

Between Aristotle and William Paley: Aquinas's Fifth Way

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I. Introduction

IN THE *Summa theologiae*, Aquinas puts forward Five Ways of demonstrating the existence of God. The Fifth Way is stated as follows:

The fifth way is taken from the governance of the world. We see that things which lack intelligence, such as natural bodies, act for an end, and this is evident from their acting always, or nearly always, in the same way, so as to obtain the best result. Hence it is plain that not fortuitously, but designedly, do they achieve their end. Now whatever lacks intelligence cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is shot to its mark by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.¹

Insofar as this argument affirms that final causality or teleology is inherent to the natural order, it is Aristotelian in spirit. Insofar as it explains this teleology in terms of a divine intelligence, the argument may seem reminiscent of “design arguments” of the sort associated with William Paley. But while the Fifth Way does indeed proceed from Aristotelian premises, it takes them in a theological direction Aristotle himself refrained from going in. At the same time, Aquinas’s essentially Aristotelian conception of teleology, however modified, radically differentiates the proof from the non-Aristotelian “design arguments” of Paley and

¹ *Summa theologiae* I, q. 2, a. 3. All quotes from the *Summa theologiae* are taken from St. Thomas Aquinas, *Summa Theologica*, trans. Fathers of the English Dominican Province (New York: Benziger Brothers, 1948).

other modern philosophers. The Fifth Way's account of natural teleology constitutes a middle position between what we might call the radically immanent teleology of Aristotle and the radically extrinsic teleology of Paley. Moreover, while it is paid less attention by contemporary philosophers than is Paley's argument, Aquinas's proof is more philosophically formidable and theologically sound, or so I would argue.

The next section will spell out the conception of natural teleology that Aquinas shares with Aristotle and which underlies the Fifth Way. In section III we will see that, though Aristotle believed that the motion we observe in the world must be sustained by an Unmoved Mover, such a divine source was *not* in his view necessary to account for teleology. Section IV will show how Paley's argument for a divine "watchmaker" presupposes a modern "mechanistic" conception of nature that is fundamentally at odds with the Aristotelian one that informs Aquinas's argument. In sections V and VI we will see how the Fifth Way contends that even given an Aristotelian conception of teleology as immanent to the natural world, a divine intelligence is, contrary to what Aristotle thought, necessary to account for its existence—though for reasons (and with consequences) that are very different from the sort we find in Paley. In section VII we will look more carefully at the differences between Aquinas and Paley with a view to their theological implications. Finally, in section VIII we will see that, even outside the orbit of Thomists, many contemporary metaphysicians and philosophers of science are returning to a broadly Aristotelian conception of nature, so that to differentiate Aquinas from Paley is by no means to make him less relevant to the contemporary discussion.

II. Nature versus Art

For a thing to exhibit teleology or final causality is for it to be oriented toward some end or goal, as an acorn is oriented toward becoming an oak or a watch is oriented toward telling time. Acorns and watches differ, though, in that the former are natural objects while the latter are artifacts—products of human "art" or ingenuity. And understanding how Aristotle and Aquinas regard teleology as immanent rather than extrinsic to the natural order requires understanding the Aristotelian distinction between natural objects or substances on the one hand, and everyday artifacts and other accidental arrangements on the other hand.² Aristotle sets the theme in the *Physics*:

² For a more detailed discussion of the Aristotelian-Thomistic understanding of teleology than I can offer here, see my books *Aquinas* (Oxford: Oneworld Publications, 2009), especially 16–19, 36–51, 112–20, and 177–82, and *The Last Superstition: A*

Some things exist by nature, others are due to other causes. Natural objects include animals and their parts, plants and simple bodies like earth, fire, air and water. . . . The obvious difference between all these things and things which are not natural is that each of the natural ones contains within itself a source of change and of stability, in respect of either movement or increase and decrease or alteration. On the other hand, something like a bed or a cloak has no intrinsic impulse for change—at least, they do not under that particular description and to the extent that they are a result of human skill, but they do in so far as and to the extent that they are coincidentally made out of stone or earth or some combination of the two.

The nature of a thing, then, is a certain principle and cause of change and stability in the thing, and it is *directly* present in it—which is to say that it is present in its own right and not coincidentally.³

The basic idea, then, is that a natural object is one whose characteristic behavior—the ways in which it manifests either stability or changes of various sorts—derives from something intrinsic to it. A non-natural object is one which does not have such an intrinsic principle of its characteristic behavior; only the natural objects out of which it is made have such a principle. We can illustrate the distinction with a simple example. A *liana vine*—the kind of vine Tarzan likes to swing on—is a natural object. A *hammock* that Tarzan might construct from living liana vines is a kind of artifact, and not a natural object. The parts of the liana vine have an inherent tendency to function together to allow the liana to exhibit the growth patterns it does, to take in water and nutrients, and so forth. By contrast, the parts of the hammock—the liana vines themselves—have no inherent tendency to function together as a hammock. Rather, they must be arranged by Tarzan to do so, and left to their own devices—that is to say, without pruning, occasional rearrangement, and the like—they will tend to grow the way they otherwise would have had Tarzan not interfered with them, including in ways that will impede their performance as a hammock. Their natural tendency is to be liana-like and not hammock-like; the hammock-like function they perform after Tarzan ties them together is extrinsic or imposed from outside, while the liana-like functions are intrinsic or immanent to them.⁴

Refutation of the New Atheism (South Bend, IN: St. Augustine's Press, 2008), especially 62–72 and 235–65; and my article “Teleology: A Shopper's Guide,” *Philosophia Christi* 12, no. 1 (2010).

³ *Physics*, Book II, Part 1, in Aristotle, *Physics*, trans. Robin Waterfield (Oxford: Oxford University Press, 1996), 33.

⁴ Cf. Aristotle's example (borrowed from an earlier thinker, Antiphon): “[I]f you bury a [wooden] bed and, as it rots, it manages to send up a shoot, the result is

To put the point in terms of traditional Scholastic jargon, a liana vine is a compound of *substantial form* and *prime matter* (that is, matter devoid of any form at all—something which for the Aristotelian is only an abstraction, since matter in the actual world always has *some* substantial form or other). The hammock qua hammock is *not* such a compound. Its existence involves instead the imposition of an *accidental form* on components each of which already has a substantial form, namely the substantial form of a liana vine. A liana vine is, accordingly, a true *substance*. The hammock is not a true substance, precisely because it does not qua hammock have a substantial form but only an accidental form. In general, true substances are typically natural objects, whereas (Aquinas tells us, commenting on Aristotle) “some things are not substances, as is clear especially of artificial things.”⁵ Again:

Man and wood and stone are natural bodies, but a house or a saw is artificial. And of these the natural bodies seem to be the more properly called substances, since artificial bodies are made out of them. Art works upon materials furnished by nature, giving these, moreover, a merely accidental form, such as a new shape and so forth . . .⁶

Now the liana-like tendencies of the vines are paradigm instances of *immanent* or “built in” final causality or teleology. For these tendencies involve an orientation toward certain *ends*—growth patterns of a certain sort, the taking in of water and nutrients, and so forth—and it is by virtue of its nature or substantial form that a vine has them. By contrast, the hammock-like tendencies of the vines are paradigm instances of *extrinsic* final causality, or teleology imposed “from outside.” For those tendencies are not ones that the vines have given their nature or substantial form. They are there only insofar as an artificer has put them there.

But not all accidental forms are the result of artifice. A group of liana vines which has by chance taken on a hammock-like arrangement does not count as a true substance either, any more than a pattern made by a trail of ants that looks vaguely like the word “No” is really the word “No.” For while this arrangement is not an artifact (not having been deliberately

wood, not a bed” (ibid., 34). That is to say, the natural tendency of the material that makes up the bed is to be wood-like, not bed-like.

⁵ *Sententia super Metaphysicam* VII, 17.1680, in St. Thomas Aquinas, *Commentary on Aristotle's Metaphysics*, trans. John P. Rowan (Notre Dame, IN: Dumb Ox Books, 1995), at 552.

⁶ *Sententia super De anima* II, 1.218, in St. Thomas Aquinas, *Commentary on Aristotle's De Anima*, trans. Kenelm Foster, O.P. and Silvester Humphries, O.P. (Notre Dame, IN: Dumb Ox Books, 1994), at 73.

constructed, as Tarzan's hammock was), the resulting object still does not have the substantial form of a hammock (if there were such a thing as the "substantial form of a hammock"), but is a mere accidental arrangement of parts, like a heap of stones that has formed at the bottom of a hill over time as a consequence of erosion. So though in one sense the "hammock" obviously occurred "naturally," it is not a "natural" object *in the sense* in which Aristotle contrasts nature with art, since a tendency to work together in a "hammock-like" way is not *inherent* to the parts.

What is true of a hammock (or a hammock-like chance object) made of living liana vines is no less true of a hammock made of dead liana vines, even though the difference between artifacts and natural objects is in this case less dramatic. For while the dead vines will not exhibit the growth patterns the living vines will (constantly threatening to upset the hammock-like function Tarzan has imposed on them) they still have no *inherent or built in* tendency to function as a hammock. Being dead, they have lost the substantial form of liana vines, but they have not taken on the substantial form of a hammock (if, again, there were such a thing). Rather, they have the very same substantial form that other bits of dead liana lying randomly around the forest have—the substantial form of a kind of wood, say. Perhaps this substantial form gives them enough durability to make them useful to put together into the form of a hammock, but that does not mean that they now have a natural "hammock-like" tendency *per se*, only that they have a natural tendency toward a certain degree of durability (which might also make them useful for making lots of things other than hammocks).

Now what we have said about hammocks is from an Aristotelian point of view true also of watches, knives, computers, cars, houses, airplanes, telephones, cups, coats, beds, and countless other everyday artifacts. Like the hammock, these objects do not count as natural or as true substances because their specifically watch-like, knife-like, etc. tendencies are extrinsic rather than immanent, the result of externally imposed accidental forms rather than substantial forms. The teleology or final causality of a watch or knife *qua* watch or knife is, accordingly, extrinsic rather than intrinsic. To be sure, the distinctively *metallic* tendencies of the parts of the watch or the blade of the knife *will* be instances of intrinsic or immanent final causality, for these tendencies follow from the nature or substantial form of these components. As Aquinas puts it, "a knife has in itself a principle of downward motion, not insofar as it is a knife, but insofar as it is iron."⁷ But

⁷ *Sententia super Physicam* II, 1.142, in St. Thomas Aquinas, *Commentary on Aristotle's Physics*, trans. Richard J. Blackwell, Richard J. Spath, and W. Edmund Thirlkel (Notre Dame, IN: Dumb Ox Books, 1999), at 75.

functions like time-telling, meat-cutting, and the like do not follow from the substantial form of the metal parts, and thus are not immanent to them.

We have seen that some objects that are not substances, and thus not “natural” in the technical sense Aristotle uses in the *Physics*—a heap of stones which has gradually formed at the bottom of a hill, a group of liana vines which by chance has grown into a hammock-like arrangement—are not artifacts. But the converse is also true; that is to say, it is possible for something to be a product of “art” or human skill and yet to have a substantial form, and thus to be in the relevant sense “natural.” Aquinas says:

Art is not able to confer a substantial form by its own power . . . [but] it is nevertheless able to do so by the power of natural agents, as is made clear by the fact that the form of fire is induced in wood through art.⁸

Fire is, after all, something natural, and remains so even if it is generated by human beings rather than (say) lightning. Similarly, water synthesized out of hydrogen and oxygen in a laboratory is in no relevant respect different from water from a river or from the clouds. It has the substantial form of water and is in that sense a true substance. Dog breeds are also man-made, but a dog of any breed is still a natural object, for its parts have an inherent tendency to function together in a dog-like way (by contrast with a watch, whose parts have no inherent tendency to function in a watch-like way). Of course, fire and water already exist in many places no human being has ever trod, and dogs are variations on a kind of animal (the gray wolf) that already occurs in the wild. But even something which in no way exists apart from human intervention could also count as a true substance, and thus as “natural” in the relevant sense. Eleonore Stump suggests Styrofoam as a possible example.⁹

Stump’s rationale is that what seems to be essential to true substances, as Aquinas understands them, is that they have properties and causal powers that are irreducible to those of their parts. Hence water has properties and causal powers that hydrogen and oxygen do not have, whereas the properties and causal powers of an axe seem to amount to nothing over and above the sum of the properties and causal powers of the axe’s wood and metal parts. When water is synthesized out of hydrogen and oxygen, then, what happens is that the prime matter underlying the

⁸ *Scriptum super Sententiis* II, 7.3.1 ad 5, as translated by Michael Rota in his article “Substance and Artifact in Thomas Aquinas,” *History of Philosophy Quarterly* 21, no. 3 (July 2004): 241–59, at 245.

