

WAS THOMAS AQUINAS A SOCIOBIOLOGIST?
THOMISTIC NATURAL LAW, RATIONAL GOODS,
AND SOCIOBIOLOGY

by Craig A. Boyd

Abstract. Traditional Darwinian theory presents two difficulties for Thomistic natural-law morality: relativism and essentialism. The sociobiology of E. O. Wilson seems to refute the idea of evolutionary relativism. Larry Arnhart has argued that Wilson's views on sociobiology can provide a scientific framework for Thomistic natural-law theory. However, in his attempt to reconcile Aquinas's views with Wilson's sociobiology, Arnhart fails to address a critical feature of Aquinas's ethics: the role of rational goods in natural law. Arnhart limits Aquinas's understanding of rationality to the Humean notion of economic rationality—that "reason is and ought to be the slave of the passions." On Aquinas's view, rationality discovers goods that transcend the merely biological, viz., the pursuit of truth, virtue, and God. I believe that Aquinas's natural-law morality is consistent with some accounts of sociobiology but not the more ontologically reductionist versions like the one presented by Wilson and defended by Arnhart. Moreover, Aquinas's normative account of rationality is successful in refuting the challenges of evolutionary relativism as well as the reductionism found in most sociobiological approaches to ethics.

Keywords: evolutionary ethics; natural law; sociobiology.

Sociobiology's most prominent voice, E. O. Wilson, recently has attempted to unify all academic disciplines under the rubric of biology (*Consilience*, 1998). Of particular interest to Wilson is the discipline of ethics. Wilson seems determined to fulfill the promise he made decades ago when he remarked that "Scientists and humanists should consider the possibility that the time has come for ethics to be removed . . . from the hands of the

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philosophers and biologized" (1975, 262). Wilson's approach is indeed ambitious, and ethicists have given a good deal of attention to his work—primarily negative. This may be attributed to Wilson's overly ambitious project and the perceived reductionism that seems inherent in the project.

But Larry Arnhart (2001) has taken Wilson's work seriously and argued that the ethical agenda in *Consilience* could be seen as compatible with a Thomistic account of natural-law morality (NLM) despite Wilson's own protests against any kind of transcendentalist or religious approach to ethics. Arnhart sees in Wilson an approach to ethics similar to the one taken by Aristotle and Aquinas—an approach in which biology plays a fundamental role in any account of human morality. Although the dominant ethical theories of the past century have avoided grounding ethics on human nature and its biology (Moore 1903; Hare 1961), with the advent of sociobiology and evolutionary psychology there has been a renewed interest in exploring the relationship between ethics and biology (Pope 1994; Arnhart 1998; MacIntyre 2001; Ruse 2001).

Arnhart claims that Aquinas's work in ethics seems, at the very least, compatible with recent insights gleaned from sociobiology. Arnhart's primary interests lie in how Aquinas's views on NLM can be supported by Darwinian biology, especially the views of Wilson.

I agree that biology should play a central role in any account of NLM; yet it has often been neglected by contemporary Thomists. The attempt to draw comparisons between Aquinas's moral theory and the results of sociobiology also must take into account the unique role "rational goods" play in NLM. Inasmuch as Arnhart neglects this critical element of NLM, his arguments fail. In the following I begin with a brief account of evolutionary theory with attention to its views on human nature and the questions it raises for NLM. I then consider Wilson's sociobiological account of ethics in *Consilience* as an initial refutation of some aspects of traditional evolutionary theory. Next I consider Arnhart's arguments that purport to base Thomistic NLM on Darwinian biology and his project of reconciling Wilson's work in sociobiology with an ethic based on NLM. I examine the key texts in the *Summa Theologiae* that address the natural law with particular attention to the important role of "rational goods." Finally, I contemplate how a natural-law ethicist might respond to Arnhart's project and the critical questions that evolution raises for NLM.

EVOLUTION AND HUMAN NATURE

According to Ernst Mayr (2001, 86), Darwin's theory of evolution really consists of five theories: (1) the nonconstancy of species (the basic theory of evolution); (2) the descent of all organisms from common ancestors (branching evolution); (3) the gradualness of evolution (no saltations, no discontinuities); (4) the multiplication of species (the origin of diversity);

and (5) natural selection. According to Mayr, there is a basic plasticity in species because survival requires adaptation. Species descend from common ancestors and must adapt to their own unique environments. Individuals better at adapting survive and reproduce, passing their genes on, while those that don't adapt perish without successfully procreating.

