

THE GOSPEL OF CREATION AND  
THE TECHNOCRATIC PARADIGM:  
REFLECTIONS ON A CENTRAL  
TEACHING OF *LAUDATO SI'*

MICHAEL HANBY

“Failure to grasp human creatureliness . . . will result inevitably in a reduced and instrumental understanding of nature and in the reduction of the *world* to a mere environment.”



The great Canadian philosopher George Grant once observed that in attempting to think coherently about the meaning of modern technology, “we apprehend our destiny by forms of thought which are themselves the very core of that destiny.”<sup>1</sup> Grant’s remark comes to mind when thinking about the unprecedented frenzy to interpret, and in many cases to preempt, Pope Francis’s much anticipated encyclical, *Laudato si’*. Interpreters on the secular and Catholic left, eager to claim the pope’s validation of progressive politics, waited anxiously to see whether Francis

---

1. George Grant, *Technology and Justice* (Concord, ON: House of Anansi, 1986), 32.

would throw the weight of magisterial authority behind the latest climate science and the environmental movement and hoped that he might throw in a few denunciations of capitalism for good measure. Commentators on the secular and Catholic right, fearful that the pope might validate progressive politics, waited anxiously to see whether Francis would put magisterial authority behind the latest climate science and the environmental movement and worried that he might throw in a few denunciations of capitalism for good measure. Judging from the aftermath of the encyclical's release, neither side seems to have come away disappointed in its expectations.

And yet amidst all this political wailing and gnashing of teeth there has been precious little in the way of serious *theological and philosophical* reflection about this stunning encyclical or the problems it seeks to confront. Whether or not one accepts the latest models regarding anthropogenic climate change—and Pope Francis and his advisors clearly *do*—it should not take an impending climate apocalypse to see that three centuries of technological and industrial development have taken a massive toll on the natural world.<sup>2</sup> How are we to understand this crisis? And what is the specific task and mission of the Church in this moment? Is the Church merely one of many voices in a vast multicultural dialogue? Is it enough for the Church to throw its moral weight behind the latest climate science or the Paris climate accords? Does it suffice for Christians, seeking to live out the pope's "ecological spirituality," to consume a little less, rest a little more, turn off the air conditioning, or drive a hybrid? Or does the Church have something unique and indispensable to say?

*Laudato si'* is a sprawling encyclical, whose ambitions are as comprehensive as the understanding of ecology it seeks to advance. I cannot pretend to offer a definitive interpretation of it, if that is even possible. But I would like to take up this question by reflecting on the relationship between one of its central, if largely neglected, teachings and the "Gospel of Creation," focusing in particular on the pope's frequent refrain that "everything is connected." This contention underwrites Francis's extension of the notion of "ecology," following Benedict XVI, to the care of human beings and culture. The central teaching in question is

---

2. Francis, *Laudato si'*, 23 (hereafter cited as *LS*).

the third chapter on the “technocratic paradigm,” which represents a real magisterial development of the teaching of John Paul II and Benedict XVI. This essay seeks to explore the logic of this deep and comprehensive paradigm and what is required for an articulation of the Gospel of Creation sufficient to overcome it.

### 1. THE TECHNOCRATIC PARADIGM

Just what is it that makes technology or technocracy a “paradigm,” and why is this a problem? Clearly it cannot be that human making as such is wicked or that the human race has not benefited in countless ways from the massive technical development of the last few centuries. The tradition has always held that human making, while not the content of the *imago Dei*, is nevertheless an intrinsic consequence of the image of God and of man’s original dominion.<sup>3</sup> John Paul II insisted that science and technology give evidence of “the nobility of the human vocation to participate responsibly in God’s creative action.”<sup>4</sup> Francis follows Benedict XVI and John Paul II in insisting that “science and technology are wonderful products of God-given creativity,” a creativity, Francis adds, that “cannot be suppressed.”<sup>5</sup> And the encyclical is replete with technical suggestions for combating the ecological crisis.

The basic problem, according to Pope Francis,

is the way that humanity has taken up technology and its development *according to an undifferentiated and one-dimensional paradigm*. This paradigm exalts the concept of a subject who, using logical and rational procedures, progressively

---

3. David L. Schindler cites Joseph Ratzinger’s commentary on *Gaudium et spes* to clarify this distinction: “Dominion over the world is only the consequence (*Folge*) not the content (*Inhalt*), of likeness to God, and consequently points beyond itself back again to the image.” See Schindler, “The Meaning of the Human in a Technological Age: *Homo faber, Homo sapiens, Homo amans*,” *Anthropotes* 15, no. 1 (1999): 38; Ratzinger, *Commentary on the Documents of Vatican II*, vol. 5, ed. H. Vorgrimler (New York: Herder and Herder, 1967), 121–22.

4. John Paul II, *Message for the 1990 World Day of Peace*, 6; AAS 82 (1990), 150. Cf. LS, 131.

5. LS, 101, 131; John Paul II, *Address to Scientists and Representatives of the United Nations University*, Hiroshima (February 25, 1981), 3; AAS 73 (1981), 422.

approaches and gains control over an external object. This subject makes every effort to establish the scientific and experimental method, which in itself is already a technique of possession, mastery and transformation. It is as if the subject were to find itself in the presence of something formless, completely open to manipulation. Men and women have constantly intervened in nature, but for a long time this meant being in tune with and respecting the possibilities offered by the things themselves. It was a matter of receiving what nature itself allowed, as if from its own hand. Now, by contrast, we are the ones to lay our hands on things, attempting to extract everything possible from them while frequently ignoring or forgetting the reality in front of us.<sup>6</sup>

The pope further laments the way that the technocratic paradigm “tends to dominate economics and political life.”<sup>7</sup> In consequence, “our freedom fades when it is handed over to the blind forces of the unconscious, of immediate needs, of self-interest and of violence. In this sense, we stand naked and exposed in the face of our ever-increasing power, lacking the wherewithal to control it.”<sup>8</sup> These remarks indicate two interrelated dimensions of the technocratic paradigm that I wish to explore more deeply: technology as a way of apprehending being—and thus as a philosophy of nature or metaphysics—and technology as a kind of historical *fate* that tragically makes servants of its masters.