⁹ Eleonore Stump, *Aquinas* (London: Routledge, 2003), 44.

hydrogen and oxygen loses the substantial forms of hydrogen and oxygen and takes on a new substantial form, namely that of water. By contrast, when an axe is made out of wood and metal, the prime matter underlying the wood and the prime matter underlying the metal do not lose their substantial forms. Rather, while maintaining their substantial forms, they take on a new accidental form, that of being an axe. Now the making of Styrofoam, Stump suggests, seems to be more like the synthesis of water out of hydrogen and oxygen than it is like the making of an axe. For Styrofoam has properties and causal powers which are irreducible to those of the materials out of which it is made, and which therefore indicate the presence of a substantial form and thus a true substance.

The metaphysical issues here are complex, but we need not pursue them further for present purposes.¹⁰ Suffice it to note that things are more complicated than the traditional “nature versus art” distinction might at first glance indicate. The *fundamental* distinction is actually that between things having substantial forms and those having merely accidental forms. The former are true substances, the latter are not. Natural objects (in the everyday sense of “natural”) like water, iron, animals, or the liana vines of my example are paradigm instances of the former. Artifacts like watches, knives, beds, or the hammock of my example are paradigm instances of the latter. Still, there are objects which are “natural” in the everyday sense, but which are nevertheless not true substances—and thus *not* “natural” in Aristotle’s *technical* sense—such as the heap of stones that forms by chance at the bottom of a hill. And there are objects that are “artifacts” in the sense of being man-made that are nevertheless true substances (and thus “natural” in Aristotle’s sense) such as water synthesized in a lab and (perhaps) Styrofoam. But it is not surprising that writers in the Aristotelian tradition have often spoken, more loosely, in terms of a distinction between nature and art. For the *typical* object that is “natural” in the sense of existing apart from human action is also “natural” in the sense of having a substantial rather than accidental form, even if not *all* objects that are “natural” in either one of these senses are also “natural” in the other. And the *typical* object that has only an accidental form rather than a substantial form is also an artifact or something

¹⁰ For useful recent discussions of the Aristotelian-Thomistic metaphysics of substances and artifacts, see Rota, “Substance and Artifact in Thomas Aquinas”; Stump, *Aquinas*, 39–44; Eleonore Stump, “Substance and Artifact in Aquinas’s Metaphysics,” in *Knowledge and Reality: Essays in Honor of Alvin Plantinga*, ed. Thomas M. Crisp, Matthew Davidson, and David Vanderlaan (Dordrecht: Springer, 2006), 63–79; and David S. Oderberg, *Real Essentialism* (London: Routledge, 2007), 166–70.

man-made, even if not *all* objects which lack substantial forms are artifacts and not all artifacts lack substantial forms.

In any event, the distinction between immanent and extrinsic teleology that is so vital to understanding the Fifth Way is, then, at bottom a distinction between the teleology or final causality a thing exhibits by virtue of its substantial form, and the teleology a thing exhibits only because of some accidental form. This distinction closely, if imperfectly, tracks the distinction between natural objects and human artifacts, which is why the natural tendencies of acorns and the like are standard examples of immanent teleology and the functions of watches and the like are standard examples of extrinsic teleology. But immanent teleology can also exist in objects that are in some sense man-made, as when human skill produces substances like water or Styrofoam, with their distinctive causal powers.

This brings us to one final, crucial aspect of our account of immanent teleology. It might seem odd to speak of water or Styrofoam as exhibiting teleology or final causality. For the standard examples of teleology—acorns, bodily organs, and other biological phenomena, or watches and other artifacts and their components—typically involve either an arrangement of parts working toward a common end or some sort of goal-directed process. The acorn develops into an oak; eyes, ears, hearts, and lungs function together to allow an organism to survive and flourish; the parts of a watch are arranged so that it can function as a time-piece; and so on. But what is there in water, Styrofoam, and the like that parallels the developmental process of an acorn, or the function of a bodily organ or watch part?

But it is a mistake to think that teleology need always involve a process with stages (as in the development from acorn to oak) or a part functioning for the sake of a whole (as with an eye or a watch gear). Rather, what is essential to teleology is an inclination toward an end, and this can exist at levels of reality simpler than those involving developmental processes or part-to-whole relationships of the sort found in organisms and machines. In particular, for Scholastic writers like Aquinas, it exists even in the simplest instances of efficient causality. Take, for example, the tendency of an ice cube to cause the liquid or air surrounding it to grow cooler, or of a match to generate flame and heat when struck. These, specifically, are the effects the ice cube or match will reliably bring about unless somehow impeded (for instance, by melting the ice cube before it has a chance to cool its surroundings, or by damaging the match by submerging it in water). The ice cube will cool the surrounding air *rather than* heating it, or causing it to become toxic, or having no effect at all; the match will cause flame and heat *rather than* frost and cold, or the smell

of lilacs, or no effect at all. That the ice cube and match have just the specific effects they do in fact have rather than some others or none at all—or, counterfactually, that they would have had those specific effects had they not been impeded—is explicable only if we suppose that there is something in them that “points to” precisely those outcomes rather than any others, as to an end or goal. In short, if *A* is by nature an *efficient* cause of *B*, then generating *B* must be the *final* cause of *A*. As Aquinas says, “every agent [i.e. efficient cause] acts for an end: otherwise one thing would not follow more than another from the action of the agent, unless it were by chance.”¹¹ Later Scholastics would come to refer to this as the *principle of finality*.¹²

We will have reason to return to this theme, since it plays a central role in the Fifth Way. Suffice it for the moment to note that Aquinas takes immanent teleology or final causality to be manifest not only in relatively complex and rare natural phenomena like plants, animals, and their organs, but also in all inorganic entities insofar as they have, by virtue of their substantial forms, distinctive powers of efficient causality. The causal powers of water, Styrofoam, iron, gold, lead, and the like—and indeed the causal powers of even the most elementary particles—are no less instances of “built in” inclination toward an end than the tendencies of acorns and liana vines are. Thus, since efficient causality exists *everywhere* in the natural world, from top to bottom, so too does final causality.¹³

III. Aristotle contra Anaxagoras and Plato

What explains this? Here is where Aquinas parts ways with Aristotle. The aim of the Fifth Way is to show that the teleology that exists in nature, though immanent rather than extrinsic, nevertheless presupposes the existence of a divine intelligence which orders things to their ends. Aristotle did not take such a view. To be sure, he held that there *is* a divine intelligence, that this intelligence is the Unmoved Mover of the universe, and that the

¹¹ *ST* I, q. 44, a. 4. Cf. *ST* I–II, q. 1, a. 2, *Summa contra Gentiles* III, 2, *Sententia super Physicam* II, 5.186, and *De principiis naturae* III. In the case of a match—which is, of course, an artifact with certain externally imposed ends (lighting cigars, pilot lights, and the like)—it is only the phosphorus in the match head which, by virtue of its chemistry, has an *inherent* inclination toward the ends in question, and only effects like flame, heat, and the like (rather than lit cigars and pilot lights per se) that are included in those ends.

¹² Reginald Garrigou-Lagrange regards the principle, when rightly understood, as *self-evident*. See *God: His Existence and His Nature* (St. Louis: B. Herder, 1939), vol. I, 199–205.

¹³ For discussion of the various distinct levels at which immanent teleology might be said to exist in the natural world, see Feser, “Teleology: A Shopper’s Guide.”

way in which He moves the world is by virtue of being its final cause. God is in that way the explanation of the fact that things *realize* their ends, to the extent that they do. But He is not in Aristotle's view the explanation of the fact that they *have* those ends in the first place. That is just a basic fact about them given their natures. Hence, though there is in Aristotle a precursor to Aquinas's First Way, there is no precursor to the Fifth Way.

Lurking in the background of the view of final causes we have seen Aristotle develop in the *Physics* is a critique of the theories of atomists like Democritus, who favored a materialist explanation of the world which eschews final causes altogether, and the view of Anaxagoras that the order of the world requires an explanation in terms of intelligence. Aristotle regards the latter as no more successful than the former:

[Earlier thinkers] in the peregrinations often strike good blows, but they do not do so from knowledge, and no more do these thinkers seem to have known what they were saying. For they seem to have made more or less no use of these principles except to a small extent. For Anaxagoras uses the mind as a device for the making of the cosmos, and when he puzzles for what reason it is of necessity, then he drags in mind, but in other matters he ascribes cause to anything else rather than to mind . . . ¹⁴

Aristotle evidently seeks to defend a middle ground position according to which there is such a thing as final causality in nature, but that it is *entirely* immanent to the natural world rather than in any way derivative from something like the "mind" of Anaxagoras or the demiurge of Plato's *Timaeus*. For Aristotle rejects the view that the natural world requires ordering in the first place: "That which is by nature and natural is never *disordered*. For nature is everywhere a *cause* of order."¹⁵ For Aristotle, for a thing to be "natural" is *ipso facto* for it to be ordered in the sense of having an end toward which it is directed. That which requires an outside source to order or direct it toward an end would, for him, by that very fact not be a natural object at all but an artifact.

To those who claim that goal-directedness or purpose requires conscious deliberation or planning of the sort rational beings engage in, Aristotle responds:

It is ridiculous for people to deny that there is purpose if they cannot see the agent of change doing any planning. After all, skill does not

¹⁴ *Metaphysics*, Book Alpha, Part 4, in Aristotle, *The Metaphysics*, trans. Hugh Lawson-Tancred (London: Penguin, 2004), at 17.

¹⁵ *Physics*, Book VIII, Part 1, as translated by Monte Ransome Johnson in his book *Aristotle on Teleology* (Oxford: Clarendon Press, 2005), at 249. Emphasis added.

make plans. If ship-building were intrinsic to wood, then wood would naturally produce the same results that ship-building does. If skill is purposive, then, so is nature.¹⁶

In other words, that goal-directedness does not require conscious deliberation is evident from the fact that a skilled craftsman can largely carry out his work without even thinking about it—"on autopilot" as we might put it today, or without first "making plans," as Aristotle puts it. But if this is possible for someone with such skill, there is in Aristotle's view no reason not to think it also possible for natural objects. This is the force of the ship-building example: If there were something in the very nature of wood that "directed it" toward the end of becoming a ship, then what in the case of human craftsmanship results from deliberate design—a ship—would in that case result "naturally" instead, that is, without conscious deliberation at all. Indeed, "it looks as though things happen at the plant level too which serve some purpose" in just this way, even though plants do not deliberate—for instance, an oak derives from an acorn without the acorn planning this result—and there is also of course the example of "non-human animals, whose products are not the result of skill, enquiry, or planning."¹⁷

Because he took the natures of things to suffice to account for their being directed or ordered toward their ends, Aristotle saw no need to attribute this ordering to God:

The divine is not an ordering ruler, since he needs nothing, but rather is that for the sake of which wisdom gives orders.¹⁸

Hence while God Himself is the ultimate end toward which things are directed, He does not in Aristotle's view *impart* to things their ends. Indeed, far from paying other things and their ends any mind, God has in Aristotle's view Himself alone as the proper object of His thought. Nor is there any need to explain the *origin* of the world, together with its teleological features, in terms of divine ordering, since Aristotle takes the world *always* to have existed.

This, at any rate, is the usual view of Aristotle's position on the relationship of natural teleology to God.¹⁹ There are some who dissent from

¹⁶ *Physics*, Book II, Part 8, Waterfield translation at 53.

¹⁷ *Ibid.*, at 51–52.

¹⁸ *Eudemian Ethics*, Book VIII, Part 3, as translated by Johnson in *Aristotle on Teleology*, at 262. Cf. Johnson's discussion of the passage at 72–74.

