “land reclaim us like ivy growing over an old house,” or what Ruether means above when she says, “Just as science had broken down the Christian separation of spheres between earth and planetary matter and between humans and animals, so the new physics itself began to break down the distinction of spheres on which the separation of science from religion (and humanities) had been based.” Indeed, the correspondence is striking, for, just as Ruether goes on to say, “It no longer seemed possible to distinguish so clearly between matter and energy. Nor was it so clear that science could demarcate an objective realm of ‘facts’ distinct from subjective perspectives,”\textsuperscript{53} Is this not similar to what Margulis, speaking of the Platymonas cells above, means when she states: “These two being are so intimate that it is difficult, without very high-power microscopy, to say where the animal ends and the algae begin”?\textsuperscript{54}

\textsuperscript{52} Dalton, 95.
\textsuperscript{53} Ruether, 37.
\textsuperscript{54} I am not suggesting other metaphors or models might not also be appropriate for understanding how this blurring of distinctions amongst epistemological endeavours functions. Another that even our interlocutors have
8.4 Convergent Knowing as an Epistemological Framework

Many of the implications surrounding the process of convergent knowing became evident through our discussions in Chapter 5. It is worth revisiting some of these here. Accepting a framework whereby the epistemological boundaries between religion and science are blurred, allows both scientist and Christian theorist to see more readily the connection among story, myth, dream and cosmology. Such a connection can serve, as Berry has shown, as a “meaning-giver and driver of action,”\(^{55}\) to both the Christian theorist and scientist so as to foster that “new intimacy” with the universe. Applying such an epistemological framework, the scientist and Christian theorist are better able to absorb their experiences with the natural world into their very being, thus helping to counter the powerful myth of “wonderland” that denies our vulnerability, while employing technology and science to deny entropy and magnify our own desires.

To understand better what is meant by “absorbing” experiences with the natural world into our very being, Stephen Bede Scharper offers a helpful account. He suggests that too often we overlook the “agency” of non-human nature which, to a number of indigenous cultures, has always been understood. By “agency” Scharper is referring to the capacity that non-human nature has to “exert influence over us,” not unlike what O’Murchu describes with the Morgan mentioned, in one form or another, is that of a symphonic work. In Cry of the Earth, 4, Boff quotes ecologist José A. Lutzenberger who defines ecology as, “The science of the symphony of life, and the science of survival.” We might even think of the endeavour as a form of jazz, given the creative and collaborative spirit that lies behind the epistemological conversation occurring. Biologist Even Eisenberg suggests such a metaphor in his book (The Ecology of Eden [New York: Alfred A. Knopf, 1998], 293, 433). While he uses jazz to denote how humans might work in harmony and rhythm with nature, the metaphor works for ways of knowing: the composition or music piece is the same for all players, as is the rhythm and key signature. In jazz, improvisation is encouraged; yet, the overall melody and harmonies are respected. Listening to other musicians, instruments, and feeling the overall cadence become crucial to making good music. Eisenberg suggests we can learn from people like Louis Armstrong and Charlie Parker about how humans and nature can make tough, supple music together. What is interesting about this metaphor is that while there is “no sharp delineation” amongst players – at least to the untrained ear – the integrity of each musical part or instrument remains intact. Whether this metaphor captures the full intent of all our interlocutors I am not sure, as jazz music sometimes can be too “creative” (I am thinking here of “acid jazz,” whereby atonal sounds appear to have nothing to do with the original work), making the idea that there is a reality independent of our ability to fully recognize it, less apparent. Also, a symphony, while full of harmonies, nevertheless could seem too rigid and hierarchical for our purposes (as musicians have to play the way a conductor – oddly enough too often male – tells them to). Notwithstanding the above, to define the epistemological multi-dimensional dialogue simultaneously as a shared communal “symphony” of truths that requires of us, first and foremost, a healthy competence to listen is definitely appropriate.

\(^{55}\) Dalton, 111; see also 108, 125.
fisher-folk whose way of knowing about the pending flood is seemingly a mix of one-part facts before them, and one-part a trusting of what they felt within, as influenced by their surroundings. It is in this same way that, as Scharper puts it, “When Danny Beaton, a Mohawk activist, says, ‘Brother fire is helping me,’ he really means what he is saying. The fire is not just an element that has no connectivity to him, or just some physical relation that keeps him warm; it interacts with him.”