That technology is first a way of apprehending being is presumably what Francis means in calling it an “epistemological paradigm.” The nature of this apprehension is indicated by the word itself, which fuses *technê* and *logos*, *making* and *knowing*.<sup>9</sup>

---

6. *LS*, 106 (emphasis original).

7. *Ibid.*, 108.

8. *Ibid.*, 105.

9. I would suggest that there *is* a unity to knowing and making as a matter of principle, such that there is always an inherently speculative dimension to *praxis* and a practical dimension to contemplation or *theoria*. It is debatable whether the classical and medieval distinction between contemplation and action adequately grasped the nature of this unity, though exploring this question in full would take us well beyond the scope of this essay. For our purposes, it suffices to say that a great deal hinges on whether the terms of this unity are set within the ontological order by the priority of actuality (and thus the given) over possibility, and within the cognitive and practical order by the pri-

Hans Jonas makes the important point that as a *way of regarding the world*, technology has been endemic to modern science and the scientific conception of nature since its origins in the seventeenth century, and it *precedes* any real technological products, the more ordinary instrumental sense of technology, generated from the new science.<sup>10</sup> This new way of knowing supersedes the old distinction between contemplation and action, effectively bringing the former to an end by eliminating its objects and subordinating it and refashioning it in the image of the latter, letting “the active tendency itself mark and set bounds to the contemplative part.”<sup>11</sup> This new technological manner of knowing is a knowing-by-doing that “takes experience apart and analyzes it,” in Francis Bacon’s words.<sup>12</sup> That is, it destroys in thought and experiment the unity of experience and the intelligible wholes that comprise it in order to reduce these objects to their simplest components and reconstruct them as the sum of those abstract components and their interactions. This is the meaning of that famous Baconian phrase, “knowledge is power.” It’s not simply that we now know nature *for the sake of control*; it is rather that we know *by means of the various kinds of control we are able to exercise over the phenomena of nature*, and the truth of our knowledge is measured by the success of our experiments in predicting, retro-dicting, or manipulating these phenomena. Sometimes *Laudato si’* reads as if this were principally a *moral* failing, rooted in “the disordered desire to consume more than what is really necessary.”<sup>13</sup> This is

---

ority of receptivity over action and making, or whether, conversely “the active tendency marks and sets the bounds to the contemplative part,” as Bacon and subsequent science would have it. In either event, the priority in question is ontological and logical, not necessarily temporal. We will explore the implications of the Baconian vision more deeply below. See my *No God, No Science? Theology, Cosmology, Biology* (Oxford: Wiley-Blackwell, 2013), 375–405. See also Schindler, “The Meaning of the Human in a Technological Age,” 42–45; Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000), bk. II, aphorism 2.

10. Hans Jonas, “Seventeenth Century and After: The Meaning of Scientific and Technological Revolution,” in *Philosophical Essays: From Ancient Creed to Technological Man* (New York: Atropos Press, 2010), 46–82.

11. Bacon, *The New Organon*, bk. II, aphorism 2.

12. *Ibid.*, 17.

13. *LS*, 123.

often true enough; sin is always a matter of disordered love. But it must also be stressed, as the encyclical does, that this control is often undertaken with the best of intent and for noble ends—indeed Bacon himself advances his new science in the name of charity. The imperative to control is not principally a matter of subjective will or intention; rather it is inherent in the structure of scientific cognition and experimental rationality. This is why the experimental method of science “in itself is already a technique of possession, mastery, and transformation.”<sup>14</sup>

Every conception of science anticipates and carries within it a corresponding conception of its object. This *subjective* conflation of knowing and making has as its ontological counterpart the *objective* conflation of nature and artifice, whose fusion now characterizes our culture from top to bottom, in thought, word, and deed. The encyclical pays comparatively less attention to this ontological dimension, referring to the technocratic paradigm mostly as an epistemological paradigm, but Francis seems to hint at these ontological implications when he says, following Guardini, that the technological mind “sees nature as an insensate order, as a cold body of facts, as a mere “given,” as an object of utility, as raw material to be hammered into useful shape.”<sup>15</sup>

Aristotle and the tradition maintain that art imitates nature. Positively this means that art could be understood as an analogy for nature, as when Aquinas says, “Nature is nothing other than a certain kind of art, namely God’s art, impressed upon things, whereby those things are moved to a determinate end. It is *as if* a shipbuilder were able to give to timbers the wherewithal to move themselves to take the form of a ship.”<sup>16</sup> Robert Spaemann grasps the positive dimension of this analogy in the most

---

14. *Ibid.*, 106.

15. *Ibid.*, 115, citing Romano Guardini, *The End of the Modern World* (Wilmington: Intercollegiate Studies Institute, 1998), 55.

16. “*Sicut si artifex factor navis posset lignis tribuere . . .*” (Aquinas, *In octo libros physicorum Aristotelis expositio*, Lib. II, lectio 14 [emphasis added]). It is important to note that such premodern analogies between nature and art were always qualified, or understood to be qualified, a) by the ever greater unlikeness (*maior dissimilitudo*) that transcends and surpasses each and every analogical similarity and b) the difference between creation proper, which presumes nothing but God’s own being and goodness, and every other kind of making, which presupposes that being is a movement from something to something.

profound sense when he writes, “The fact that art imitates nature has its deepest meaning in the fact that art produces analogies to *physei onta*, things that are not simply defined by what they mean for us at every point but make a claim on us to be understood in a way that does justice to them, in an adequate way.”<sup>17</sup>

Yet like all analogies, this one has a negative dimension as well. The fact that art merely *imitates* nature means that a natural thing has something that an artifact lacks, or rather *is* something that an artifact is not. A natural thing, according to Aristotle, is characterized by *entelechia*, by having, or rather *being*, its own end, its own project. An artifact, by contrast, is not finally an end in itself, though as Spaemann suggests, artifacts created for beauty rather than use, or artifacts whose use is informed by beauty and truth, acquire something of this character. Nevertheless, an artifact’s end is imposed upon it from the outside and bears only an accidental relation to the stuff from which it is made. Its project is not its own, but its maker’s, which is why Aristotle and Aquinas will both say that “*we* are the end of artificial things.”<sup>18</sup> Nature and art thus signify two different ways of being a thing.