¹⁹ For important recent expositions, see Johnson, *Aristotle on Teleology*, and Christopher Shields, *Aristotle* (London: Routledge, 2007), 68–90.

it. For example, while acknowledging that what I have described is “a standard view among Aristotelian scholars,” Marie George has suggested that a passage from Aristotle’s *On Generation and Corruption* implies a different interpretation.²⁰ In particular, she notes that Aristotle says that “nature . . . always and in all things strives after the better” and “God, therefore . . . perfected the universe by making coming-to-be a perpetual process.”²¹ However, this passage doesn’t show what George thinks it does. What it shows is at most only that Aristotle regards God as the cause of things’ moving in such a way that they realize their ends; it doesn’t show that He is the cause of things *having* those ends in the first place. And the latter thesis is the one that Aristotle scholars typically decline to attribute to Aristotle.²²

IV. From William of Ockham to William Paley

Unlike Aristotle, and like Aquinas, William Paley regarded God as the source of the teleology that exists in the natural world. But unlike either Aristotle or Aquinas, he regarded final causes, not as *immanent* or *intrinsic* to the world, but rather as entirely *extrinsic*. It is not, for Paley, *qua natural* that a natural object manifests teleology. Rather, it is only those specific natural objects whose complexity is so great that they are unlikely to have come about except through the agency of an intelligence like ours that point to the existence of teleology, and even then only as a matter of high probability rather than metaphysical necessity.

The stage was set for Paley’s probabilistic and extrinsicist approach long before “design arguments” of the kind he is associated with became fashionable in the eighteenth century, indeed, even before the rise of modern philosophy. We find its Scholastic roots in William of Ockham, who denied that it could be *demonstrated* through natural reason that final causes exist in non-rational natural objects. In Ockham’s view, only agents with free will clearly exhibit teleology:

[S]omeone who is just following natural reason would claim that the question “For what reason?” is inappropriate in the case of natural actions. For he would maintain that it is no real question to ask for

²⁰ Marie George, “An Aristotelian-Thomist Responds to Edward Feser’s ‘Teleology,’” *Philosophia Christi* 12 (2010), at 442.

²¹ Aristotle, *On Coming-to-Be and Passing Away*, trans. E. S. Forster, in *On Sophistical Refutations, On Coming-to-Be and Passing Away, On the Cosmos* (Cambridge: Harvard University Press, 1955), 336b25–37a2.

²² See Johnson, *Aristotle on Teleology*, 258–63, for discussion and criticism of attempts by scholars of earlier generations to show that Aristotle was committed to a teleological argument for God’s existence.

what reason a fire is generated; rather, this question is appropriate only in the case of voluntary actions.²³

To the argument that without final causes, an agent or efficient cause would act by chance rather than reliably generating its associated effect, Ockham responds:

I reply that this argument goes through for a free agent, which is no more inclined by its nature toward the one effect than toward the other. However, the argument does not go through for a natural agent, since an agent of this sort is by its nature inclined toward one determinate effect in such a way that it is not able to cause an opposite effect. This is evident in the case of fire with respect to heat.²⁴

In general, Ockham held that, apart from revelation, we could know very little about teleology:

If I accepted no authority [i.e. the truths of faith], I would claim that it cannot be proved either from propositions known per se or from experience that every effect has a final cause that is either distinct or not distinct from its efficient cause. For it cannot be sufficiently proved that every effect has a final cause.²⁵

The tendency to associate teleology only with rational agents is even more pronounced in the work of John Buridan. As Dennis Des Chene writes:

Ockham had already argued, following Avicenna, that the final cause acts only by virtue of existing in the intellect of an agent; to which Buridan added that when it acts thus, it acts as an efficient cause, and that where the agent is not such as to conceive the ends by which it acts, there is no final cause at all, only efficient causes. To the argument that if there were no ends in nature, then one thing would follow from another haphazardly, Buridan replies (as we would) that efficient causes suffice.²⁶

²³ *Quodlibet* 4, q. 1, in William of Ockham, *Quodlibetal Questions*, trans. Alfred J. Fredoso and Francis E. Kelley (New Haven, CT: Yale University Press, 1991), at 249.

²⁴ *Ibid.*

²⁵ *Ibid.*, 246. For (somewhat divergent) treatments of the subject of Ockham's understanding of causality, see Harry R. Klocker, *God and the Empiricists* (Milwaukee: Bruce Publishing Company, 1968), Chapter 1, and Marilyn McCord Adams, *William Ockham* (Notre Dame, IN: University of Notre Dame Press, 1987), Volume II, Chapter 18.

²⁶ Dennis Des Chene, *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought* (Ithaca, NY: Cornell University Press, 1996), 186–87.

As Des Chene notes, this tendency continued through the late Scholastic period, though there were also writers who returned to the more traditional Aristotelian view. But the upshot of the trend begun by Ockham and Buridan was “a significant step away from Aristotle and toward Plato”—that is, toward seeing the ends of inanimate natural objects as imposed from outside by a divine intelligence analogous to the demiurge of the *Timaeus*. It also pointed forward to the revolution of the moderns, for “when [these later Scholastics] assimilate the inanimate world to a divine artifact, and final causation to intentional action, they hark back to [Plato] even as they unwittingly prepare the way to the world-machine of Descartes.”²⁷

Indeed, with Descartes, Aristotle’s sharp distinction between natural objects and artifacts (or at least those artifacts which do not have substantial forms) is completely obliterated, with the former assimilated to the latter:

For I do not recognize any difference between artefacts and natural bodies except that the operations of artefacts are for the most part performed by mechanisms which are large enough to be easily perceivable by the senses . . . [I]t is no less natural for a clock constructed with this or that set of wheels to tell the time than it is for a tree which grew from this or that seed to produce the appropriate fruit. Men who are experienced in dealing with machinery can take a particular machine whose function they know and, by looking at some of its parts, easily form a conjecture about the design of the other parts, which they cannot see. In the same way I have attempted to consider the observable effects and parts of natural bodies and track down the imperceptible causes and particles which produce them.²⁸

In effect, as Des Chene observes, Descartes reverses Aristotle’s dictum about the relationship between art and nature:

But if art is like nature, then so too nature is like art. Yet artifacts are bereft of any intrinsic principle, active or passive, of movement. If nature were indeed like art, nature too would lack such a principle: it would have, in short, no nature [in Aristotle’s technical sense of “nature”].²⁹

The result has been the hegemony in modern Western thought of what Brian Ellis has called “the dead world of mechanism” or “passivism,” the

²⁷ Ibid., 187–88.

²⁸ *Principles of Philosophy*, Part 4, sec. 203, in René Descartes, *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985), vol. I, 288–89.

²⁹ Des Chene, *Physiologia*, 240.

view of Descartes, Newton, Hume, and their successors that matter is essentially devoid of any “intrinsic impulse for change” of the sort that Aristotle attributed to natural objects in the *Physics*.³⁰ Rather, it is governed by external “laws of nature” which impose on it an order it could not otherwise have.

We are used today to hearing it asserted matter-of-factly that the “operation” of “laws of nature” suffices to “explain” natural phenomena—a very curious claim, given that, as Jonathan Kvanvig and Hugh McCann have pointed out:

Laws, after all, are descriptive in import. They do not *operate* at all, despite our figures of speech, and they do not do anything in or to the world. If they are true, it is because things themselves have features the laws describe.³¹

Now the Aristotelian would say that it is precisely “things themselves” that are primary, that it is their natures which explain the operation of the laws rather than the laws which explain how things operate. But the early modern philosophers and scientists who inaugurated the anti-Aristotelian mechanical or “passivist” view of nature would (contra contemporary naturalists) have denied that laws of nature should be regarded as a terminus of explanation in the first place—only God, as the Author of those laws, can be that. Nor in their view should teleology disappear from our account of nature. Rather, as Margaret Osler writes of thinkers like Gassendi, Newton, and Boyle:

Although most seventeenth-century mechanical philosophers rejected immanent final causes—in the sense of the actualization of forms—they accepted an idea of finality as imposed on nature from without. What is at stake here is not the rejection of final causes *per se*, but their reinterpretation within a new concept of nature. With the mechanical reinterpretation of final causes, the idea of individual natures that possess

³⁰ Brian Ellis, *The Philosophy of Nature: A Guide to the New Essentialism* (Chesham: Acumen, 2002), 1–3, 60–63.

³¹ Jonathan L. Kvanvig and Hugh J. McCann, “Divine Conservation and the Persistence of the World,” in *Divine and Human Action: Essays in the Metaphysics of Theism*, ed. Thomas V. Morris (Ithaca, NY: Cornell University Press, 1988), 34. For an account of how the Aristotelian conception of the natures of things gave way in modern philosophy to the notion of “laws of nature,” see Walter Ott, *Causation and Laws of Nature in Early Modern Philosophy* (Oxford: Oxford University Press, 2009). For discussion of the philosophical issues and difficulties surrounding the notion of laws of nature, see Stephen Mumford, *Laws in Nature* (London: Routledge, 2004).

immanent finality was replaced with the idea of nature as a whole which is the product of the divine artificer. Nature became a work of art.³²

In short, these thinkers replaced Scholastic philosophical theology, grounded in an Aristotelian philosophy of nature, with the “design argument.”

And that brings us to William Paley, the most famous defender of that argument. The basic thrust of his version is familiar.³³ Though we might reasonably suppose that a stone we had come across upon a heath had possibly lain there forever, we could not reasonably think the same of a watch discovered in the same place. For a watch has parts that are evidently arranged for a purpose; and had the parts been different or arranged differently, they could not have served that purpose. Hence we must conclude that “an artificer or artificers . . . formed it for the purpose which we find it actually to answer.”³⁴ Nor would we be any less inclined to this conclusion if we found that the watch contained a mechanism which enabled it to make copies of itself; indeed, to deny that the watch was designed would in this case be even more of an “absurdity.”³⁵ Yet the atheist maintains something no less absurd. For “every indication of contrivance, every manifestation of design, which existed in the watch, exists in the works of nature; with the difference, on the side of nature, of being greater and more, and that in a degree which exceeds all computation.”³⁶ This is particularly evident from the anatomical features of living things. Even more than the watch, then, the natural world exhibits “proof of design, and of a designing Creator.”³⁷

This is, however, just an outline of the argument. Paley devotes the bulk of his book to a detailed description of diverse biological phenomena, from the structure of the eye and the ear to the skeletal system, the muscles, the properties of fish, birds, insects, plants, and so on. His aim is to overwhelm the atheist with an “argument cumulative.”³⁸ The argu-

³² Margaret J. Osler, “From Immanent Natures to Nature as Artifice: The Reinterpretation of Final Causes in Seventeenth Century Natural Philosophy,” *The Monist* 79, no. 3 (July 1996): 389–90. Later generations of philosophers and scientists would, of course, ban even extrinsic final causes from science. As David Hull writes, “Historically, explanations were designated as mechanistic to indicate that they included no reference to final causes or vital forces. In this weak sense, all present-day scientific explanations are mechanistic” (*The Cambridge Dictionary of Philosophy*, s.v. “mechanistic explanation”).

³³ William Paley, *Natural Theology* (Oxford: Oxford University Press, 2006).

³⁴ *Ibid.*, 8.

³⁵ *Ibid.*, 15.

³⁶ *Ibid.*, 16.

³⁷ *Ibid.*, 40.

³⁸ *Ibid.*, 45.

ment concerns probabilities, but Paley thinks the probability of design so high that he speaks confidently of “the *necessity* of an intelligent Creator.”³⁹ He also includes a chapter on astronomy, but says that “it is *not* the best medium through which to prove the agency of an intelligent Creator,” for heavenly bodies are simple in their appearance, and “we deduce design from relation, aptitude, and correspondence of *parts*. Some degree therefore of *complexity* is necessary to render a subject fit for this species of argument.”⁴⁰

Thus, whereas for Aquinas, the existence of even the simplest efficient-causal regularity establishes the reality of final causality, for Paley only complex phenomena can give us reason to believe in purpose and “design.” Moreover, whereas for Aquinas final causes exist in the natural world of metaphysical necessity, for Paley the existence of design (and thus of purpose in nature) is a mere probabilistic hypothesis (even if the probability is in his view so great that the conclusion cannot reasonably be doubted). These differences reflect the radical differences in the two thinkers’ basic metaphysical commitments. For Aquinas the Aristotelian, a natural object, however simple or complex, simply wouldn’t be a natural object at all unless it had a substantial form and thus the final causality immanent to something with that form. For Paley the inheritor of the early moderns’ anti-Aristotelian mechanical or “passivist” view of nature, nothing in the natural order has any *inherent* purpose or finality, any more than the metal parts that make up a watch have an inherent tendency to function as a timepiece. There cannot be any question of natural things pointing with *necessity* to the reality of final causes or teleology, then, though certain inherently purposeless natural phenomena might be so complex that we can judge with high probability that an *extrinsic* purpose must have been imposed on them.