Recognizing this intersubjectivity is what impels biologists like Jane Goodall to give names to the chimpanzees they wish to learn more about. This is not trite romanticizing of nature. We know that greater knowledge about Earth arises out of an approach that begins with reverence for the other-than-human. Knowledge, hitherto unavailable to us can arise out of a hermeneutic of love and a willingness to listen. Accepting a framework whereby the epistemological boundaries between religion and science are blurred is also what impels the biologist to give names to the whales and gorillas they study. The opposite could be said of not accepting such a framework, which is often the case today in science: animals are numbers, caged in laboratories, serving as objects for our needs.

We find within a relational model of knowing an inescapable interdependency and, therefore, the concomitant need to surrender epistemic sovereignty amongst domains. Vulnerability in this manner does become a virtue. Just as a scientist must be open to rejecting sometimes treasured theories, so too should the theologian be content with accepting the relative adequacy of her or his truth claim. Just as a Christian thinker accepts the challenge that deep time presents to the belief that the world has been created ultimately for the human, so too the

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56 Scharper, *For Earth’s Sake*, 184; he recounts the story of the back-and-forth interaction with a fire and how it interacted with him and his wife in their conversation as they sat on a beach:

It’s not like we were just inspired by the aura and ambience of the elements. No, the fire and the water were working on us: we were having our conversation because the fire was participating; we were having this conversation because we were participating with the water. Both elements were affecting us at the neurological level as well as the psychic-spiritual level. The fire and water changed us while we changed them. Our relationship with them, then, is not a static thing; it’s more like a dance.

By way of another example of this absorption, we can look at the argument Timothy Leduc makes in his book, *Climate, Culture, Change: Inuit and Western Dialogue with a Warming North* (Ottawa: University of Ottawa Press, 2011). Leduc insists that any interdisciplinary dialogue amongst the Inuit and the scientists must be understood as occurring with a warming North, not in the North. The distinction is crucial: for “with” implies that the world is involved in co-creating our thought. Such an argument can only be conceived within a multidimensional epistemological framework.
scientists accepts that myths are basic to the scientific venture. We also find within this model a definite groundedness in our Earthy existence. We accept our anthropological vulnerability. With our own liberation inextricably tied to that of the larger biotic community, we consign it to an eco-tethered status. Understanding occurs in the back-and-forth movement of the conversation, where knowing entails a vast communal and multidimensional conversation and negotiation.

At a practical level, as Proctor suggests, with convergent knowing it becomes no longer tenable to keep religion and science as two discrete domains, the former concerning itself with values and the latter with facts when dealing with environmental and social questions. We gain clarity on why so often an *ought* seems to be discovered simultaneously with an *is*. The epistemic convergence means that a scientist can no more adequately know our world through analytical, mathematical-rational thought alone than the Christian theorist can through intuitive mystical contemplation unaccompanied by the empirically arrived at knowledge of the world. As Teilhard de Chardin posited over half a century ago, “Religion and science are the two conjugated forces or phases of one and the same complete act of knowledge.”

This is why we recognize the Gaia theory as a tremendous transformative power: it facilitates the commingling of the mysterious spiritual thinking with the scientific empirical thinking.

In the end, convergent knowing, I suggest, prompts the scientist and the Christian thinker to recognize that the epistemological boundaries between their two domains are blurred. By understanding knowing to be an integral enterprise of engaging a multi-dimensional epistemological dialogue, each learns to listen with a readiness to change her or his view and a resolve to accept the relative adequacy of truths. Moreover, such a model can prompt the scientist and the Christian thinker to recognize the value of an epistemic convergence of science and religion in effectively addressing the pressing issues of global poverty and environmental degradation. Both domains exist within the *same* world struggling with some of the most fundamental issues of human existence. This is so because, as Philip Hefner reminds us, the science-religion conversation is a medium for our search for meaning today.

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57 See my Chapter 7, footnote 87.
Returning to our discussion at the opening of this dissertation, we can ask whether the process of integrating ecology, justice and Christianity that is being carried out by Christian thinkers, as described by Bakken, Engel and Engel will become less of a struggle if Christian theorists adopt convergent knowing as a model for engaging with the natural sciences. I put forth no guarantee. Perhaps when more Christian theorists, and indeed scientists, see the fruits of taking Christianity, science, environment and liberation seriously they will appreciate its value. Certainly, once a Christian thinker and a scientist see that the epistemological boundaries between their religion and science are blurred, they should find it less difficult to allow each of the domains to not only affirm and clarify but to inform and qualify the other.