Beginning in the seventeenth century, and aided and abetted by an extrinsicist understanding of creation, the analogy between nature and art collapses, and nature itself is reconceived *as* artifice. Nature is evacuated of the unity, interiority, and immanence previously conferred on it by form and *esse*. These become invisible to the eyes of a science now wholly consumed with the analysis and synthesis of surfaces (variously conceived), and interiority itself comes to be reconceived in the image of the exteriority belonging to the new concept of matter, whose very “essence” is measurability.<sup>19</sup> Cartesian dualism, now theoretically denied but practically affirmed in every reductive analysis, temporarily forestalled the logical consequence of these assumptions. But eventually that which heretofore distinguished the animate from the inanimate or the human from lower creatures either be-

---

17. Robert Spaemann, “The End of Modernity,” in *A Robert Spaemann Reader: Philosophical Essays on Nature, God, and the Human Person*, ed. D. C. Schindler and Jeanne Heffernan Schindler (Oxford: Oxford University Press, 2015), 224.

18. Aquinas, *Commentary on the Metaphysics*, lect. 4, 173.

19. See my *No God, No Science?*, 107–49.

comes epiphenomenal and thus falls outside of reason and a scientific account of nature, or it is assumed that these phenomena will eventually be reduced to the terms of a lifeless materialism.<sup>20</sup> The ontological identity of each thing becomes precisely identical to the organized interaction of its parts and by the nineteenth century, the sum of its causal history, and plasticity and manipulability enter in to the very heart of nature.<sup>21</sup>

The reduction of nature to art results in a new understanding of unity, not just of things, but of the universe as a whole. The very notion of a *uni-versus*, a turning of all things to the one, implies that cosmic unity is first and foremost *metaphysical*; it is a unity of being, a unity of things-in-act by virtue of their mutual participation in *esse creatum* and its dependence upon the uncreated being of God. Thus, for St. Thomas, “the world’ meant, first and foremost, the unity and cohesiveness of its structure.”<sup>22</sup> Only by thus regarding the unity of the universe as

---

20. *Laudato si’* repeatedly attributes these and similar sins to an “anthropocentrism” variously termed “tyrannical,” “distorted,” “excessive,” or “misguided” (see 68, 69, 115, 116, 119, 122). These adjectives suggest a moral disorder, rooted perhaps in greed. A more philosophical interpretation is suggested by 115, a passage which we encountered previously: “Modern anthropocentrism has paradoxically ended up prizing technical thought over reality, since ‘the technological mind sees nature as an insensate order, as a cold body of facts, as a mere “given,” as an object of utility, as raw material to be hammered into useful shape; it views the cosmos similarly as a mere “space” into which objects can be thrown with complete indifference.’” Such a view implies a dualism between the object thus reduced and a subject who must necessarily exempt himself from his reductions, and thus retreat to an Archimedean point outside nature, in the moment of his theorizing (“exalts the concept of a subject” [106]). Hence the importance of the qualifier “modern,” to distinguish this particular form of reductionism from mere greedy self-centeredness. The irony of this particular form of anthropomorphism, as 118 remarks, is that it does not finally prize human life in its fullness at all: “This situation has led to a constant schizophrenia, wherein a technocracy which sees no intrinsic value in lesser beings coexists with the other extreme, which sees no special value in human beings.” Hence the condemnation of modern anthropomorphism does not “put all living beings on the same level nor . . . deprive human beings of their unique worth and the tremendous responsibility it entails. Nor does it imply a divinization of the earth which would prevent us from working on it and protecting it in its fragility” (*LS*, 90).

21. Hans Jonas, “Seventeenth Century and After.”

22. Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century* (Princeton: Princeton University Press, 1986), 143.



a unity of being-in-act, can one's notion of the universe include the conditions of its own intelligibility and thus be truly comprehensive. With the demise of *esse* and *essentia* and the elevation of physics (mechanics) to the position of first philosophy, the unity of the world is "derived from the brute fact that it is one aggregate,"<sup>23</sup> a result that is endemically reductionist and requires the reductive theorist, in the moment of his theorizing, to retreat to a putative Archimedean point outside of nature.<sup>24</sup>

This conflation of knowing and making, nature and art, brings about a radical transformation in the very meaning of truth. Joseph Ratzinger tracks this transformation in *Introduction to Christianity* as a movement from truth as being (*verum est ens*), to truth as the made (*verum quia factum*), to truth as the makeable or the feasible (*verum quia faciendum*).<sup>25</sup> Francis Bacon openly advocated this in equating truth with utility and proposing to measure truth by its *products*. "What is most useful in operating is truest in knowing," he writes.<sup>26</sup> The godfather of American Progressivism, John Dewey, gave this Baconian spirit a twentieth-century voice as he sought to bring traditional philosophy to an end and to institutionalize the pursuit of technological progress in American life. Things "*are* what they can do and what can be done with them."<sup>27</sup>

This epistemic and metaphysical sense of technology brings us to the second dimension of the technological paradigm, technology as a kind of fate, the force of which is measured by the fact that

23. *Ibid.*

24. *Ibid.*, 143. Hans Jonas puts the point about the theorist's self-exemption this way. "He himself does not come under the terms of his doctrine. He considers behavior, except his own; purposiveness, except his own; thinking, except his own. He views from without, withholding from his objects the privileges of his own reflective position. If asked why he embraces cybernetics, he would for once answer not in cybernetical terms of feedback, circular loops, and automatic control, but in terms like these: 'because I think it to be true, and I am interested in truth'; or 'because I think it to be useful for such and such ends, and I am interested in those ends' . . ." (Jonas, "Cybernetics and Purpose: A Critique," in *The Phenomenon of Life: Toward a Philosophical Biology* [Evanston: Northwestern University Press, 2001], 123–24).