V. Aquinas's Middle Position: First Stage

Still, like Paley and unlike Aristotle, Aquinas holds that natural teleology points to the existence of God. His is a middle position between the ones staked out by Paley and by Aristotle. But how could there be such a thing? Monte Ransome Johnson, Christopher Shields, and Andre Ariew have sharply distinguished the Aristotelian conception of teleology as

³⁹ Ibid., emphasis added. Paley appeals to what is “probable” or to “probability” or “improbability” several times in the course of his argument, e.g. at 108, 135, 162, 167, 179, and 201. See Matthew D. Eddy and David Knight’s “Introduction” to the edition of Paley’s *Natural Theology* cited above for a useful brief discussion of the rise of interest in probabilistic arguments in Paley’s day.

⁴⁰ Ibid., 199. Emphasis in the original.

immanent to the natural world from the view one finds in the Plato of the *Timaeus*, Newton, and Paley to the effect that teleology exists in nature only insofar as a deity has imposed it from outside.⁴¹ Call the former view *Aristotelian teleological realism* and the latter *Platonic teleological realism*.⁴² If we reject one, mustn't we embrace the other? Johnson, Shields, and Ariew imply as much. Their view seems to be that to endorse Aristotle's view that teleology is immanent to the natural order (a view each of these writers regards as at least philosophically interesting) entails rejecting the idea that God has anything at all to do with it. Arguing from a different direction but arriving at a similar conclusion, Marie George and Jay Richards suggest that since Aquinas thinks God does have something to do with natural teleology, his view must after all be closer to Paley's than I have allowed.⁴³

But this is a false choice. As is well known, Aquinas held that God is the "first cause" of things in the sense that all other efficient causes derive whatever causal power they have from Him. But Aquinas is no occasionalist. He insists that "secondary causes" are *true* causes, making a genuine causal contribution to their effects. But what is true in the order of efficient causes is in Aquinas's view no less true in the order of final causes. Just as secondary causes have genuine causal power of their own despite their ultimately deriving it from God, so too is the teleology of natural objects immanent to them despite their ultimately deriving that too from God.

We might call this position *Scholastic teleological realism*, and its status as a middle ground between Platonic and Aristotelian extremes is analogous to (and might be illuminated by comparison with) the similarly middle-ground position Aquinas and other Scholastics took on the problem of universals.⁴⁴ Plato, Aristotle, and Aquinas are all realists about universals rather than nominalists or conceptualists. But they famously differ about what realism entails. For Platonic realism about universals, the universal essence *acorn* (to take a simple example) exists entirely apart from partic-

⁴¹ See Johnson, *Aristotle on Teleology*; Shields, *Aristotle*, 68–90; and Ariew's articles "Platonic and Aristotelian Roots of Teleological Arguments," in *Functions: New Essays in the Philosophy of Psychology and Biology*, ed. Andre Ariew, Robert Cummins, and Mark Perlman (Oxford: Oxford University Press, 2002) and "Teleology," in *The Cambridge Companion to the Philosophy of Biology*, ed. David L. Hull and Michael Ruse (New York: Cambridge University Press, 2007).

⁴² Shields calls the latter view "teleological intentionalism," and Ariew calls it "Platonic teleologism."

⁴³ George, "An Aristotelian-Thomist Responds to Edward Feser's 'Teleology,'" and Jay W. Richards, "Separating the Chaff from the Wheat," in *God and Evolution*, ed. Jay W. Richards (Seattle: Discovery Institute Press, 2010), 225–46.

⁴⁴ I develop this analogy at greater length in Feser, "Teleology: A Shopper's Guide."

ular acorns and from the finite minds that grasp this universal, in a “third realm” as the “Form of Acorn.” For Aristotelian realism about universals, the universal essence *acorn* exists only in particular acorns themselves and in the finite minds that abstract it. For Scholastic realism about universals, the universal essence *acorn* exists in the particular acorns themselves and in the finite minds that abstract it, but it also *pre-exists* in the *divine* intellect as the archetype according to which God creates acorns. Similarly, for Platonic *teleological* realism, the end or goal of an acorn exists entirely apart from it, in a divine mind which orders it to its end. For Aristotelian teleological realism, the end or goal of an acorn exists only intrinsic to the acorn itself. For Scholastic teleological realism, the end or goal of an acorn exists intrinsic to the acorn itself, but only because God created it according to the pre-existing essence in question, which includes having the generation of an oak as an end or goal. With respect to realism about both universals and teleology, then, the Platonic approach tends to emphasize transcendence to the exclusion of immanence, the Aristotelian approach tends to emphasize immanence to the exclusion of transcendence, and the Scholastic approach seeks to show that each side is partially correct in that the phenomena in question are immanent to the created order in one respect and transcend it in another.

But to understand more deeply the nature of Aquinas's middle-ground position, it is best to proceed to an examination of the Fifth Way itself. The argument has two stages, the first of which, as the reader will recall, goes as follows:

We see that things which lack intelligence, such as natural bodies, act for an end, and this is evident from their acting always, or nearly always, in the same way, so as to obtain the best result. Hence it is plain that not fortuitously, but designedly, do they achieve their end.

By “designedly” (*ex intentione*), Aquinas does not mean “because of a designer,” à la Paley; the role of divine intelligence enters the argument only in its second stage. Rather, he means, as Aristotle would, “because of inherent teleology, rather than by chance.” Christopher Martin translates *ex intentione* as “in virtue of some tendency,” which is, I think, to be preferred both to the widely used Fathers of the English Dominican Province translation quoted above and to the common alternative translation “by intention.”⁴⁵ “Designedly” and “by intention,” while not incorrect, can be misleading given the way “design” and “intention” are

⁴⁵ Christopher F. J. Martin, *Thomas Aquinas: God and Explanations* (Edinburgh: Edinburgh University Press, 1997), 179.

typically used in contemporary philosophical discussion of these issues, which differs from the way they are used in Scholastic philosophy.⁴⁶

What Aquinas is asserting here, then, is what we referred to earlier as the *principle of finality*, which states that every agent or efficient cause acts for an end. And the argument in this case is essentially the same as the argument given earlier for that principle. Unless we suppose that causes inherently or of their nature “point to” their characteristic effects as to an end, we have no way of making intelligible why it is that they “act always, or nearly always, in the same way.” It might seem that regarding this regularity as “fortuitous” or attributable to chance would give us an alternative explanation. But for the Aristotelian, chance *presupposes* regularity and thus finality, and so provides no genuine alternative at all. Chance is nothing more than the accidental convergence of non-accidental lines of causation. To take a stock example from Boethius, suppose a farmer discovers treasure buried in the field he is plowing.⁴⁷ The discovery was in no way intended by either the farmer or the person who buried the treasure, nor is there any causal regularity in nature connecting plowing and the discovery of treasure. Still, the farmer did intend to plow, someone did intend to bury the treasure, and there are all sorts of natural causal regularities instantiated when the farmer plows the field and discovers the treasure. It would be incoherent, then, to suggest that regularity can be accounted for by chance rather than finality, since to make sense of chance we need to appeal to finality and regularity.

But what of the objection raised by Ockham and Buridan to the effect that efficient causes are sufficient to account for regularity in unintelligent natural objects? Des Chene develops this sort of view as follows:

The [Aristotelian] argument is, on its face, unconvincing. Everyone agrees that efficient causes necessitate their effects (“if the cause is given, so is the effect,” writes Eustachius with his usual brevity . . .). So people will not emerge from the sea ever if they do not always: one does not need ends to account for that regularity. Given that we have

⁴⁶ As Bernard Wuellner explains in his *Dictionary of Scholastic Philosophy* (Milwaukee: Bruce Publishing Company, 1956), in Scholastic metaphysics “intention” can mean “the direction or application of causal power to an effect; the influence of the primary cause on the instrument” (63). (For the first “of,” Wuellner’s text actually reads “or,” but this is evidently a typo.) Wuellner adds: “This may be the primary meaning of intention as it best shows the notion of directing or tending on the part of a being or power.” Again, what is in view is the Aristotelian notion of *immanent* teleology, rather than the *extrinsic* teleology in terms of which Paley and his contemporary successors frame their “design argument.”

⁴⁷ Boethius, *Consolations of Philosophy*, Book V, Chapter 1. Cf. Aristotle, *Physics*, Book II, Part 5.

not seen any such occurrence, and that the sea remains constant in composition, there is no reason to expect that the weird event will occur. Likewise, if people have always given birth to people, and birds to birds, and if they remain constant in composition, then there is no reason to expect that people will bear birds or birds people. So if the regularity to be explained is "people give birth only to people, and no other kind of thing does," then an appeal to the necessity of efficient causes seems to suffice.⁴⁸

But this won't do. For we need to know what it *means* to say that efficient causes necessitate their effects, and we need an *explanation* of this necessitation. Now the necessitation either involves something intrinsic to the causes and effects, or it does not; and either possibility poses grave problems for the view that efficient causation suffices to account for regularity.

Consider first the possibility that necessitation involves something *extrinsic* to the causes and effects themselves. On this view, that an efficient cause *A* necessitates its effect *B* has nothing to do with *A* or *B* themselves, but with something else. But what is this something else? One option is to hold that *God* ensures that *B* follows upon *A*. But that just raises the question of *how* God does so. If we answer that He efficiently causes *B* merely by necessitating it, then we have simply pushed the problem back a stage rather than solved it. If we answer instead that He causes *B* by virtue of having it in view as an *end*, then we will have resorted to finality after all and given up the view that efficient causation alone suffices to account for regularity. Of course, the appeal to God also has obvious drawbacks if one's motivation for challenging this first stage of the Fifth Way is atheistic.⁴⁹

Rather than appeal to God, though, might we not say that it is a "law of nature" that *B* follows upon *A*? Yet as we noted earlier, the appeal to "laws of nature" *by itself* hardly suffices to explain anything, for it just raises the question of what "laws of nature" are and why they hold. Now if we say that a law of nature is simply a kind of regularity, then we are led into either a vicious circle or a vicious regress, since the regularity of the connection between *A* and *B* is what we're trying to explain in the first place. For to explain regularities in nature in terms of efficient causal necessitation, efficient causal necessitation in terms of laws of nature, and laws of nature in terms of regularities, would be to go around in a circle; while if, to avoid

⁴⁸ Des Chene, *Physiologia*, 178.

⁴⁹ But the proposal under consideration has drawbacks for the theist as well. For to hold that *A*'s necessitation of *B* is entirely attributable to God and has nothing to do with *A* itself entails occasionalism, at least if we suppose that whatever necessitates an effect is also its sole efficient cause. For reasons we will consider later, occasionalism is philosophically and theologically problematic.

this circularity, we say that the regularity enshrined in a law of nature is of a *higher order* than the sort we started out trying to explain, then we will now need an account of this higher-order regularity, and will thereby merely have pushed the problem back a stage rather than solved it.

To explain “laws of nature,” then, we cannot appeal to regularity. And if, to explain them, we appeal instead either to higher-order instances of efficient causal necessitation or higher-order laws of nature, we will once again merely have pushed the problem back a stage rather than solved it. Yet if we explain laws of nature by reference to God, we will merely have reintroduced at a higher level the very problems the appeal to laws of nature was supposed to help us avoid. The only remaining alternative would seem to be to appeal instead to the Aristotelian idea that “laws of nature” are really a shorthand for a description of how things act given their natures. But this would be to concede that there is, after all, something *intrinsic* to *A* and *B* that explains the efficient causal relations holding between them, and thus to abandon the suggestion that the necessitation we’ve been discussing is *extrinsic* to causes and effects.