Convergent knowing is perhaps not a model that we can expect all Christian theorists (or all scientists for that matter) to follow. It not only demands an openness to the surrendering of sovereignty on the part of the contributing disciplines, or traditions, but a tolerance of uncertainty, a welcoming of paradox and the employment of imagination. Such feats cannot be expected of everyone. Moreover, convergent knowing, as revealed by our four theorists, employed liberation as the integrating force behind much of the integration of their faith and science. Arguably, a certain kind of person is best suited for the task.

Perhaps this is what Ruether has in mind when she speaks of the “scientist-poet.” When she maintains that nature’s voice comes into the conversation through our empirical sciences and through our senses and our poetry, she is not necessarily suggesting that three distinct humans, at least one being a poet and another a scientist, are exchanging their ways of knowing the world. She is referring to one person, the “scientist-poet” who does not mark a stark delineation between ways of knowing our world. By way of another example, Berry calls for a new spiritual guide for our times, one who is ecologically sensitive: an “integral ecologist,” as he calls him or her. This is leadership beyond what we can get from the traditional prophet, priest, yogi, philosopher or scientist. This is a person who “would understand the numinous aspect of a universe emergent from the beginning.” An integral ecologist would see song and dance as manifestations of that primordial capacity for language within us that helps us to listen and to

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hear revelation. Whether a scientist-poet or integral ecologist, those engaging with the natural sciences in order to unite a liberationist ethic with an environmental agenda will likely be comfortable with relations of mutuality and audacious in the face of conformity. They will need to be in order to undertake the critical, and at times, bold integration process that faces the Christian tradition at this juncture in its existence.

Conclusion

In this final chapter, we have taken a step back to ponder what it is we are seeing in this dissertation. Ruether, Boff, O’Murchu and Berry have fostered a new epistemological framework in their appropriation of science. It is a framework described as an epistemic convergence between Christianity and science, marked by a close and seemingly permanent connection between their religion and science as two significant ways of knowing the world. The conversation they envision is widely inclusive of a multitude of ways of apprehending reality, and comprehensive of the concerns and needs of a vast number of subjects, both human and other-than-human, for the sake of arriving at an ethical vision that fosters liberation for all creation.

We sought within this chapter to classify this framework and arrived at convergent knowing, which builds upon the biological scaffolding presented by biologist Lynn Margulis with her theory of endosymbiosis. We discussed the merits of such an epistemological framework for facilitating the deep conversation our world needs between Christianity and science. Conversation is our hope, Tracy reminds us. Convergent knowing is redolent of what and how that conversation might unfold. The work ahead is great and requires much in the way of boldness, humility and a love for all creation from participants. It is perhaps only such people, the integral ecologists or scientist-poets, who will be able to take the lead as humans conceive the liberation of the human and the other-than-human. I suggest that our four interlocutors are themselves integral ecologists; it is a demanding task, but one we can say assuredly is not an option.

59 See my Chapter 4 on Berry, footnote 117.
Conclusion

I began this dissertation by describing the current struggle that exists within Christian circles, as theorists, theologians, biblical scholars, philosophers and ethicists endeavour to integrate ecology, social justice and their faith. The problem underlying this integration, many scholars maintain, arises when one or more of these domains is not taken seriously. In so doing, they hold that either critical attention, thoughtfulness and/or a constructive resolve to address a domain is missing. Taking the integration process itself seriously, it became evident, requires that theorists allow each domain not only to affirm and clarify, but to inform and qualify the others. It became quite evident in this exploration that a certain boldness is required to undertake this process. The task is formidable and challenging.

My investigation has focused on the works of four Christian theorists, Rosemary Radford Ruether, Leonardo Boff, Diarmuid O’Murchu and Thomas Berry, who have assumed this challenge. In the process of arriving at an ethical vision that unites a liberationist agenda with an environmental ethic, their writings reveal a profound engagement with science, their faith, and the issues and concerns surrounding the grave environment and social problems of our time. Within this dissertation, I have revealed that our four Christian thinkers do indeed take each of these domains seriously, according to the criteria described above. The process was facilitated by the particular epistemological framework they employed, which I call convergent knowing.