25. Joseph Ratzinger, *Introduction to Christianity*, 2nd ed. (San Francisco: Ignatius Press, 2004).

26. Bacon, *The New Organon*, bk. II, aphorism 4.

27. John Dewey, *Reconstruction in Philosophy* (New York: Holt and Holt, 1920), 115.

The idea of promoting a different cultural paradigm and employing technology as a mere instrument is nowadays inconceivable. The technological paradigm has become so dominant that it would be difficult to do without its resources and even more difficult to utilize them without being dominated by their internal logic.<sup>28</sup>

Why is this the case? If nature is really an artifact or a machine, then *knowledge* of nature is essentially engineering, and the *truth* of this knowledge is simply whatever is technically possible. And if “natural” really just means “possible,” then it is the *exceptions*, which reveal what is possible, that define the norm.<sup>29</sup> But since we can discover the ultimate limits of technological possibility only by transgressing the present limits of possibility, the technological paradigm commits us to a perpetual war against the given limitations of nature. This is why the so-called technological imperative, that what can be done must, has proven so difficult to resist. It is built into our notions of reason and nature. From the vantage point of the technological paradigm, to fail to heed this imperative is to forsake reason itself.

In referring to our technological fate, I am neither invoking a transcendental necessity such as one finds in the epics of Homer, nor suggesting that the future issues from the past and present with some kind of mechanical necessity. Creation bears the mark of novelty Hannah Arendt called *natality*: the shoot of green that springs up as a surprise in the depths of winter, the new little world that appears in place of nothing with the birth

---

28. *LS*, 108.

29. Bacon sets forth this agenda thus: “The task and purpose of human Power is to generate and superinduce on a given body a new nature or natures. The task and purpose of human Science is to find for a given nature its Form, or true difference, or causative nature or the source of its coming-to-be (these are the words we have that come closest to describing the thing). Subordinate to these primary tasks are two other tasks which are secondary and of less importance: to the first is subordinate the transformation of concrete bodies from one thing into another within the bounds of the *Possible*; to the latter is subordinate the discovery, in every generation and motion, of the continuous *hidden process* from the manifest Efficient cause and the observable matter to the acquired Form; and similarly, the discovery, in bodies at rest and not in motion, of the latent structure” (Bacon, *The New Organon*, bk. II, aphorism 1). The sense of form here, which he later (aph. 2) describes as the “law and its clauses” governing this latent process of construction, is obviously very different from the Aristotelian sense of form as an ontological principle.

of every child.<sup>30</sup> It therefore remains possible, though it is often difficult, for human beings to act freely *within* fate, by initiating a series of causes and effects discontinuous with its antecedents. Rather, by fate I mean the historical dynamism set in motion by this perpetual war against the given limits of nature, which governs us more deeply than the rule of law that is mostly responsive to its exigencies, and sets the conditions for our thought and action.<sup>31</sup>

How does this happen? Hans Jonas explains that “control, by making ever more things available for more kinds of uses, enmeshes the user’s life in ever more dependencies on external objects. There is no other way of exercising the power than by making oneself available to the use of the things as they become available.”<sup>32</sup> As these “uses” extend human power beyond a human scale, the nearness and contemporaneity that once established the conditions of human action disappears,

swept away by the spatial spread and time span of the cause–effect trains which technological practice sets afoot, even when undertaken for proximate ends. . . . Add to this [their irreversibility and their aggregate magnitude] their cumulative character: their effects keep adding themselves to one another, with the result that the situation for later subjects and their choices of action will be progressively different from that of the initial agent and ever more the fated product of what was done before.<sup>33</sup>

To take just one example from the endless possibilities: No one knew they needed or wanted a smart phone twenty years ago; yet now, before anyone has even had time to think about it, we have radically unmade and remade communal and social life

---

30. Hannah Arendt, *The Human Condition*, 2nd ed. (Chicago: University of Chicago Press, 1998), 175–247.

31. I am rather less sanguine about our ability to subordinate this technological dynamism to the rule of law than Pope Francis sometimes appears to be. See, for example, *LS*, 177.

32. Hans Jonas, “The Practical Uses of Theory,” in *The Phenomenon of Life* (Evanston: Northwestern University Press, 2001), 193.

33. Hans Jonas, “The Altered Nature of Human Action,” in *The Imperative of Responsibility: In Search of an Ethics for the Technological Age* (Chicago: University of Chicago Press, 1984), 7.

and subjected an entire generation to a vast social experiment beyond anyone's control. All the world is now scrambling to cope with this pervasive new social media and communications system that has insinuated itself into every part of our lives.<sup>34</sup>

In determining the context and conditions of human action, this technological dynamism also largely determines what it now means for us to think, thus fulfilling Bacon's ambition to let "the active tendency itself mark and set bounds to the contemplative part."<sup>35</sup> As Jonas puts it, the "tasks for theory are thus set by the practical results of its preceding use, their solutions to be turned again to use, and so on." These cumulative "uses" place thought under the dominion of the perpetual emergency, so that its form and content is constantly determined in advance by technological exigencies. This conflation of what were once called the speculative and practical orders means that technologically generated exceptions and possibilities now largely govern how we think about what is true.<sup>36</sup> This is difficult to see from within the paradigm, as we have largely grown accustomed to it, but once it is noticed, it appears to be a constitutive feature of contemporary thought. Again the examples are endless. The so-called sexual revolution, for instance, is most fundamentally the technological revolution turned on ourselves, not only in the deep sense that the canonical dualism of sex and gender presupposes a more basic dualism between the affective part, usually thought to be the locus of personal identity, and a meaningless material body regarded as a kind of artifact, but also in the more mundane sense that the technical conquest of human biology is its practical condition of possibility. Just as same-sex "marriage" would have remained permanently unimaginable were it not for the technological conquest of procreation, so too would it have never been possible to think that a man might "really"