So, treating causal necessitation as grounded in something *extrinsic* to causes and effects would seem a hopeless strategy for anyone who wants to defend the view of Ockham, Buridan, and Des Chene that efficient causation suffices to explain regularity. The only realistic option is to treat the necessitation as grounded in something *intrinsic* to the causes and effects. In particular, since an effect *B* doesn’t even exist until generated by its efficient cause *A*, the necessitation will have to be grounded in something *intrinsic* to *A*. But what can this intrinsic feature be if it is not the very inclination to an end that Aquinas affirms and that the view in question is trying to avoid? What can it possibly be for *A* to be such that it *necessitates* the generation of *B*, other than that there is something in *A* that *inherently “points”* to the generation of *B specifically*, even before it actually generates *B*? It seems the only possible alternative intrinsic explanatory feature would be some further instance of efficient causal necessitation internal to *A*. But this would just raise the same questions all over again—and it would, yet again, thus lead the purported explanation of regularity in terms of efficient causes alone into either vicious regress or vicious circularity.⁵⁰

There seems, then, to be no way to avoid Aquinas’s conclusion that to make efficient causal regularities intelligible we need to attribute finality to efficient causes. Every attempt to avoid doing so merely raises further puzzles which cannot be solved except by admitting finality. But it might seem that the defender of the view that efficient causes alone suffice to

⁵⁰ Cf. Garrigou-Lagrange, *God: His Existence and His Nature*, vol. I, 356–58.

account for regularity has one more arrow in his quiver. For isn't Aquinas's position open to the same sorts of objection as his opponent's view is? In particular, if Aquinas holds that efficient causal regularities need to be accounted for by reference to final causes, can it not be said with equal plausibility that final causes in turn need to be accounted for, and that accounting for them will also lead to vicious regress or vicious circularity? Aren't the two positions—Aquinas's on the one hand, and that of Ockham, Buridan, Des Chene, and modern philosophers in general on the other hand—therefore at least at a stalemate?

In fact such a comparison would be spurious. The two views would be on a par only if each made use of its favored notion of causation *to the exclusion* of the other. And Aquinas is doing no such thing. His critic holds that efficient causes *suffice* to explain the regularity that exists in the world, so that no appeal to finality is necessary; indeed, naturalist philosophers typically hold that final causes are ultimately not needed to explain *any* aspect of the natural world.⁵¹ But Aquinas does not hold that final causality *suffices* to explain either regularity or natural phenomena in general. He merely holds that it is a *necessary part* of a complete explanation. As an Aristotelian, he is committed to the explanatory indispensability of *all* of the traditional four causes—material, formal, efficient, and final—each of which has its place:

Matter, indeed, is prior to form in generation and time, inasmuch as that to which something is added is prior to that which is added. But form is prior to matter in substance and in fully constituted being, because matter has complete existence only through form. Similarly, the efficient cause is prior to the end in generation and time, since the motion to the end comes about by the efficient cause; but the end is prior to the efficient cause as such in substance and completeness, since the action of the efficient cause is completed only through the end. Therefore, the material and the efficient causes are prior by way of generation, whereas form and end are prior by way of perfection.⁵²

There is no parity between the view of Aquinas and that of his critic, then. The critic has tried to show that efficient causes suffice to explain

⁵¹ Of course, many such philosophers regard teleological explanations as legitimate in domains like biology and psychology, but they also typically maintain that such explanations are either to be interpreted in instrumentalist rather than realist terms, or that they can be reduced to explanations that make reference only to efficient causes. See Feser, "Teleology: A Shopper's Guide."

⁵² *De principiis naturae* IV.25, as translated in "The Principles of Nature," in Thomas Aquinas, *Selected Writings of St. Thomas Aquinas*, trans. Robert P. Goodwin (Upper Saddle River, NJ: Prentice Hall, 1965), at 20–21.

regularity, and has failed. Aquinas has not tried to show that final causes suffice to explain it, only that efficient causes do not and that reference to finality is needed as well. In failing to make his own case, the critic has only lent plausibility to Aquinas's. Moreover, far from denying that the finality inherent in natural phenomena itself requires an explanation, Aquinas's whole point in presenting (the second stage of) the Fifth Way is to show that it does require one—though for reasons we will see, he does not think such an explanation leads either to a vicious regress or to a vicious circle.

Before turning to the second stage, though, a further issue needs to be addressed. The attentive reader will have noticed that in the Fifth Way Aquinas speaks of natural bodies acting for an end insofar as they act “so as to obtain the *best result*.” In the passage just quoted he speaks of them as prior “by way of *perfection*.” What he has in mind seems in part related to the qualified way in which he describes the behavior of natural bodies, insofar as he says that we find them “acting always, or *nearly* always, in the same way.” An acorn, for example, grows into an oak if it grows into anything at all, but the oak might be imperfect in various ways if the acorn has been damaged or the growth patterns interfered with. The phosphorus in a match will generate flame and heat if it hasn't lost its potency, but it might do so only weakly or after several strikes if the match has been damaged or aged. Insofar as a cause *A* “aims” or “points” to the generation of a certain effect *B*, then, it is the “perfect,” “best,” or complete realization of that effect to which it points, even when it is somehow impeded from doing so and as a result generates only an imperfect effect.

That Aquinas also takes the notion of finality to be connected to the notion of the good in a broader way is evident from his discussion of providence in *De veritate*, in the course of which he presents an argument that parallels the Fifth Way. In defense of the reality of final causes, one of the considerations he there puts forward is the following:

Material and efficient causes, as such, cause only the existence of their effects. They are not sufficient to produce goodness in them so that they be aptly disposed in themselves, so that they could continue to exist, and toward others so that they could help them. Heat, for example, of its very nature and of itself can break down other things, but this breaking down is good and helpful only if it happens up to a certain point and in a certain way. Consequently, if we do not admit that there exist in nature causes other than heat and similar agents, we cannot give any reason why things happen in a good and orderly way.⁵³

⁵³ *De veritate*, V, 2, in St. Thomas Aquinas, *Truth*, Volume I, trans. Robert W. Mulligan, S.J. (Indianapolis: Hackett, 1994), at 209–10. Cf. *Summa contra Gentiles* I, 13.35.

The idea here, then, is that there must be an end toward which things in the natural world work together if we are to explain how they balance each other out in the way they do—for example, to explain how heat, which of its nature tends to break down other things, does so “only to a certain point and in a certain way” rather than completely destroying the rest of the world.

Naturally Aquinas would also find teleology present in biological phenomena. Indeed, it is present in a particularly vivid way. To use some traditional Scholastic jargon, Aristotelians take the key difference between living and non-living things to lie in the distinction between *immanent* and *transeunt* (or “transient”) causation.⁵⁴ Immanent causation begins and remains within the cause (though it may also have some external effects), and it typically in some way involves the fulfillment or perfection of the cause. Transeunt causation, by contrast, is directed entirely outwardly, from the cause to an external effect. An animal's digestion of a meal would be an example of immanent causation, since the process begins and remains within the animal and serves to fulfill or perfect it insofar as it enables it to stay alive and to grow. One rock knocking another one off the side of a cliff would be an example of transeunt causation. Living things can serve as transeunt causes, but what is characteristic of them is that they are also capable of immanent causation in a way that non-living things are not. Now since immanent causation, like the transeunt causation that pervades the inorganic realm, concerns causes which “point” to certain characteristic effects as to an end, living things present us with another instance of finality. Since the end in this case is the perfection or flourishing of the organism, we also have an instance in which the link between finality and the *good* is particularly clear. Immanent (as contrasted with transeunt) causation is thus a special and more complex case of the teleology Aquinas regards as immanent to (as opposed to extrinsic to) the natural order in general. (Note that “immanent” has two distinct, though related, senses here.)

It is important to emphasize, though, that the Fifth Way ultimately does not stand or fall with the defensibility either of the traditional Aristotelian view that organic phenomena are irreducible to inorganic phenomena, or of the view that natural causes work together toward some larger, cosmic end. Even if one rejected both of these views, the basic Aristotelian claim that even the simplest instances of efficient causality are unintelligible without final causality would remain intact.

⁵⁴ See Feser, *Aquinas*, chapter 4 for an overview of the Aristotelian-Thomistic conception of the difference between living and non-living things, and Oderberg, *Real Essentialism*, chapter 8 for a recent defense of that conception.

Indeed, even if it could be shown that *all* natural phenomena without remainder were reducible to those described by physics, the basic Aristotelian claim would remain intact, since the most fundamental physical phenomena are still governed by efficient causality, and thus (given the arguments stated above) by final causality.⁵⁵ And that suffices for the purposes of the Fifth Way. To prove the existence of a divine ordering intelligence, we need in Aquinas's view establish only that some *teleology or other* is immanent to the natural order.⁵⁶ Controversies about this or that purported instance of natural teleology can be bracketed off for purposes of evaluating the argument.

VI. Aquinas's Middle Position: Second Stage

Let us at last turn, then, to Aquinas's reason for holding that even immanent teleology requires a divine ordering intelligence. The second stage of the Fifth Way goes as follows:

Now whatever lacks intelligence cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is shot to its mark by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.

Now, the Fathers of the English Dominican Province translation is a bit misleading here as well. The Fifth Way is not concerned to explain how things "move" toward an end in the sense of motion or change that involves the actualization of a potential; explaining that is, of course, the aim of the First Way.⁵⁷ For "move" (*tendunt*), other translations have

⁵⁵ That is not to say that it is *plausible* to suggest that all natural phenomena can be reduced to those described by physics. Reductionist claims in social science, psychology, and even biology are notoriously controversial even among philosophers and scientists with no theological ax to grind. Indeed, some have argued that even *chemistry* is irreducible to physics. (For an overview of the relevant literature on that subject, see J. van Brakel, *Philosophy of Chemistry* [Leuven: Leuven University Press, 2000], chapter 5.) See Feser, "Teleology: A Shopper's Guide," for discussion of the different levels of nature at which irreducible teleology might be said to exist.

⁵⁶ As G. H. Joyce writes: "It is possible to establish that, wherever there is efficient causality, there must also be final causality. . . . If this principle be assured, then an argument from finality may be derived from any substance which is subject to change." (*Principles of Natural Theology*, 2d ed. [London: Longmans, Green, and Co., 1924], 116.) Cf. Garrigou-Lagrange, *God: His Existence and His Nature*, vol. I, 364.

⁵⁷ For discussion of the differences and similarities between the Five Ways, see chapter 3 of my *Aquinas*, and my article "Existential Inertia and the Five Ways," *American Catholic Philosophical Quarterly* 85, no. 2 (2011): 237–67.

“tend,” and that is a preferable rendering. What Aquinas is saying here, then, is that things cannot tend or incline toward a certain end unless some intelligence directs them to it. But *why* not, if the inclination is immanent in the way Aristotelians say it is?

An answer is suggested by the parallel argument in *De veritate*, where Aquinas says that an unintelligent thing tends directly toward an end only where an intellect “has *established* an end for it, and directs it to that end” in a manner comparable to the “foresight” by which a man rules his family or a ruler governs a city or kingdom.⁵⁸ Now *part* of what Aquinas has in mind here is, no doubt, the idea that the disparate ends we find in nature need in some way to be harmonized, so that (to return to an earlier example) heat doesn’t destroy everything else in the world, and so forth. And (so the argument presumably goes) only intelligent direction of the sort comparable to that of a ruler over his subjects can effect such harmonization.⁵⁹ But it seems that that can’t be *all* that he has in mind. For it is evidently not merely the *harmony* of diverse ends in nature that Aquinas seeks to explain in the Fifth Way, but the very *existence* of such ends, harmonized or not. He implies that even a *single* unintelligent natural object—like the arrow of his illustration—could not tend toward an end unless directed by an intellect. That is to say, it could not do so even if there were no other, discordant ends with which it had to be reconciled. So, again, why not?

“Foresight” and “established” provide the clues, and foreshadow two lines of argument one finds developed by later Thomists. First, the end toward which a thing naturally points can be efficacious only if it exists beforehand in an intellect, as the plan for a house exists in the mind of a builder before it is realized in the actual house. Second, intelligence is needed to direct a cause to the effect it points to for the same reason that it is needed to establish the means most appropriate for realizing some end.⁶⁰ Let’s examine these arguments in turn.

A common objection to the very idea of final causality is that it seems to entail that a thing can produce an effect even before that thing exists. Hence to say that an oak tree is the final cause of an acorn seems to entail that the oak tree—which doesn’t exist yet—in some sense causes the

⁵⁸ *De veritate*, V, 2, Mulligan translation at 210. Emphasis added.

⁵⁹ The brief parallel argument in *Summa contra Gentiles* I, 13.35 would seem to support this interpretation.

⁶⁰ Such arguments are presented in Joyce, *Principles of Natural Theology*, 117–18; Garrigou-Lagrange, *God: His Existence and His Nature*, vol. I, 367–68; and Maurice Holloway, *An Introduction to Natural Theology* (New York: Appleton-Century-Crofts, 1959), 138–41.

acorn to pass through every stage it must reach on the way to becoming the oak, since the oak is the “goal” or natural end of the acorn. But how can a non-existent oak cause anything?