Convergent knowing is a way of knowing and communicating marked by a close and seemingly permanent connection between Christianity and science. The conversation that ensues is widely inclusive of a multitude of ways of apprehending reality, and comprehensive of the concerns and needs of a vast number of subjects, both human and other-than-human. This epistemological framework, I suggest, could serve as a viable model for both scientists and Christian theorists as together they conceive the liberation of the human and the other-than-human. Having the universe story – as understood through science – serve as the basis for how Christians could adapt their ethics, for instance, could seem less threatening, as one realizes that the scientific endeavour is itself mythic in nature.
Such an appropriation of science in order to co-author an ethic need not be viewed as an intrusion of the rational-empirical methodology onto the theological methodology. As a metaphor based on Lynn Margulis’s endosymbiosis, we see that the blurring of the epistemological boundaries between Christianity and science does not mean that one domain is subsumed into the other: the definitional integrity of each is maintained. Yet, again like the metaphor, the epistemic relation means one cannot live without the other. Indeed, as we discussed within the Introduction to this dissertation, humanity is much better positioned successfully to navigate the threats that it faces if it draws constructively on the wisdom of both Christianity and science. Indeed, we have seen what occurs when the quality of integration suffers: the viability of the ethical vision suffers. To our four Christian thinkers, the liberation of many subjects of creation is at stake here. Neither a scientific fundamentalism, nor claims that something is believable because the tradition has believed it will do. Boldness notwithstanding, then, it would seem that the epistemological framework with which one approaches the integration of the issues, concerns and dynamics of religion, science, environment and liberation matters.

As we come to the culmination of this dissertation, I wish to return to the three questions I identified arising from the writings of our four Christian thinkers, all of which are posed to their Christian faith. To the first question – How are science and Christianity to converge in a serious conversation when the future of life on the planet is at risk due to anthropogenic causes? – the answer I put forth is convergent knowing. To the second question – In their convergence, how are the liberation of the human and the non-human to be conceived? – I suggest as a response an eco-tethered liberation. To the last question – What challenges and opportunities do the above convergence and ethical deliberation present to the Christian tradition? – I think it has become obvious that our four theorists, while recognizing many of the hurdles Christianity faces, have no doubt that their faith tradition must change if it is to remain relevant.

I wish here to identify a more specific challenge to Christianity – one that has not been well developed by our four Christian thinkers, with the possible exception of O’Murchu – which will most likely present itself should Christianity and science continue their serious and sustained
theological reflection. I suggest – and I am not the first to do so – that the most significant challenges in the decades ahead will arise from the biological sciences. However, I refer specifically to research on animals and animal behaviour. New research in ethology by scientists like Marc Bekoff, Frans de Waal and Jane Goodall suggests that current Christian doctrinal and ethical understandings of the role and significance of the human being might have to be reconsidered in a radically new way. A brief survey of the research conducted by cognitive ethologist and behavioural ecologist Marc Bekoff, specifically his collaborative work with ethicist Jessica Pierce, will help illustrate my point.

The Challenge from the Modern Science of Ethology

In his investigation of the behaviours of animals, Bekoff finds strong evidence that many animals, and perhaps not just mammals, have the capacity for moral behaviour. Moreover, he finds that animals not only have a sense of empathy but also a sense of justice, forgiveness, trust and reciprocity. He states, “New information that’s accumulating daily is blasting away perceived boundaries between human and animals and is forcing a revision of outdated and narrowminded stereotypes about what animals can and cannot think, do, and feel.”

1 See Clayton, “Theology and the Physical Sciences,” 352ff. Clayton suggests neuroscience will play a decisive role.

2 Marc Bekoff and Jessica Pierce, Wild Justice: The Moral Lives of Animals (Chicago: University of Chicago Press, 2009); and Jessica Pierce and Marc Bekoff, “Wild Justice Redux: What We Know about Social Justice in Animals and Why it Matters,” Social Justice Research 25 no. 2 (June 2012): 122-139, doi: 10.1007/s11211-012-0154-y. Thinking amongst ethologists is not homogeneous. Unlike Frans de Waal who believes empathy is exclusive to mammals, Bekoff is less sure. He cites research which shows that some birds, such as corvids (ravens, crows, jays and magpies amongst others) which have high intelligence have a kind of morality: ravens remember individuals who consistently raid their caches and will attack; sometimes, an individual, if he/she catches him/her in an act, will join in on the attack on an intruder, even if he/she did not directly observe the thief in action. Bekoff and Pierce suggest, “It was a moral raven seeking the human equivalent of justice, because it defended the group’s interest at a potential cost to itself” (Bekoff and Pierce, 10 and Pierce and Bekoff, 128).