---

34. See Francis's description of "mental pollution," in *LS*, 47.

35. Jonas, "The Practical Uses of Theory," 209.

36. See *LS*, 110: "A science which would offer solutions to the great issues would necessarily have to take into account the data generated by other fields of knowledge, including philosophy and social ethics; but this is a difficult habit to acquire today. Nor are there genuine ethical horizons to which one can appeal. Life gradually becomes a surrender to situations conditioned by technology, itself viewed as the principal key to the meaning of existence."

be a woman if we did not think it were technologically possible to transform him into one. And yet these technologically generated exceptions have occasioned a radical rethinking of the whole of human nature, sexuality, and embodiment. Our capacity to dissociate, analyze, and manipulate the various stages of conception and embryonic development has created a desperate moral need to identify a discrete “moment” of conception, even though “origin” is a notion fraught with subtle metaphysical judgments, and it has led to a radical and mostly reductive understanding of life.<sup>37</sup> Similarly our capacity to prolong life by artificial means and to harvest organs for transplant has led us to a controversial redefinition of death.<sup>38</sup> Even Pope Francis’s thoughts on ecology are provoked in large measure by a crisis of technological origins.

Our situation is reminiscent of the famous description of the “last men” in C. S. Lewis’s great little work, *The Abolition of Man*:

In order to understand fully what Man’s power over Nature, and therefore the power of some men over other men, really means, we must picture the race extended in time from the date of its emergence to that of its extinction. Each generation exercises power over its successors: and each, in so far as it modifies the environment bequeathed to it and rebels against tradition, resists and limits the power of its predecessors. This modifies the picture which is sometimes painted of a progressive emancipation from tradition and a progressive control of natural processes resulting in a continual increase of human power. In reality, of course, if any one age really attains, by eugenics and scientific education, the power to make its descendants what it pleases, all men who live after it are the patients of that power. They are weaker, not stronger: for though

---

37. See my “Reconceiving the Organism: Why American Catholic Bioethics Needs a Better Theory of Human Life,” *Communio: International Catholic Review* 41 (Fall 2014): 615–52.

38. See Robert Spaemann, “Is Brain Death the Death of a Human Person?,” *Communio: International Catholic Review* 38 (Summer 2011): 326–40; D. Alan Shewmon, “You Only Die Once: Why Brain Death is Not the Death of a Human Being; A Reply to Nicholas Tonti-Filippini,” *Communio: International Catholic Review* 39 (Fall 2012): 423–94. The 2011–12 entire brain death discussion, with articles from Spaemann, Shewmon, and Tonti-Filippini, can be viewed at <http://www.communio-icr.com/collections/view/brain-death>.

we may have put wonderful machines in their hands we have preordained how they are to use them. . . . The last men, far from being the heirs of power, will be of all men most subject to the dead hand of the great planners and conditioners and will themselves exercise least power upon the future.<sup>39</sup>

“Never has humanity had such power over itself,” Pope Francis writes.<sup>40</sup> Jonas and Lewis help us to see the double meaning of this statement: that man is not only the subject of this power but is also its object, though not all of us in equal measure. That he is the object of this power means not only that some men lord it over others but also that all are ultimately subordinate to the exigencies set in motion by this power, that humankind as such risks becoming the servant of its technology rather than its master. Francis frequently condemns “modern anthropocentrism” variously described as “tyrannical,” “distorted,” “excessive,” or “misguided,” as the source of all of this.<sup>41</sup> But the tragic irony is that this anthropocentrism is not truly anthropocentric. It has no true regard for man but leads instead to a “constant schizophrenia, wherein a technocracy which sees no intrinsic value in lesser beings coexists with the other extreme, which sees no special value in human beings.”<sup>42</sup> Hence environmental degradation is “just one sign of a reductionism which affects every aspect of human and social life.”<sup>43</sup> We can understand this reductionism better by returning once more to what it means to think within this paradigm.

If the truth is identical to my *control* over the phenomena of nature, and if by manipulating *x*, I can induce result *y*, and if in inducing *y*, I can move on to experiment *z*, then I simply do not need to bother asking *what it means* to know or to cause something, or even *what x, y, and z are*. Within this reduced understanding of reason and truth, the questions “what is and what things are” are superfluous, and a great deal of modern

---

39. C. S. Lewis, *The Abolition of Man* (San Francisco: Harper, 1974), 57–58.

40. *LS*, 104.

41. *Ibid.*, 68, 69, 115, 116, 119, 122, 137.

42. *Ibid.*, 118.

43. *Ibid.*, 106.

philosophy has devoted itself to making the world safe for technology precisely by showing such questions to be nonsense. In an earlier part of *The Abolition of Man*, Lewis expresses the concern that a technocratic society would ultimately deprive its people of the capacity for truly human thoughts, feelings, and experiences. Pope Francis expresses a similar concern. “It becomes difficult,” he writes, “to pause and recover depth in life.”<sup>44</sup> A culture *whose very view of reality* is technological, with all the assaults on human dignity that inevitably follow, will have every incentive *not to think* about the profound questions of human existence that for so long animated Western culture. Education will largely consist in learning not to ask them, and so will be scarcely distinguishable from ignorance. But more worrisome still, the inhabitants of such a culture will be *unable to think deeply* about such questions, because there will be no depths to think *about*; for they will have already reduced reality to an assemblage of superficial “facts” and thinking to the arrangement and manipulation of those facts. For such a society there would simply be no such thing as a profound question, only problems awaiting technical or managerial solutions. A society whose members are thus unable to think cannot ultimately be a free society, because they can never see beyond and thus transcend the fate which their powers have unleashed. Their only consolation, and this is also their curse, is that they might never know the difference.

## 2. THE GOSPEL OF CREATION

Against this fragmentation and reductionism, Pope Francis repeatedly advances the thesis that “everything is interconnected.”<sup>45</sup> With the possible exception of the warnings against distorted or excessive anthropomorphism, there is no single point more emphasized throughout the encyclical, and indeed the pope insists that this point “cannot be emphasized enough.”<sup>46</sup> The catalog of environmental and social woes that makes up the first part of the encyclical, apart from giving ecclesial support for “a very

---

44. *Ibid.*, 113.

45. *Ibid.*, 70.