To see how, consider those cases where goal-directedness is associated with intelligence, as it is in us. A builder builds a house, and he is able to do so because the effect, the house, “exists” as an idea in his intellect before it exists in reality. Or rather, the *form* of the house exists in the builder’s intellect, and *that very same form* comes to exist in the matter that makes up the house. As Scholastic philosophers would put it, there is in this way a “formal identity” between the builder’s intellect and the house. In that way the house can serve as the *final* cause of the actions of the builder even as those actions are the *efficient* cause of the house. For strictly speaking, what the builder brings about is a circumstance in which the form of the house exists in a certain parcel of matter. And that form *already exists* in his intellect, and for that reason can be efficacious. There is no mystery here, then, of how a cause which doesn’t yet exist can be efficacious, because when we carefully analyze the situation we see that everything which plays a role in bringing about the effect—the materials, the builder and his intellect, and the form as it is grasped by his intellect—*does* already exist before the effect does. But notice that this is only the case precisely because the effect—the form of the house—does already exist *in an intellect*, even if not yet in the material that will make up the house. Nor is there anywhere else for it to exist. For by hypothesis, it doesn’t yet exist in the material world; and (at least for an Aristotelian like Aquinas) neither does it exist in a Platonic “third realm” apart from the material world and apart from any mind. That exhausts the alternatives. Hence, not only is it the case that the house *does* in fact serve as a final cause by virtue of its form existing in the builder’s intellect. That is the only way it *could* have done so, at least if—as this argument concedes to the critic of final causality—a cause must in some way exist if it is to be efficacious.

Turn now to the vast system of causes that constitutes the physical universe. Each of them is directed toward its characteristic effect or effects as to an end, for the reasons given in the previous section. Yet almost none of them is associated with any consciousness or intellect at all. Even animals and human beings, which are conscious, comprise, in whole or in part, unconscious and unintelligent material components which themselves manifest immanent finality. And neither we nor any other intelligent agents in the natural order are directing those components to their respective ends. For instance, your blood has a tendency to clot, but you are not directing it to do so, and neither is any other human being—it

just happens. Even if we supposed, fancifully, that extraterrestrials or beings from another dimension were doing the directing in these cases, these agents would themselves be made up of unintelligent and unconscious material components each with their own tendencies toward certain ends. Now, given what has just been said, it is impossible for anything to be directed toward an end unless that end exists formally in an intellect which directs the thing in question toward it. It follows that the system of ends manifest in the universe of unintelligent material things can exist at all only if there is an intellect *outside* that universe which directs these things toward their ends. Moreover, this intellect must exist *here and now*, and not merely at some beginning point in the past, because causes are *here and now*, and at any point at which they exist at all, directed toward certain ends.

That is one argument, then, for the claim that a tendency toward an end presupposes a directing intelligence. A second argument, alluded to above, appeals to the proportion of means to ends. Aquinas writes:

[T]hings can be ordered only by knowing their relation and proportion to one another, and to something higher, which is their end; for the order of certain things to one another is for the sake of their order to an end. But only a being endowed with intellect is capable of knowing the mutual relations and proportions of things; and to judge of certain things by the highest cause is the prerogative of wisdom. All ordering, therefore, is necessarily effected by means of the wisdom of a being endowed with intelligence.⁶¹

Now one obvious application of this line of argument would be to explaining the harmonization of the discordant ends found in nature—consider once again Aquinas's example of how, though heat tends to destroy, it does not in fact do so always and everywhere. The idea would be that for a stable system of causes to exist, something must ensure that their divergent outcomes are balanced against one another. This can only be something capable of grasping their respective natures in the abstract and determining how they might be related in such a way that harmony is possible. And from an Aristotelian point of view, to be capable of grasping such abstract natures and relations *just is* to have an intellect.

As I have emphasized, though, the Fifth Way is intended to explain *all* natural teleology as such in terms of a divine intellect, not merely the way in which the ends of diverse natural objects might be said to serve an

⁶¹ *Summa contra Gentiles* II, 24.4, in Saint Thomas Aquinas, *Summa contra Gentiles*, Book Two: *Creation*, trans. James F. Anderson (Notre Dame, IN: University of Notre Dame Press, 1975), at 72.

overarching cosmic end; for the finality of causes considered individually would still exist even if it turned out that there is no such common, overarching end. The present argument, then, is also to be understood to apply even to the relationship between a single cause considered in isolation and its characteristic effect or effects. The idea would be that fire, for example, can “point” to heat as its typical effect only if an intellect fits the former to the latter as appropriate means to the latter. For whatever relates them in this law-like way must be capable of grasping their natures and relations in the abstract, and something capable of such abstraction just is something with intellect.

It might be objected, though, that an Aristotelian conception of natural objects would seem to make this sort of explanation otiose. For isn’t it just in the *nature* of fire, given its substantial form, that it generates heat? And if so, then what need is there to appeal to a divine intellect in order to account for why fire is related to heat as a means is to an end? The answer is that Aquinas evidently does not take these to be competing explanations in the first place. The act of ordering a natural cause to its typical effect just is the imparting to it of a certain nature or substantial form. For “*upon the form follows an inclination to the end, or to an action, or something of the sort; for everything, in so far as it is in act, acts and tends toward that which is in accordance with its form.*”⁶² Hence, as John Wippel says, to impart to things their forms is for Aquinas thereby to impart to them “a permanent inclination which is part of their very being.”⁶³

This suggests an answer to the question of whether the Fifth Way leads necessarily to a *divine* intelligence, as opposed to some lesser ordering intelligence (for example, an angelic intelligence). It might appear (and has appeared to many readers) that it does not. Yet from a Thomistic point of view, the ultimate cause of a thing’s existing with the particular nature it has is what conjoins its essence to an act of existence. And this (as Aquinas argues in *De ente et essentia*) can only be something whose essence and existence are identical, and thus something divine. Hence, if that which directs a natural thing to its end is also what gives it its very nature, this would lead us, ultimately, to a divine cause of things having the ends they do.

Now this might seem to make the Fifth Way dependent on a separate, cosmological argument if it is to get all the way to God. But in fact there is a more direct approach, grounded in considerations about finality of the sort that make the Fifth Way distinctive. As Reginald Garrigou-Lagrange writes:

⁶² ST I, q. 5, a. 5, emphasis added.

⁶³ John F. Wippel, *The Metaphysical Thought of Thomas Aquinas* (Washington, DC: The Catholic University of America Press, 2000), 484.

[T]he intelligence claimed by this fifth proof must be *pure act*. If it were not so, we should have to say that its essence differed from its existence, that its intelligence was not its intellection, and that in it intellection and the intelligible were not identical. Now, essence cannot be *directed* to existence, nor intelligence to the intelligible object, except by a higher intelligence which is identical with its very being, always in the act of knowing itself.⁶⁴

Garrigou-Lagrange's point is that any ordering intelligence that was other than pure act—the philosophical core of the Aristotelian-Thomistic conception of God—would be composite rather than simple and thus in various respects a mixture of act of potency. In particular, it would have an essence that is merely potential until actualized by an act of existence; it would be distinct from its particular acts of intellection, which acts would therefore also need to be actualized; and it would be distinct from the intelligible objects of its intellection. Now such an intellect would therefore have to be *directed to* its objects; and since any potency is just a potency *for* some actuality, the potencies of this intellect would also have to be *directed toward* their actualization. But that means that a non-divine intelligence would merely be yet another instance of the sort of thing the Fifth Way is intended to explain, namely, something exhibiting finality or directedness to an end. Supposing the intelligence which orders natural things to their ends is other than divine thus merely opens the way to a vicious explanatory regress, a regress that can in principle be terminated only by a purely actual, and thus divine, intelligence.

Note that the series of ordering intelligences posited here for the sake of argument would constitute a series of causes ordered *per se* rather than *per accidens*, and would thus necessarily terminate in a first member. For as we noted above, the logic of the argument implies that a thing could not be directed toward an end *even for an instant* apart from an ordering intelligence, and the same would be true of that ordering intelligence itself if it was other than purely actual, and of any other non-purely-actual intelligence we suppose might be directing *it*. What we are describing here, then, is a series of ordering causes extending not “backward” in time, but rather “upward,” simultaneously, at any particular moment at which anything exhibits finality at all. And insofar as the “lower” intelligences direct natural objects to their ends only insofar as they are themselves being so directed by something higher still, we would have a series of *instrumental* causes which require for their efficacy an uncaused cause,

⁶⁴ Garrigou-Lagrange, *God: His Existence and His Nature*, vol. I, 370. Cf. Holloway, *An Introduction to Natural Theology*, 141–42.

something which can direct without being directed. In short, the Fifth Way reaches the same conclusion as Aquinas's other arguments for God's existence, but by beginning with final causes rather than with change, efficient causality, contingency, or degrees of perfection. And like those other arguments, it opens the way to further arguments to the effect that what is pure act must possess the other divine attributes.⁶⁵

To be sure, this goes beyond anything Aquinas himself says explicitly about the Fifth Way. But it is a natural outworking of what he does say, and it is hardly surprising that later Thomists have read the Fifth Way as providing, at least by implication, a proof of a truly divine intelligence rather than a mere demiurge or committee of intelligences. There might still be lingering doubts, however, about whether Aquinas is able to depart from Aristotle in the way he does without falling into Paley's position. For how could teleology be both *immanent* to the natural order and yet *derived* from God?

Some everyday examples may help. A white wall on which ordinary sunlight is shining is white and not at all red. A white wall on which red light is shining is in one sense red, but it derives its redness entirely from the light. A red wall on which ordinary sunlight is shining is in some sense red inherently, but the redness is nevertheless manifest only insofar as the light is shining on it. Now compare God's imparting of teleology to nature to the light's shining on a wall. Natural teleology as Paley understands it can be compared to the redness a white wall has only when the red light is shining on it. But natural teleology as Aquinas understands it is like the redness a red wall has when ordinary sunlight is shining on it. The redness is really there in the wall, yet it cannot in any way manifest itself apart from the light. (I ignore the scientific details as irrelevant to the purpose of the analogy, and I do not claim that the analogy is perfect, only suggestive.)

Or consider signs, linguistic and otherwise. The word "triangle" and the symbol Δ can both be used to represent triangles in general. Now neither one can do so on its own, for each by itself is a mere set of physical marks with no symbolic content. A mind must *impart* such content to them. Moreover, the connection between the word "triangle" and triangles is entirely arbitrary, an accident of the history of the English language. And even Δ hardly resembles all triangles; for example, there are obvious respects in which it does not resemble right triangles, or green ones, or very large ones. All the same, there is obviously something inher-

⁶⁵ See Feser, *Aquinas*, 69–72 and 88–89 for discussion of the distinction between *per se* and *per accidens* series of causes, and 120–30 for discussion of Aquinas's derivation of the various divine attributes.

ent to Δ which makes it a more natural symbol for triangles in general than the word "triangle" is. Though both symbols ultimately depend for their symbolic content on a mind which imparts that content to them, Δ nevertheless has an *inherent* aptness for representing triangles in general that "triangle" does not. Now compare God's imparting of teleology to natural objects to a mind's imparting symbolic content to signs. For Paley, natural objects are like the word "triangle," whereas for Aquinas they are like Δ . As with the word, the symbol Δ refers to triangles in general only insofar as that meaning is imparted to it, but there is still a natural connection between Δ and triangles in general that does not exist between "triangle" and triangles in general. (Again, I do not say that the analogy is perfect, only suggestive.)

A final analogy is taken from linguistic representation specifically. If we consider the words and sentences we speak and write, it is obvious that they get their meaning from the community of language users that produces them, and ultimately from the ideas expressed by those language users in using them. Apart from these users, these linguistic items would be nothing more than meaningless noises or splotches of ink. Still, once produced, they take on a kind of life of their own. Words and sentences printed in books or recorded on tape retain their meaning even when no one is thinking about them; indeed, even if the books or tapes sit in a dusty corner of a library or archive somewhere, ignored for decades and completely forgotten, they still retain their meaning. Moreover, language has a structure that most language users are unaware of, but which can be studied by linguists. Still, if the community of language users were to disappear entirely—every single one of them killed in a worldwide plague, say—then the recorded words that were left behind *would* in that case revert to meaningless sounds or marks. While the community of language users exists, its general background presence is all that is required for meaning to persist in the physical sounds and markings, even if some of those sounds and markings are not the subject of anyone's attention at a particular moment. But if the community goes away altogether, the meaning goes with it.