3 Bekoff and Pierce, x. This new information comes only recently to scientists as new research methods are devised, and as scientists, like Jane Goodall – as we have seen – increasingly break with convention by naming their subjects instead of identifying them by numbers, realizing that to understand them, one has to allow some emotional contact and intuition and over long-term observation (see my Chapter 5). This approach speaks to the anecdotal methodology or “narrative ethology” for animal research that scientists like Bekoff have developed over the years (Bekoff and Pierce, Chapter 2); also see Jane Goodall, Foreword in Marc Bekoff, Minding Animals: Awareness, Emotions and Heart (New York: Oxford University Press, 2002). In an almost Leopoldian manner, the scientist begins to think like a wolf, asking him/herself, “What would it be like to be this wolf?” (Goodall, xi). The result, according to Bekoff, is that ethologists and other scientists find themselves thinking analogically and not unlike the manner in which Tracy applies it (Bekoff and Pierce, 38). Ethologists, for instance, might look for similarities and differences in animal and human features such as brain structure, hormones, physiology and behaviour, searching for parallels across different species and among different individuals of the same species. Bekoff and Pierce state:
Indeed, it is hard not to be astonished by the evidence Bekoff has gathered. There is the story of eleven elephants, for instance, who rescue a group of captive antelope in KwaZula-Natal: the matriarch undoes all of the latches on the gates of the enclosure with her trunk and lets the gate swing open so that the antelope can escape. In another example, a teenage female elephant nursing an injured leg is knocked over by a rambunctious, hormone-laden teenage male. An older female sees this happen, chases him away, and goes to the younger female and touches the sore leg with her trunk. A rat in a cage refuses to push a level for food when it sees that another rat receives an electric shock as a result. A male Diana monkey who has learned to insert a token into a slot to obtain food helps a female who cannot master the skill; the more skilled monkey inserts the token for her and allows her to eat the food reward. And there is a cat named Libby who leads the elderly, deaf, and blind dog friend, Cashew, away from obstacles and to food.\textsuperscript{4}

We are arguing by analogy when we claim that humans have moral emotions that are tied to certain brain structures, and because animals also have very similar brain structures they may also be experiencing similar emotions. Indeed, the brains of many species show similar neural organization in some of the areas involved with emotions. …there is reason to believe, using analogical inference, that an area of the brain devoted to trust will also be found in animal brains. Arguments from analogy are compelling because of evolutionary continuity among diverse animal species, including humans (38–39).

One might argue that biologists have employed inference to make judgments on animals for some time, which is true. But its employment has been used principally for animal-to-animal research. Bekoff and others now employ it for animal-to-human research. Bekoff and Pierce give a good account of the possible pitfalls that occur when methodology is not rigorous. How one defines terms is one example. They see morality as “a suite of interrelated other-regarding behaviors that cultivate and regulate complex interactions within social groups” (Bekoff and Pierce, 7; see also Chapter 2). They further divided moral behavior into clusters of altruistic and cooperative behaviors, empathetic behaviours, and justice behaviours, admitting they had most difficulty gathering data to support their hypothesis that animals engage in behaviours falling within the last cluster, justice. In their paper (Pierce and Bekoff), they point out that differences in animal behavior and what is observed will also occur whether the research is conducted in the wild or captivity. Each setting comes with its unique challenges. The scale and length of study also matters. Pierce and Bekoff argue that appeals to parsimony in either setting do not guarantee accurate results either. For Bekoff and Pierce. “There is nothing unscientific about using the same terms to refer to animals and humans, particularly when we’re arguing that the same phenomenon is present across species. Empathy is empathy” (Bekoff and Pierce, 41). The authors correctly point out that when scientists attribute emotions to animals, some scientists charge them with anthropomorphism. Even some ethologists, he points out, have trouble with the idea that animals have emotions. Here Bekoff’s collaboration with philosopher-ethicist Jessica Pierce has proven fruitful. Pierce points out that this “trouble” is not a scientific one but a philosophical one. They write, “What scientists who study animal emotions such as fear, joy, and jealousy are doing is not anthropomorphism. It is science. It’s using concepts that have relatively clear meaning within science and exploring how these concepts are expressed in animals” (Bekoff and Pierce, 40–41).\textsuperscript{4} Bekoff and Pierce, ix.
Examples of morality in animals are not always exceptional as the above examples might suggest. Bekoff cites everyday occurrences how canids, for instance, use bows to apologize when play gets too rough, ostensibly saying, “Sorry for biting you so hard, I didn’t mean it, so let’s continue playing,” is also suggestive of morality. And in a group of chimpanzees at the Arnhem Zoo in the Netherlands, individuals punish other chimpanzees who are late for dinner because no one eats until everyone is present. Finally, some cases, while they remain inconclusive as to what they say about animal behavior, are strongly telling. There is the story of a female western lowland gorilla named Binti Jua, Swahili for “daughter of sunshine,” who lived in the Brookfield Zoo in Illinois. One summer in 1996, a three-year-old boy climbed the wall of the gorilla enclosure at Brookfield and fell twenty feet onto the concrete floor below. As spectators gaped and the boy’s mother screamed in terror, Binti Jua approached the unconscious boy. She reached down and gently lifted him, cradling him in her arms while her own infant, Koola, clung to her back. Growling warnings at other gorillas who tried to come close, Binti Jua carried the boy safely to an access gate and the waiting zoo staff.