The principle of natural selection requires no special teleological explanation.¹ When asked "Does any process in evolution require a teleological explanation?" Mayr responds with "an emphatic 'No'" (2001, 275). All kinds of teleological explanations "have been thoroughly refuted, and it has been shown that indeed natural selection is capable of producing all the adaptations that were formerly attributed to orthogenesis" (p. 275). Orthogenesis is the belief that biological organisms have the tendency to move on to greater degrees of perfection. However, according to Mayr, no "mechanism could be found to drive" the trend toward perfection (p. 82). "There is no evidence whatsoever to support any belief in cosmic teleology," he claims (p. 82). But on what basis is this statement made—biological considerations or philosophical? He seems committed to the view that biology cannot make the claim, yet he also wants to give biological analysis precedence over any metaphysical claims made by either philosophy or theology, which creates a critical problem. Does biology rule the other disciplines by its own self-proclaimed superiority, or is Mayr simply practicing philosophy without a license?

Mayr's rejection of philosophy and theology seems to be based on the notion that these two disciplines stunted the development of the sciences. Specifically, philosophy and theology advocated a view of nature that could be understood as "essentialism" (p. 74). According to Mayr, essentialism was the dominant view on nature from the earliest Greek philosophers until the time of Darwin. The idea was further developed by Christian theologians who claimed a biblical basis for it (e.g., the references to "kinds" of animals in the Genesis creation narrative). According to Mayr, "Each kind, each type, each species is believed to have been separately created and all now living members of a species are believed to be the descendants of the first pair created by God. The essence or definition of a class (type) is completely constant; it is the same today as it was on the day of Creation" (p. 74). However, Darwin introduced the idea of variable populations in the place of constant classes. Within each population there is a great variety of heritable traits, which enable some to survive and reproduce. This theory of variable populations "was congenial to most naturalists, who in their systematic studies had discovered that species of animals and plants showed as much (and sometimes far more) variation and uniqueness as the human species" (p. 75). This observed variation in species seemed to call into question the fixity that earlier thinkers advocated. Species gradually adapt and evolve based upon the great variation within each species.

The other key problem, which was closely related to both essentialism and teleology, was “finalism.” This was the belief that “evolution moved necessarily from lower to higher, from primitive to advanced, from simple to complex, from imperfect to perfect” forms of life (p. 75). The advocates of finalism wanted to introduce into biology a force that aimed at a particular goal. Darwin accepted only mechanistic explanations, and, as Mayr points out, there seems to be no empirical evidence to suggest that these teleological forces are at work in evolution. Agreeing with Mayr, sociobiologist Richard Dawkins also rejects any notion of apparent purpose or design in the evolutionary process.

Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. It has no mind and no mind's eye. It does not plan for the future. It has no vision, no foresight, no sight at all. If it can be said to play the role of a watchmaker in nature, it is the *blind* watchmaker (Dawkins 1996, 5).

Dawkins and Mayr both represent what has become naturalistic orthodoxy: there is no teleology to be found anywhere in the evolutionary process; the cosmos and its laws operate by chance, not design.

Because there is no teleology operative in evolution, evolutionary processes simply conform to the principle of natural selection. As this applies to human beings, we see that human nature is not constant over time and is simply a temporary phase in a continually evolving process. Thus, traits that may have helped some humans adapt at an earlier time may not later confer an advantage, because climate and environmental conditions may change unpredictably.

In light of this dynamic theory of speciation, Ian Tattersall has argued that moral norms cannot be derived from nature. The basic dynamics of evolution preclude any kind of universal morality based upon human nature. Any attempt to construe nature as providing moral guidelines for human behavior is mere anthropomorphism. Tattersall writes:

Each society has invented its own ways of coping with economic and social needs, and with the knowledge of individual mortality. What's more, appalled though members of one society may be by ways of doing business in another, no society is intrinsically better or worse than others in any universal sense. We can derive no concepts of morality (a social construct) or of “natural law” (an intellectual construct) from the contemplation of nature (1998, 198).

This perspective on human nature denies any universally normative prescriptions regarding human social arrangements and behaviors. As a result, cultural relativism necessarily follows from the dynamically diverse condition that is humanity.

Tattersall believes that, “As a species, *Homo sapiens* presents a bewildering variety that is next to impossible to boil down to a neat account of anything we could describe as *the* human condition” (1998, 198). On

Tattersall's view there cannot be even the possibility of a human nature since the evolutionary process is always in flux. David Hull concurs with Tattersall and develops the argument in the form of a hypothetical syllogism: "If species evolve in anything like the way Darwin thought they did, then they cannot possibly have the sort of natures that traditional philosophers claimed they did. If species in general lack natures, then so do *Homo sapiens*" (Hull 1989, 74). Thus, if evolution is true, there can be no such thing as human nature.