46. *Ibid.*, 138. See also 6, 48, 66, 117, 120.

solid scientific consensus”<sup>47</sup> about climate change, appears to be an effort to lend empirical support to this thesis. Francis thus maintains that “[w]e are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental.”<sup>48</sup>

This complex crisis therefore requires a comprehensive vision of ecology, one that includes not only man’s external environment but the whole of the “relationship between nature and the society which lives in it,” including man’s familial, social, and economic dimensions.<sup>49</sup> Indeed this comprehensive view of ecology, and of the wisdom needed for its realization, casts into relief just how poor the modern notion of “environment” is when contrasted with Joseph Pieper’s account of the older and richer concept of “world.” In so doing, we begin to see what is required if the pope’s vision of ecology is ever to be realized.

It is in the nature of a living thing to have a world: to exist and live in the world, in “its” world. But is not a stone also “in” a world? Is not everything that exists “in” a world? If we keep to the lifeless stone, is it not with and beside other things in the world? Now “with,” “beside,” and “in” are prepositions, words of relationship; but the stone does not really have a relationship with the world “in” which it is, nor to other things “beside” which and “with” which it lives. Relationship, in the true sense, joins the inside with the outside; relationship can only exist where there is an “inside,” a dynamic center from which all operation has its source and to which all that is received, all that is experienced is brought. The “internal” (only in this qualitative sense: the “inside” of a rock would refer only to the spatial location of parts)—the “internal” is the ability to have a real relationship, a relation to the external; to have an “inside” means precisely to be related, and to enter into relationship. And “world”? A world means the same thing, but considered as a whole field of relationships. Only a being that has an ability to enter into relationships, only a being with an “inside,” has a “world”; only such a being can exist in the midst of a field of relations.

---

47. *Ibid.*, 23.

48. *Ibid.*, 139.

49. *Ibid.*



There is a distinctly different kind of proximity that obtains in the relationship of pebbles, which lie together in a heap somewhere beside the roadway and are “related” in that way, and, on the other hand, in the relationship of a plant to the nutriments that it finds in the vicinity of its roots. Here we see not merely physical proximity as an objective fact, but genuine relationship (in the original, active meaning of relationship): the nutriments are integrated into the orbit of the plant’s life—by way of the real internality of the plant, through its power to be related, and to enter into relationship. . . . The plant has a world, but not the pebble.

This, then, is the first point: “world” is a field of relations. To have a world means to be in the midst of, and to be the bearer of, a field of relations.<sup>50</sup>

Pieper goes on to explain how this richer understanding of “world” implies a hierarchy of being—a *proper*, as opposed to modern anthropomorphism if you will—distinguished not by the power to dominate, but *by the capacity for reception*, the capacity which the tradition designated as *spirit*. The highest being, the one whose world includes the whole of being, is the being most able to receive a world.

---

50. Josef Pieper, *Leisure: The Basis of Culture*, trans. Gerald Malsbary (South Bend: St. Augustine’s Press, 1998), 81–82. While I think the point of Pieper’s contrast between the stone and the plant is both traditional and largely correct, the vision of being and nature which it presupposes inclines toward something still more radical in contrast with the mechanistic ontology of the “technocratic paradigm,” the sense of which is given by Jonas: “Perhaps, rightly understood, man is after all the measure of all things—not indeed through the legislation of his reason but through the exemplar of his psychophysical totality which represents the maximum of concrete ontological completeness known to us: a completion from which, reductively, the species of being may have to be determined by way of progressive ontological subtraction down to the minimum of bare elementary matter (instead of the complete being constructed from this basis by cumulative addition). The question is still open whether life is a quantitative complexification in the arrangement of matter, and its freedom and purposiveness nothing but an apparent blurring of the simple, unambiguous determinacy through the massed complexity as such (a fact of our bafflement rather than of its own nature)—or whether, contrariwise, ‘dead’ matter, as one extreme of a spectrum, represents a limiting mode of the properties revealed by feeling life, their privative reduction to the near-dwindling point of inchoateness: in which case its bare, inertial determination would be dormant, as yet unawakened freedom” (Hans Jonas, “Life, Death, and the Body in the Theory of Being,” in *The Phenomenon of Life: Toward a Philosophical Biology* [Evanston: Northwestern, 2001], 24).

By its nature, spirit (or intellection) is not so much distinguished by its immateriality as by something more primary: its ability to be in relation to the totality of being. “Spirit” means a relating power that is so far-reaching and comprehensive, that the field of relations to which it corresponds transcends in principle the very boundaries of its surroundings. It is the nature of spirit to have as its field of relations not just “surroundings” [*Umwelt*] but a “world” [*Welt*]. It is of the nature of the spiritual being to go past the immediate surroundings and to go beyond both its “confinement” and its “close fit” to those surroundings (and of course herein is revealed both the freedom and the danger to which the spiritual being is naturally heir).<sup>51</sup>

If spirit and world are correlative notions, then a stunning and counterintuitive result ensues. Following Benedict XVI, Pope Francis holds that “the book of nature is one and indivisible” and “the deterioration of nature is closely connected to the culture which shapes human coexistence.”<sup>52</sup> And he concludes that “our indifference or cruelty towards fellow creatures of this world sooner or later affects the treatment we mete out to other human beings.”<sup>53</sup> This is certainly true, and yet if spirit and world are correlative notions, so too is the converse. Failure to grasp human creatureliness, to understand human nature in its fullness and to revere human beings, implies a failure to apprehend the truth of being *qua* being and will result inevitably in a reduced and instrumental understanding of nature and in the reduction of the *world* to a mere “environment.” This is historically as well as theoretically true. Pope Francis cites “an inadequate presentation of Christian anthropology” as one of the sources of modernity’s “excessive anthropocentrism.”<sup>54</sup> Bacon justified his new practical science on the basis of the biblical command to subdue it and saw it as an effort to remedy the effects of the fall.<sup>55</sup>

---

51. Pieper, *Leisure: The Basis of Culture*, 85–86.

52. *LS*, 6; Benedict XVI, *Caritas in veritate*, 51.