By analogy (and here too I do not claim that the analogy is exact) we might think of the relationship of the divine intelligence of the Fifth Way to the system of final causes in the world as somewhat like the relationship of language users to language. God directs things to their ends, but the system thereby created has a kind of independence insofar as it can be studied without reference to God Himself, just as linguists can study the structure of language without paying attention to the intentions of this or that language user. The ends are in a sense just "there" in unintelligent

causes like the meaning is just “there” in words once they have been written. At the same time, if God were to cease directing things toward their ends, final causes would immediately disappear, just as the meaning of words would disappear if all language users disappeared. In this way, immanent teleology plays a role similar to secondary causes in the order of efficient causes, as I suggested above. Just as secondary causes have real causal power of their own, even if it derives ultimately from God as first cause, so too natural objects have immanent teleology, even if it derives ultimately from God as ordering intelligence.

This last point puts us in a position to understand why Thomists have often been so keen to distance Aquinas’s argument from Paley’s. For the arguments are not merely different. Given their divergent metaphysical assumptions, they are arguably *fundamentally incompatible*, theologically as well as philosophically.

VII. Thomism versus the “Design Argument”

Before seeing how, let us note some of the indisputable differences between Aquinas’s position and Paley’s. As we have emphasized, Paley’s argument presupposes that teleology is *extrinsic*; Aquinas follows Aristotle in holding that it is *immanent* to the natural order. Paley therefore focuses on *complex* phenomena, especially biological phenomena, as uniquely indicative of teleology; Aquinas takes *all* natural phenomena, however simple or complex and whether organic or inorganic, to manifest teleology. Paley is presenting a *cumulative and probabilistic* “argument to the best explanation”; Aquinas is putting forward a *metaphysical demonstration*.

Now neither Paley nor Aquinas is refuted by Darwin’s account of evolution by natural selection. But Paley is at least seriously threatened by it, while the Fifth Way is not threatened by it at all. For Darwin presents an alternative, non-teleological explanation of the complex biological phenomena on which Paley builds his case. To salvage their design argument, Paley’s followers therefore have to argue either that there are some complex biological phenomena that Darwinism cannot plausibly account for, or that even if successful Darwinism only pushes the problem back a stage insofar as it presupposes yet deeper levels of complexity that are best explained by reference to a designer. The argument then turns to a consideration of various cosmological speculations and biological minutiae—the purported “irreducible complexity” of the bacterial flagellum, the “anthropic principle” and the apparent “fine-tuning” of the laws of nature, and so on. Critics of the “design argument” then accuse its defenders of peddling a “god of the gaps” hypothesis which is open to refutation by future scientific discoveries.

For Thomists, none of this wrangling over empirical details is necessary, and it tends to distract attention from the more fundamental and straightforward *metaphysical* issues. As we have seen, for Aquinas even the simplest patterns of efficient causation suffice to demonstrate the reality of immanent teleology, and will do so *whatever* physics, chemistry, and biology end up telling us. Hence while a Thomist may or may not object to this or that evolutionary account of this or that biological phenomenon, *for purposes of the Fifth Way* such issues are irrelevant.

Now we have also seen that the Fifth Way, at least as developed by later Thomists, does indeed plausibly get us to a *divine* intelligence. By contrast, Paley's argument is often acknowledged to get us at best to a designer who is extremely powerful and intelligent, but who for all we know may yet be finite and thus non-divine. But it is not just that Paley's designer *may* be something other than God as Aquinas understands Him. There is reason to think that Paley's designer *could not* be God as Aquinas understands Him. For Aquinas, when we predicate attributes of God, we necessarily do so *analogously* rather than *univocally*. But Paley is evidently predicating attributes of his designer and of us in a univocal way, which (for the Thomist at least) entails a radically deficient conception of God.

A simple example will illustrate the difference between the two kinds of predication. When I say that this is a good cheeseburger and that is good pizza, I am using "good" univocally. I am predicating the very same thing to both the cheeseburger and the pizza. And I will still be doing so if I say that the cheeseburger is *better* than the pizza. I will be saying that the pizza and the cheeseburger both have the very same attribute, but that the cheeseburger has it to a higher degree than the pizza. But when I say that this is a good cheeseburger and that Aquinas was a good man, I am *not* using "good" univocally and I am not predicating exactly the same thing both to the cheeseburger and to Aquinas. I am saying instead that there is something in Aquinas that is *analogous* to what we call "good" in the cheeseburger, though of course it is not precisely the same thing, since the moral qualities that lead us to attribute goodness to a human being are not the same as the gustatory and nutritive qualities that lead us to attribute goodness to food.

Similarly, when we speak of Aquinas's intelligence and my intelligence, we are using "intelligence" univocally. Hence to say that Aquinas was more intelligent than I am is to say that Aquinas had the same thing I have, but to a greater degree. But in Aquinas's view, when we speak of our intelligence and *God's* intelligence, we are *not* using "intelligence" univocally. We are not saying that God has the same thing we have, but to a higher degree. Rather, we are saying that there is in God something

analogous to what we call “intelligence” in us. The reason is that God, as pure act, does not merely *participate* in being, goodness, intelligence, and the like, as we and other created things do. For Aquinas, God doesn’t “have” being; he is being itself. He doesn’t “have” goodness; He *is* goodness itself. He doesn’t “have” intelligence; He *is* intelligence itself. And so forth. Moreover, He is, given the doctrine of divine simplicity, *identical* to His attributes. What we call God’s being, God’s goodness, God’s intelligence, and so forth are really just the same thing—God Himself—considered from different points of view. It follows that God is radically unlike anything in the created order. He is not “a being” alongside others, not even a very grand and remote being among other beings, but rather *ipsum esse subsistens*, that on which all mere beings depend for their being.

By contrast, Paley’s procedure is to model his designer on human designers. At least by implication, his designer exercises the same faculty human designers do—he works out design problems, performs calculations, and so forth—but does so with massively greater facility. He is an *essentially anthropomorphic* designer. Understandably, then, Paley’s argument is often characterized as an “argument from analogy,” but it is crucial to emphasize that “analogy” as it is used in that expression does *not* mean what it does in Aquinas’s doctrine of analogy. On the contrary, Paley’s procedure implies the opposite of what Aquinas’s doctrine of analogy does. For Paley presupposes that natural objects are *like* human artifacts in having only extrinsic teleology, while the Fifth Way insists that they are *not like* human artifacts because they have immanent teleology. The implication is that Paley’s designer imparts teleology the way human designers do, by imposing on raw materials a function they have no inherent tendency to serve. But for Aquinas, creation does not involve anything comparable to the taking of preexisting materials and fashioning them into a kind of artifact. It does not involve imposing an accidental form on things already having their own substantial forms. (Hence the question of temporal order is irrelevant here; it does not change the point at all if we supposed that the designer somehow conjured the raw natural materials into existence while *simultaneously* imposing some function on them not already inherent in the materials.) Rather, God creates by conjoining an essence to an act of existence, where the finality of the thing created is inherent in the essence itself rather than “tacked on” in a separate creative act.⁶⁶

⁶⁶ Aquinas does sometimes find it useful to compare God to an artificer and natural objects to artifacts (*ST* I, q. 27, a. 1; I, q. 44, a. 3; I, q. 65, a. 2; I–II, q. 13, a. 2; *Summa contra Gentiles* III, 100.6). But he does not put forward this analogy as a way of arguing for God’s existence or explaining how God imparts teleology to natural objects. When he does address those issues—in the Fifth Way, and in the

Aquinas's argument is thus immune to the sorts of objections Hume pressed upon design arguments, to the effect that the designer would have to work through corporeal organs the way human designers do, and would manifest complexity which itself requires explanation. To be sure, Paley's defenders have developed replies to these objections, but they typically appeal to such considerations as the greater parsimony of postulating a disembodied designer. They do not, and cannot, deny that the designer at least *could in principle* be the sort Hume describes. But the Humean objections do not even get off the ground against Aquinas's divine intelligence, who, being pure act, is *necessarily* absolutely simple and incorporeal.

So, the anthropomorphism implicit in Paley's conception of God is one reason Thomists are bound to object to Paley's argument. But his implied conception of God's *relationship to the world* is another potential source of incompatibility. To see how, consider the three main approaches within traditional theism to understanding God's causal relationship to the world, as Alfred Freddoso has usefully classified them.⁶⁷ *Occasionalism* holds that God alone is the cause of everything that happens, so that there are no true secondary causes in nature. For example, on this view, one billiard ball which makes contact with another during a game of pool does not in any way cause the other to move. Rather, God causes the second ball to move on the occasion when the first makes contact with it. *Mere conservationism* holds that while God maintains natural objects and their causal powers in existence at every moment, they alone are the immediate causes of their effects. On this view, the one billiard ball really does cause the other one to move, and God has nothing to do with it other than keeping the ball and its causal powers in being. He is not in any direct way the cause of the second ball's motion. Finally, *concurrentism* is a middle ground position which holds on the one hand (and contrary to occasionalism) that natural objects are true causes, but on the other hand (and contrary to mere conservationism) that God not only maintains natural objects and their causal powers in being, but also cooperates with them in immediately causing their effects. On this view, the one billiard ball really does cause the other ball to move, but only *together with* God, Who acts as a concurrent cause.

parallel arguments in *De veritate* and *Summa contra Gentiles* cited above—his preferred analogies are to the archer who shoots an arrow and the ruler who governs a family, city, or kingdom. His focus is always on *directedness to an end*, not on complexity, skilled craftsmanship, clever engineering, or the like.

⁶⁷ See Alfred J. Freddoso, "God's General Concurrence with Secondary Causes: Pitfalls and Prospects," *American Catholic Philosophical Quarterly* 67 (1994): 131–56.

Concurrentism became the standard view within the Scholastic tradition, because the other views are philosophically and theologically problematic.⁶⁸ For example, occasionalism veers in the direction of pantheism, while mere conservationism veers in the direction of deism. We can understand how if we recall the Scholastic dictum that “a thing *operates* according as it is.”⁶⁹ If, as occasionalism holds, only God alone ever operates or brings about effects, and natural objects operate not at all, then it is difficult to see how they *exist* at all, at least in any robust way. God alone would seem to be real; natural objects would be like mere fictional characters in the mind of a divine Author. By contrast, if, as mere conservationism holds, natural objects can at least operate or bring about effects apart from God’s immediate causal action, then it seems that they could also *exist* apart from his immediate causal action. The world would in that case not depend for its continued existence on God’s conserving action. (This is not to say flatly that *occasionalism entails pantheism* or that *mere conservationism entails deism*. The issues are complex, and careful analysis is required in order to determine precisely what these views do or do not entail, either by themselves or in conjunction with other assumptions. The point is just to indicate some of the reasons they have been considered at least problematic.)

Now I have emphasized that Aquinas is committed to the reality of secondary causes. We have also seen that he regards efficient causality as intelligible only in light of final causality. The clear implication would seem to be that if natural objects are to be true causes, they must possess immanent finality. To deny them immanent finality—to hold that whatever finality they have exists only in the divine intellect and in no way in the natural objects themselves—would therefore seem to entail denying them genuine causal power, and to attribute all causal power to God alone. And that would be to embrace occasionalism. Insofar as Paley’s position presupposes a rejection of immanent finality, then, it arguably threatens to collapse into occasionalism. Of course, Paley and other defenders of the design argument would no doubt find this charge surprising. Certainly they do not typically deny that natural objects are true efficient causes. But the point is that their position at least arguably *entails* such a denial,

⁶⁸ For discussion of occasionalism, see Freddoso’s article “Medieval Aristotelianism and the Case against Secondary Causation in Nature,” in *Divine and Human Action: Essays in the Metaphysics of Theism*, ed. Thomas V. Morris (Ithaca, NY: Cornell University Press, 1988), 74–118. For discussion of mere conservationism, see his article “God’s General Concurrence with Secondary Causes: Why Conservation Is Not Enough,” *Philosophical Perspectives* 5 (1991): 553–85.

⁶⁹ ST I, q. 75, a. 2. Emphasis added.

whether they realize it or not, given an Aristotelian-Thomistic understanding of causation. If digestion, oxidation, gravitation, and other natural causal processes are as extrinsic to natural phenomena as time-telling is extrinsic to the parts of a watch, then natural phenomena have no more power to carry out these activities than metal gears have the power to convey the time of day. After all, that a particular bit of physical activity means that *it is now 11:27* is entirely observer-relative, and does not follow from anything in the watch parts themselves. It is we, the designers and users of the watch, who cause the marks on its face to mean what they do. Similarly, if something counts as digestion, oxidation, gravitation, or the like also entirely extrinsically, only relative to God's activity as designer, then these things too are really *God's* activities rather than those of natural objects themselves.