Succinctly, Bekoff and Pierce argue, “Ought and should regarding what’s right and what’s wrong play an important role in [animals’] social interactions, just as they do in ours.” Bekoff and Pierce see morality as being much less conscious and deliberate than has been assumed when thinking about morality from a human-centric point of view. The authors argue that there exists an evolutionary continuity between human animals and nonhuman animals, and that differences between species are differences in degree rather than differences in kind. But unlike some ethologists – such as Frans de Waal, who is more inclined to see morality, especially

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5 Ibid., 128.
6 Ibid., 1.
7 Ibid., x.
8 Pierce and Bekoff, 134.
9 Bekoff and Pierce, xi. Bekoff cites this conclusion throughout his works. Bekoff (Minding Animals, 48), borrows a term coined by de Waal, “anthropodenial,” to refer to the dualistic practice of separating humans from other animals; differences rather than similarities are stressed. Bekoff makes reference to Charles Darwin (Bekoff, Minding Animals, 48; as well, see Bekoff, Wild Justice [many instances] and de Waal, 92, 207). In all cases, they conclude, as does Darwin, that the differences between animals and humans is a difference in degree and not in kind. Bekoff (Minding Animals, 48), uses a crude though helpful image of two cars, a Rolls Royce and a Ford to help distinguish a difference in degree. A Rolls Royce and a motorcycle would be a difference in kind. Mary Midgley, whose work we have borrowed upon much in the previous chapters affirms this understanding coming from Darwin that differences between animals and humans is a difference in degree and not in kind: Midgley, The Solitary Self, 85 and Mary Midgley, Animals and Why They Matter (Athens, Georgia: University of Georgia Press, 1998), 14.
in nonhuman primates, as precursors of human morality or as building blocks for human morality – Bekoff finds that each species is capable of “the real thing.” To this end, Bekoff and Pierce stress a species-relative view of morality: “Each species in which moral behavior evolved has its unique behavioral repertoire.” In this manner, while there is empathy, altruism, cooperation and perhaps a sense of fairness within different species, each will also manifest these in different ways.

To be sure, much evidence given above is anecdotal and the field of ethology is relatively new. Any conclusions arrived at by the scientists studying animal behaviour are at best tentative. Still, they do seem to hold a certain level of accuracy, consistency, scope, simplicity and fruitfulness – measures, Kuhn suggests, are used to gage whether a hypothesis is on the right track. It nevertheless prompts us to wonder what the effect of these findings – should they prove more conclusive – might be on the nature of human ethics, especially as it pertains to the Christian tradition. Can we assume, for instance, that humans alone are moral beings? Can we assign human-morality as the “gold standard” by which to judge the morality of nonhuman species? Can our current behaviour toward animals as objects for our consumption continue? And, if it is becoming increasingly difficult to demarcate sharp lines both morally and cognitively between human animals and other-than-human animals, should this not raise questions about the Christian foundation for ascribing an inherent dignity to the human alone? Can Christians, in light of the above findings, credibly speak of being uniquely “made in God’s

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10 Bekoff and Pierce, xi; de Waal, while open to ascribing moral behaviour to animals is more circumspect than Bekoff on ascribing justice; cf.: Bekoff and Pierce, 132. See Frans de Waal, *The Age of Empathy.*
11 Bekoff and Pierce, 19.
12 Ibid., xiii.
13 Bekoff and Pierce (19) ask this. It is perhaps a psychological issue. De Waal, for instance, adeptly points out that humans seem more than willing to equate our nature to animals when dealing with our base or depraved behaviours (such as killing or going to war), while guarding the list of human traits that are good (such as empathy and justice), for ourselves (208). Bekoff, I put forth, is right: we are too stingy and too focused on ourselves.
14 See Midgley, *Animals and Why They Matter,* 10-11: she outlines how Christians first denied animals souls, thereby justifying their power over them, but later, with the onset of the Enlightenment, brought reason into play to justify the same power-over.
image”?