53. *LS*, 92.

54. *Ibid.*, 116.

55. See Bacon, *The New Organon*, bk. II, aphorism 102. As Peter Harrison shows, Bacon is by no means alone in this regard. Similar understandings emerged, especially within Protestantism, partly as a consequence of the new

Descartes's bifurcation of reality into *res cogitans* and *res extensa* justifies his reduction of the body to meaningless mechanism and his reduction of animals to mere *automata*.<sup>56</sup> This is not just a moral failure but an intellectual failure as well—a failure to grasp the relation between form and matter, body and soul, a failure in virtue of *what things are*—and we have seen that it is precisely the truth of things, indeed whether they have a truth beyond what is technologically possible for them, that is most deeply threatened by the technocratic paradigm.

Pope Francis seems to acknowledge this by grounding the interrelation of all things in the original harmony of creation and in locating the sources of our fragmentation in original sin and its fracture of the original relationship between man and God, fellow human beings, and the earth. And though he acknowledges the need for specialized disciplines, studies, and approaches, the pope appears to recognize the epistemic manifestations of this fracture. He notes that “the specialization which belongs to technology makes it difficult to see the larger picture.”<sup>57</sup> He argues that “ecological culture cannot be reduced to a series of urgent and partial responses to the immediate problems of pollution, environmental decay and the depletion of natural resources. . . . Otherwise, even the best ecological initiatives can find themselves caught up in the same globalized logic.”<sup>58</sup> He maintains that “the fragmentation of knowledge and the isolation of bits of information can actually become a form of ignorance, unless they are integrated into a broader vision of reality.”<sup>59</sup> He points out the limits of empirical science, that it cannot provide “a complete explanation of life, the interplay of all creatures and the whole of

---

hermeneutic applied both to the Book of Nature and the Book of Scripture in the sixteenth and seventeenth centuries. See Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998).

56. See René Descartes, “Discourse on the Method,” in *The Philosophical Writings of Descartes*, vol. 1, ed. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985), 139–41.

57. *LS*, 110.

58. *Ibid.*, 111.

59. *Ibid.*, 138.

reality.”<sup>60</sup> He pleads that “we urgently need a humanism capable of bringing together the different fields of knowledge, including economics, in the service of a more integral and integrating vision.”<sup>61</sup> And he calls for “a distinctive way of looking at things, a way of thinking, policies, an educational programme, a lifestyle, and a spirituality which together generate resistance to the assault of the technocratic paradigm.”<sup>62</sup>

Whence are we to derive this humanism, this distinctive way of looking at things, this integral and integrating vision? Or to put the question more precisely and philosophically, *what kind* of vision is truly “integral and integrating”? The world in such a vision must be large enough to include us, which means that it must comprehend “the totality of that which is given to the mind, without any *a priori* exclusion of the conditions it requires in order to be understood.”<sup>63</sup> Such a vision must therefore include within it the form, unity, interiority, and finality inherent both in the objects of our understanding and in the act of our apprehending them. Scientific analyses of complex systems can *exemplify* this integral unity, and they are obviously an indispensable dimension of an adequate ecological response to the crisis created by our technology, but insofar as the ontology of science excludes these dimensions of being and confines itself to a mere “outside view” of natural phenomena, any scientific account of the integral unity and the “interconnection” of all things will recapitulate the vision of the technocratic paradigm. These analyses will no doubt be infinitely more complex than those derived from earlier systems mechanics, but they will nevertheless remain superficial, reductive, and incomplete, excluding all that is quintessentially human.<sup>64</sup> They will thus remain confined to the

---

60. *Ibid.*, 199.

61. *Ibid.*, 141.

62. *Ibid.*, 111.

63. Etienne Gilson, *The Philosophy of St. Bonaventure*, trans. Iltyd Trethowan and Frank J. Sheed (Patterson, NJ: St. Anthony Guild Press, 1965), 465.

64. In other words, they will recapitulate more sophisticated forms of the Cartesian reduction of nature to “*res extensa*” and thereby exclude the reductive theorist and all that is distinctly human from its reduction. Jonas indicates the fatal contradiction of this self-exemption: “The attempt, therefore, in disowning itself as evidence of its subject matter, contradicts itself with the kind

“environment” rather than the “world” and thereby fall short of a truly integral ecology. And without more rigorous critical attention to the nature of scientific rationality itself, it will remain impossible to really integrate scientific rationality and analysis into a higher order of wisdom. The best one could hope for is an interminable cacophony of perspectives, not an ordered understanding of reality adequate to the *whole* or a practical way of life—a culture—commensurate with this understanding.

*Laudato si'* summons the world and especially Christians to a “profound interior conversion” to an ecological way of life, to accept a “vocation to be protectors of God’s handiwork” and thus to take responsibility for the whole of creation.<sup>65</sup> But insofar as this conversion requires a change of *mind* as well as a change of *heart*, as the pope himself seems to suggest, one of its fundamental dimensions is only hinted at but left undeveloped by the encyclical. The difficulty is indicated, inadvertently perhaps, in the first of several veritable hymns to creation. “In the Judeo-Christian tradition,” Francis writes,

the word “creation” has a broader meaning than “nature,” for it has to do with God’s loving plan in which every creature has its own value and significance. Nature is usually seen as a system which can be studied, understood, and controlled, whereas creation can only be understood as a gift from the outstretched hand of the Father of all, and as a reality illuminated by the love which calls us together into universal communion.<sup>66</sup>

This is beautiful and true. The doctrine of *creatio ex nihilo* emerges, both theoretically and historically, as a consequence of the

---

of understanding it achieves of its subject matter. In eliminating itself from the account, it makes the account incomplete, yet does not tolerate a completion that would transcend the self-sufficiency of its principle, in virtue of which the account is closed in itself. Thus the attempt not only leaves itself unaccounted for, and unintelligible by its own terms: even more, with the epiphenomenalist depreciation of inwardness, it invalidates its own finding by denying to thinking a basis of possible validity in an entity already completely determined in terms of the thoughtless. It is the Cretan declaring all Cretans to be liars” (Jonas, “Cybernetics and Purpose: A Critique,” 134).