To be sure, some of Paley's other commitments would seem to lead in the opposite direction. In particular, that he regards it as at best highly *probable* that complex natural phenomena were designed by God seems to entail that they could at least *in principle* exist and operate apart from Him. But this leads him out of the frying pan of occasionalism only to fall into the fire of deism—bypassing not only concurrentism, but even mere conservationism, altogether. And of course, Paley's position is indeed sometimes characterized as reflective of the eighteenth-century trend toward deism.

From a Thomistic point of view, then, Paley's position is bound to appear metaphysically unstable, ambiguous between unacceptable extremes vis-à-vis the question of God's causal relationship to the world. That, together with its tendency toward anthropomorphism, makes it doubly objectionable from a theological point of view.⁷⁰ It is no surprise, then, that Thomists have often distanced the Fifth Way from the design argument of Paley and other modern writers, sometimes in harsh terms. For example, Maurice Holloway insists:

We should be careful not to confuse the fifth way of St. Thomas Aquinas, which argues from the existence of order in the universe to the existence of an infinite intelligence, with Paley's argument from design. In the latter's argument the universe is seen as a complicated and intricate machine . . . [and he] reasons, by way of analogy, to the existence of a divine watchmaker, or supreme architect of the universe. This argument from design, as given by Paley and unfortunately repeated in many books on Christian apologetics, does not prove the existence of God. An architect of the universe would have to be a very clever being,

⁷⁰ This also explains why Thomists are often critical of "Intelligent Design" theory, which inherits these tendencies. See Feser, "Teleology: A Shopper's Guide."

but he would not have to be God. . . . Many of the objections directed against what some writers believe is the fifth way of St. Thomas are really directed against the watchmaker of Paley. St. Thomas's proof is entirely different. It is grounded in the metaphysics of finality . . .⁷¹

Similar views are expressed by John F. McCormick, Cardinal Mercier, Joseph Owens, R. P. Phillips, Henri Renard, and John Wippel.⁷² Benedict Ashley objects to the "philosophical naiveté" of authors like Paley "in confusing extrinsic and intrinsic finality."⁷³ Étienne Gilson complains of the "anthropomorphic God" of "simple-minded metaphysicians [who] have unwillingly led agnostics to believe that the God of natural theology was the 'watchmaker' of Voltaire, or the 'carpenter' of cheap apologetics."⁷⁴ Herman Reith says that the trouble with the design argument is that "the examples used and the interpretation given them prevents the argument from rising to the metaphysical level . . . above the order of the physical universe," so that "it cannot conclude to anything more than the existence of some kind of intelligence and power" within that universe.⁷⁵ Ronald Knox characterizes Paley's design argument as "feeble," and does not regard it as even a "modification" of any of Aquinas's Five Ways.⁷⁶ Christopher F. J. Martin, in the course of defending the Fifth Way, dismisses Paley's design inference as "really a rather poor argument," and avers that "the Being whose existence is revealed to us by the argument from design is not God but the Great Architect of the Deists and Freemasons, an impostor disguised as God."⁷⁷

⁷¹ Holloway, *An Introduction to Natural Theology*, 146–47.

⁷² John F. McCormick, S.J., *Scholastic Metaphysics, Part II: Natural Theology* (Chicago: Loyola University Press, 1943), 75. Cardinal Mercier, "Natural Theology or Theodicy," in Cardinal Mercier, et al., *A Manual of Modern Scholastic Philosophy*, Volume II (St. Louis: B. Herder, 1933), 53–54. Joseph Owens, *An Elementary Christian Metaphysics* (Houston: Center for Thomistic Studies, 1985), 349, and "Aquinas and the Five Ways," in *St. Thomas Aquinas on the Existence of God: The Collected Papers of Joseph Owens*, ed. John R. Catan (Albany: State University of New York Press, 1980), 136–37. R. P. Phillips, *Modern Thomistic Philosophy*, Volume II (Westminster, MD: The Newman Press, 1950), 290. Henri Renard, S.J., *The Philosophy of God* (Milwaukee: Bruce Publishing Company, 1951), 48. Wippel, *The Metaphysical Thought of Thomas Aquinas*, 480.

⁷³ Benedict M. Ashley, O.P., *The Way toward Wisdom* (Notre Dame, IN: University of Notre Dame Press, 2006), 512, n. 11.

⁷⁴ Étienne Gilson, *God and Philosophy* (New Haven, CT: Yale University Press, 1941), 142.

⁷⁵ Herman Reith, *The Metaphysics of St. Thomas Aquinas* (Milwaukee: Bruce Publishing Company, 1958), 198.

⁷⁶ Ronald Knox, *Broadcast Minds* (New York: Sheed and Ward, 1933), 52 and 222.

⁷⁷ Martin, *Thomas Aquinas: God and Explanations*, 180–82.

Hence, if the design argument is in any case controversial at best within contemporary philosophy, the Thomist may decide that attempts to revive it are worse than a waste of time. But is the Fifth Way in any better shape? In particular, is it possible within the context of contemporary philosophy and science to revive the Aristotelian notion of immanent finality, on which Aquinas's argument rests?

VIII. Immanent Teleology in Contemporary Philosophy

Not only is such a revival possible, it is actual. Recent decades have seen, within mainstream academic philosophy, a renewed interest in traditional Aristotelian metaphysical notions like substance, essence, causal power, act versus potency (these days referred to as the distinction between "categorical" and "dispositional" properties), and finality (these days referred to as "physical intentionality" or the "directedness" of dispositions toward their manifestations). Moreover, this revival has taken place among secular metaphysicians and philosophers of science with no Thomistic or theological ax to grind.⁷⁸

Among metaphysicians, the revival has largely been motivated by dissatisfaction with the standard modern philosophical accounts of causation, which take Hume as their point of departure. For example, regularity theories of causation hold that for *A* to cause *B* is just for *A* and *B* to be instances of a general pattern according to which events like *A* are succeeded by events like *B*. Counterfactual theories of causation hold that the claim that *A* caused *B* is to be analyzed as the claim that had *A* not occurred, *B* would not have occurred either. Various technical objections have been raised against such accounts, but for those attracted to a neo-Aristotelian approach to causation, the fundamental difficulty is that these theories do not capture causation itself, but only phenomena that presuppose causation. That is to say, to the extent that the regularities in question hold and to the extent that the counterfactuals in question are true, that is only because they are grounded in the causal powers of things. They don't *explain* causation but *presuppose* causation.

The term "disposition" is sometimes preferred to "power," but some of the theorists in question go on to argue that we can make sense of

⁷⁸ For a brief history of this development and a useful overview of its central themes, see Stephen Mumford, "Causal Powers and Capacities," in *The Oxford Handbook of Causation*, ed. Helen Beebe, Christopher Hitchcock, and Peter Menzies (Oxford: Oxford University Press, 2009), 265–78. For an anthology of relevant articles, see *Powers and Capacities in Philosophy: The New Aristotelianism*, ed. Ruth Groff and John Greco (London: Routledge, 2013). Cf. Ellis, *The Philosophy of Nature: A Guide to the New Essentialism*.

these powers or dispositions only if we think of them as “pointing” to or being “directed” at their characteristic manifestations or effects. George Molnar characterizes this as “physical intentionality,” since it is like the intentionality of mental states in that it involves directedness onto an object that may or may not exist, but unlike it in not being conscious.⁷⁹ John Heil calls it “natural intentionality” for similar reasons.⁸⁰ Whatever the label, in substance it is a return to something like Aquinas’s view that efficient causality presupposes final causality, and the similarity has not gone unnoticed by historians of philosophy.⁸¹

Within the philosophy of science, a movement toward neo-Aristotelianism has been motivated by dissatisfaction with the idea that scientific explanation is a matter of discovering “laws of nature.” As Nancy Cartwright has emphasized, a serious problem with the Humean notion that science is in the business of establishing regularities on the basis of observation is that the sorts of regularities that the hard sciences tend to uncover are rarely observed, and in fact are in ordinary circumstances impossible to observe.⁸² Beginning students of physics quickly become acquainted with idealizations like the notion of a frictionless surface, and with the fact that laws like Newton’s law of gravitation strictly speaking describe the behavior of bodies only in circumstances where no interfering forces are acting on them (a circumstance which never actually holds). Moreover, physicists do not in fact embrace a regularity as a law of nature only after many trials, after the fashion of popular presentations of inductive reasoning. Instead, they draw their conclusions from a few highly specialized experiments conducted under artificial conditions. None of this is consistent with the idea that science is concerned with cataloguing observed regularities. But it is consistent, in Cartwright’s view, with the Aristotelian picture of science as in the business of uncovering the hidden natures of things. Experimental practice indicates that what physicists are really looking for are the inherent powers a thing will manifest when interfering conditions are removed, and the fact that a few experiments (or even a single controlled experiment) are taken to estab-

⁷⁹ George Molnar, *Powers: A Study in Metaphysics* (Oxford: Oxford University Press, 2003).

⁸⁰ John Heil, *From an Ontological Point of View* (Oxford: Clarendon Press, 2003).

⁸¹ See e.g. Ott, *Causation and Laws of Nature in Early Modern Philosophy*, 29–30, which compares Scholastic views of causation to those of contemporary writers like Ellis and Molnar.

⁸² Nancy Cartwright, “Aristotelian Natures and the Modern Experimental Method,” in *Inference, Explanation, and Other Frustrations: Essays in the Philosophy of Science*, ed. John Earman (Berkeley: University of California Press, 1992), and *Nature’s Capacities and Their Measurement* (Oxford: Clarendon Press, 1989).

lish the results in question indicates that these powers are taken to reflect a nature that is universal to things of that type.

The notion of “regularities” or “laws of nature” is therefore misleading, in Cartwright’s view, given that science actually uncovers few laws or regularities outside highly artificial conditions. Strictly speaking, what science discovers are the universal natures and inherent powers of things, and talk of “laws of nature” can only be shorthand for this. As Cartwright concludes, “the empiricists of the scientific revolution wanted to oust Aristotle entirely from the new learning,” but “they did no such thing.”⁸³

While references to “substantial form,” “final causes,” and other traditional Scholastic concepts do not exactly pepper the contemporary academic philosophy journals, then, the *substance* of these ideas is getting a renewed hearing in at least some influential quarters. There has also been renewed interest in aspects of Aristotelian metaphysics other than those which have been our central concern here.⁸⁴ Then there are those contemporary analytic philosophers who have shown sympathy toward a specifically Aristotelian-*Thomistic* approach to metaphysics.⁸⁵ If renewed interest in Aquinas’s Fifth Way waits upon renewed interest in its Aristotelian metaphysical underpinnings, then, it will not have to wait as long as many might suppose. Indeed, the latter revival is already underway. N-V

⁸³ Cartwright, “Aristotelian Natures and the Modern Experimental Method,” 70. See Feser, “Teleology: A Shopper’s Guide” for references to some Aristotelian tendencies in contemporary philosophy of biology.

⁸⁴ See e.g. Tuomas Tahko, ed., *Contemporary Aristotelian Metaphysics* (Cambridge: Cambridge University Press, 2012), and Edward Feser, ed., *Aristotle on Method and Metaphysics* (Basingstoke: Palgrave Macmillan, 2013).

⁸⁵ See e.g. John J. Haldane, “A Thomist Metaphysics,” in *The Blackwell Guide to Metaphysics*, ed. Richard Gale (Oxford: Blackwell, 2002), 87–109; Gyula Klima, “Contemporary ‘Essentialism’ vs. Aristotelian Essentialism,” in *Mind, Metaphysics, and Value in the Thomistic and Analytical Traditions*, ed. John Haldane (Notre Dame, IN: University of Notre Dame Press, 2002), 175–94; Oderberg, *Real Essentialism*; David Oderberg, “Teleology: Inorganic and Organic,” in *Contemporary Perspectives on Natural Law*, ed. Ana Marta Gonzalez (Aldershot: Ashgate, 2008), 259–79; and James Ross, *Thought and World: The Hidden Necessities* (Notre Dame, IN: University of Notre Dame Press, 2008).