The infamous imago Dei seems disingenuous in light of the science. Are we indeed the mind and heart of the universe?

Finally, we find challenges to the very root of ethical discussion. What guides human actions? What makes us moral? Even if we were to posit that beyond the biological realm humans access another cognitive, emotional level, Bekoff, as a cognitive ethologist, would remind us that there is little in the way of evidence to claim that animals do not also access another level. Bekoff finds ample evidence to suggest animals too have agency, which means they can act not only morally, but immorally. To what degree might the findings above challenge the roots of the Christian ethical system? Does morality have a biological basis? If ethics does have a biological basis — and Bekoff presents cogent arguments to accept this — to what extent?

I will not pretend to have ready answers to the questions above, especially since the science behind them is so new. But they do point to a larger question that our four Christian thinkers have brought to light. Should the epistemic convergence between Christianity and science continue — and we have looked at much evidence to suppose that it could — the Christian tradition would assuredly be challenged, and greatly, certainly in regard to how it conceives its

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15 Certainly both de Waal and Bekoff make a point of stressing that this is no longer tenable: Bekoff and Pierce, 141 and de Waal 45; Bekoff and Pierce raise a good argument that refutes the notion that were we to lose our belief that we are created in the image of God would somehow, as some theorists surmise, open the door to humans euthanizing our vulnerable.

16 To say that the human animal differs from nonhuman animal because of a divine spark, as Teilhard de Chardin does, invalidates the deep time and profound process attributed to the development of morality in mammals and perhaps all animals. Teilhard de Chardin’s hominization process, in other words, does not hold very well in light of ethology.

17 Bekoff and Pierce, 136, 144, 145; they cite a case where a bat serves as a midwife helping a mother bat who, while unrelated, is nevertheless clearly in distress giving birth. This midwife bat makes a choice. Bekoff stresses, though, that even moral agency must be looked at as species-and context-specific. A related question would be whether an animal could act immorally, and the answer Bekoff gives is yes. Thus, as Bekoff states, “Wolf morality reflects a code of conduct that guides the behavior of wolves within a given community of wolves. Wolves are agents only within this context [my emphasis]. The predatory behavior of a wolf toward an elk is amoral — it is not subject to condemnation or accolades” (145). This resonates with what Berry says: “So in the world of the honey bee, the peregrine falcon, the rainbow trout, the dolphin, and the human — in each case, the intelligence [and we can add here the morality] is appropriate to its function; each is perfect in its own order” (Berry, Befriending the Earth, 23). Does this mean what is considered moral never changes within species? Bekoff sees room for ethical norms to change in animals just as within humans. A good deal of human behaviour research shows our behaviour to be conditioned and instinctive; but we also show flexibility, plasticity, emotional complexity, and a particular set of cognitive skills. In other words, we have agency and over time, our understanding of what we ought to do can change.
ethics. The above tentative findings from ethology seem to lend credence to the idea that there are principles of subjectivity, differentiation and communion at work throughout the entire universe, as our four Christian theorists have suggested. But it also tends to place humans squarely as one-amongst-many-subjects or, as Aldo Leopold puts it, just plain members of a biotic community. And I suggest that the fields of science that work on further understanding other-than-human animals will be those that most challenge Christians in their self-understanding, in their identity and notably here, in their ethics. For, so much of the current Christian ethical framework is undergirded by what is “unique” about the human. What happens when that uniqueness begins to fade away and the boundaries between the humans and the other-than-human begin to blur?

The foresight that marks the work of Bakken, Engel and Engel which opened this dissertation, is further underlined by their suggestion that Christianity in its continued integration of ecology, social justice – and we can add here science – is experiencing, “another reformation.” Except, instead of reformation, I think the better term might be revolution. In this regard, we can cite here the prudence of our four Christian thinkers who speak not so much of an era of change but a change of era. Perhaps Berry explains it best when he says,

> What is happening now to Christian theology, or any theology or any religious life or moral code, is the most profound change that has taken place during the past 5000 years. All human affairs are forced to change more than they have changed, certainly since larger civilizations came into being.