65. *LS*, 217.

66. *Ibid.*, 76.

self-revelation of God in Christ.<sup>67</sup> It is not a free-standing cosmological thesis but is rather a function of the doctrine of God and the modifications wrought upon our understanding of God by the Incarnation. And so historically it does exceed classical cosmology both in virtue of its understanding of God, the first principle, but also by imputing to both the origin and structure of the world a gift character that elevates the particular beyond anything conceivable in Greek thought.<sup>68</sup> And so it is certainly correct to say that “creation has a broader meaning than nature.”

And yet this is not the whole truth. Creation as it is invoked here seems to refer to what Aquinas called the “active” sense of creation, which is simply God himself plus what the scholastics called a “rational relation” to the world.<sup>69</sup> But creation is not *only* a designation of origin or of God’s intention for the world. In what Aquinas calls the “passive sense” of the term, creation simply *is* the world, with a real (constitutive) relation to God. Creation in this sense designates the universality, novelty, and dependence of created being (*esse creatum*) and thus designates the world’s intrinsic ontological structure. Pope Francis calls our attention to this paradoxical structure by talking about both the underlying unity of creation and the irreducible (and therefore novel) uniqueness and intrinsic worth of every creature. But to say that creation has something to do with the ontological structure of the world is to say that it has something to do with the inner meaning of nature; indeed it is to speak nature’s deepest truth.

This is omitted in the contrast between creation and the sense of nature as a system to “be studied, understood, and controlled.”<sup>70</sup> This is a distinctly modern sense of nature, the source and product of the technocratic paradigm. It presupposes the confections of knowing and making, nature and art, truth and possibility that characterize this paradigm. Missing in this

---

67. See Gerhard May, *Creatio ex Nihilo: The Doctrine of ‘Creation out of Nothing’ in Early Christian Thought* (Edinburgh: T & T Clark, 1994); my *No God, No Science?*, 77–89.

68. See my *No God, No Science?*, 49–104, 299–333.

69. Thomas Aquinas, *In Sent.*, II.1.1, a. 2 ad 4.

70. *LS*, 76.

contrast is an alternative sense of nature that can be regarded as rational, a nature that is a whole comprised of wholes, a comprehensive order of being inclusive of its own intelligibility and thus imbued with immanence, form, and finality. Here we can see the difficulty. Unless it is possible to rediscover an understanding of nature more adequate to its lived reality, whose truth is more than technological possibility, it will be impossible to overcome the endemic fragmentation and reductionism of the technocratic paradigm. It will be impossible to integrate the genuine gains of mechanistic science into a more comprehensive and integral understanding of reality or to integrate science itself into a more comprehensive order of wisdom. And attempts to reconcile creation with this sense of nature as “a system which can be studied, understood, and controlled” will not be truly integral and comprehensive, but will rather appear as pious, spiritual, or moral additions destined to be bowled over by the technological imperative.

It turns out then that Pope Francis’s hopes for a new humanism and a truly integral ecology hinge, partially but no less significantly, on a *defense of creation* that requires in turn the rebirth of natural philosophy and ultimately metaphysics as comprehensive and integrating forms of knowledge. This is the clear implication of the vision of *Laudato si’*, Pope Francis’s vision, and it is in keeping with the vision of Benedict XVI, who maintained that “thinking of this kind requires a *deeper critical evaluation of the category of relation*. This is a task that cannot be undertaken by the social sciences alone, insofar as the contribution of disciplines such as metaphysics and theology is needed if man’s transcendent dignity is to be properly understood.”<sup>71</sup> Still, if the controversies surrounding the recent synods on the family are any indication, this is unlikely to be popular among many of the most vocal supporters of *Laudato si’*, for it implies not only the inseparability of environmental and human ecology, but that nature itself, with its intrinsic form and finality, is *significant*, and thus in some sense normative.<sup>72</sup> Nevertheless, this is what it means to “accept

---

71. Benedict XVI, *Caritas in veritate*, 53.

72. Consider, for instance, nature as it appears in the work of Todd Salzman and Michael Lawler, who attempt to ground a new sexual ethic on a new “Catholic” anthropology, which in truth is merely mechanistic or “technological”: “[W]e must first confront a difficulty with any argument from

the limits imposed by reality,” and it is the prescription toward which the pope’s diagnosis leads.<sup>73</sup> “Christian spirituality proposes an alternative understanding of the quality of life, and encourages a prophetic and contemplative lifestyle, one capable of deep enjoyment free of the obsession with consumption.”<sup>74</sup> Just as the book of nature is one and indivisible, so too are the contemplative and the prophetic. Should the Church therefore wish to take a prophetic stance against the exploitation of nature, she must discover anew the truth of her perennial wisdom. □

*MICHAEL HANBY* is associate professor of religion and philosophy of science at the Pontifical John Paul II Institute for Studies on Marriage and Family at The Catholic University of America.

---

‘nature.’ This difficulty was highlighted initially by David Hume, who asked whether we can deduce moral obligation from what exists in ‘nature’ and answered that we cannot. We cannot draw conclusions from what *is* to what *ought to be*, from the presumed biological structure of the sexual act—for example, to moral obligation—for even after determining what *is*, we still have to determine whether it is right or wrong. To draw such a conclusion is a logical fallacy—a ‘naturalistic fallacy,’ Moore calls it, or a ‘theological fallacy,’ Frankena calls it. All we can understand from ‘nature’ is the naked facticity of a reality, sexuality and sexual intercourse for instance; nothing else. ‘Nature’ reveals to our attention, understanding, judgment, and decision only its naked facticity, not our moral obligation. Everything beyond ‘nature’s’ facticity is the result of interpretation by attentive, understanding, rational, and responsible human beings” (Todd Salzman and Michael Lawler, *The Sexual Person: Toward a Renewed Catholic Anthropology* [Washington, DC: Georgetown University Press, 2008], 48–49).

73. *LS*, 204.

74. *Ibid.*, 222.