What indeed is happening to Christianity?

A Postnormal Christianity?

Throughout this dissertation, we have found that our interlocutors have not necessarily been working from current or popular paradigms for conceiving ethics, approaching science, or for doing theology. They changed the game, so to speak (or certainly the rules), seemingly engaging with the world in an entirely new way: relationally. Such a change appeared necessary. Current dominant ethical models, as well as the moral imagination of the Western tradition,

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18 Leopold, 240.
19 Bakken, Engel and Engel, xvi.
20 Berry, Befriending, 6.
seemed woefully inadequate to address the realities of the anthropocene or to change the social, economic and political structures that repress the liberation of countless subjects.

In this light, it became apparent that the new ethical vision put forth by our interlocutors had to be assessed on its own merits. Similarly, when we were assessing the quality with which our four thinkers had appropriated science, it became clear that the science they were appropriating is not the normal science many engage with today. It is a postnormal science, marked by its rejection of reductionist and mechanistic assumptions. It challenges assumptions that science produces final, precise estimates about reality that are free from uncertainty. Postnormal science is also inclusive of normative social values and informed by inputs from the larger population. In short, it too is relational at its core. And finally, when we were assessing the quality with which they had theologized, here too, we discovered that theological thinking and understanding of truth has drastically changed. The quality of their approach could only be ascertained by assessing the quality of dialogue they had pursued through a relational model of doing theology. We seem to be witnessing a shift of sorts within Christianity itself.

If we can speak of a post-normal science, can we not also, then, speak of a post-normal Christianity? And could this shift be part of a larger civilizational shift? Shifts similar to those in how science is approached certainly appear evident in Christian ethics, ecclesiology, and soteriology. In both science and Christianity, we can recognize the same theme arising: relationality as a way of knowing and communicating. It might help to remember that such shifts are not new to Christianity. Theologian Hans Küng, who believes that a paradigm shift is indeed occurring from normal theology to revolutionary theology – much in the same manner in which scientific paradigm shifts occur, as understood within the Kuhnian framework – notes how a

\[21\] Hans Küng, “Paradigm Change in Theology: A Proposal for Discussion,” in Paradigm Change in Theology: A Symposium for the Future, eds. Hans Küng and David Tracy, trans. Margaret Köhl (New York: Crossroads Publishing, 1989). This collaborative work is actually a gathering of notable theologians and social scientists of the time; apart from Küng and Tracy: Gregory Baum, Urs Baumann, Leonardo Boff, John Cobb, Enrique Dussel, Langdon Gilkey, Jürgen Habermas, Martin Marty, Johann Baptist Metz, Jürgen Moltmann, Paul Ricoeur, Edward Schillebeeckx, Elizabeth Schüssler-Fiorenza, and Stephen Toulmin, to name some. Such a paradigm change from normal theology to revolutionary theology has been a part of the Christian tradition from its beginning (15 ff.). We saw this in early New Testament times where a radical change took place when the model of apocalyptic imminent expectation (it did not happen) taken over from Judaism, was replaced by a hellenistically understood conception of Jesus Christ within salvation history as the center of time. The same occurred with Augustine when he established a synthesis between Christian faith and Neo-Platonic thought. Thomas Aquinas, in the thirteenth century, at first was considered an extremely controversial thinker. He was attacked and denounced as a modernist by traditionalist
theologian working within a Thomistic paradigm was doing so within a revolutionary mode compared to the “normal” theological Augustinian mode. As with science, new models of theological interpretation, Küng suggests, emerge not simply because individual theologians like controversy or enjoy constructing new models in their studies, but because the traditional model of interpretation breaks down:

‘Old thinkers’, the ‘puzzle solvers’ of normal theology, in the face of the new historical horizon and its new challenge, can find no satisfactory answer to great new questions, and thus, ‘model testers’, ‘new thinkers’, set in motion an extra-normal, ‘extra-ordinary’ theology alongside normal theology.”

I suggest that Rosemary Radford Ruether, Leonardo Boff, Diarmuid O’Murchu and Thomas Berry are four such “new thinkers.” They have made a strong case, through their appropriation of the wisdom of science, for a relational model for knowing and communicating. They have engaged in extra- or post-normal theology alongside normal theology.