Contrary to what we might call Tattersall's evolutionary relativism, Wilson believes that human nature has evolved in such a way that very specific activities must be encouraged and others prohibited if societies are to survive. That is, all humans recognize, on some level, universally binding principles that have evolved over millennia and have conferred adaptive advantages.

WILSON ON THE CONSILIENCE OF SOCIOBIOLOGY AND ETHICS

According to Wilson, all knowledge can be brought together and ultimately integrated by science in the ancient Greek tradition of a unified system of philosophy. Wilson proclaims, "When we have unified enough certain knowledge, we will understand who we are and why we are here" (1998, 7). Because sociobiology functions as the unifying system, it follows that ethics will necessarily appeal to biological explanations.

In his discussion of ethics, Wilson makes a sharp distinction between the "empiricist" and the "transcendentalist" approaches to moral inquiry (1998, 261–62).² On his view, the empiricists "believe that moral values come from humans alone; God is a separate issue," while the transcendentalists "believe in the independence of moral values whether from God or not" (1998, 261). Accordingly, David Hume, Darwin, and Wilson himself are empiricists, while Kant and theists who subscribe to NLM are transcendentalists.

Transcendentalists frequently appeal to God for the basis of their moral views, because God seems to provide a stable and objective ground for morality that is independent of human experience. Furthermore, the idea of a natural law as the creation of an omnibenevolent God seems to serve as the transcendental basis for morality. Accordingly, Wilson says, "Christian theologians, following St. Thomas Aquinas' reasoning in *Summa Theologiae*, by and large consider natural law to be the expression of God's will" (Wilson 1998, 261).³ On Wilson's view, any appeal to God must be rejected as lacking consilience with the hegemony natural science holds over all academic disciplines including ethics. But how does Wilson account for the biological basis for human morality?

In order to answer this question Wilson gives a brief summary of how humans must have evolved in order to survive. The genetic basis for the

evolution of human morality is rooted in the problem of social cooperation. As human beings evolved, they required cooperation as a survival mechanism. Natural selection tended to favor those disposed to cooperation. These dispositions were held to be genetically heritable traits that included such social emotions as sympathy, love, guilt, and shame. Over the passage of time, humans developed rules to regulate behavior based on the need for cooperation and the concomitant emotions that had evolved. Thus, raw biological emotions were curtailed by rules that rewarded cooperators and punished violators.

On this view, human nature can be seen as a synthesis of genetic predispositions as altered by cultural norms, both of which are the products of an evolutionary process. In addition to our genes and the role culture plays, Wilson says that our nature is further constituted by “the epigenetic rules, the hereditary regularities of mental development that bias cultural evolution in one direction as opposed to another, and thus connect the genes to culture” (1998, 164).

An example of the natural origins of human morality is the incest taboo. Drawing on the work of the nineteenth-century anthropologist Edward Westermarck, Wilson attempts to demonstrate that cultural taboos on incest are simply normative expressions for avoiding a biologically risky behavior. This taboo, observed across almost all human cultures, seems to be so rooted in human nature that there is a natural aversion to it. Corroborating observations of other primates indicate that incest is exceedingly rare, observed only in primates with abnormal temperaments. While cultures articulate the taboo in various ways, it appears that there is a natural urge to avoid incestuous relations so that, even though cultures vary in the ways they understand “close relatives,” they always avoid parent-child and sibling-sibling sexual encounters. But what accounts for this natural avoidance? According to Wilson, there are numerous reasons to avoid incest, because the consequences for the offspring often include damaging or deadly deformities.

The harmful consequences of incestuous relations result from the fact that on any given pair of chromosomes there are two potential sites that carry lethal genes. These sites differ from person to person, but the closer the kinship relation the greater the chances the lethal gene will manifest itself.

Only one of the two homologous chromosomes in the affected pair carries lethals at the site; the other homologous chromosome carries a normal gene, which overrides the effects of the lethal gene. The reason is the lethality itself. When both chromosomes carry a lethal gene at a particular site, the fetus is aborted or the child dies in infancy. . . . The total effect is that early mortality of children born of incest is about twice that of outbred children, and among those that survive, genetic defects such as dwarfism, heart deformities, severe mental retardation, deaf-mutism, enlargement of the colon and urinary tract abnormalities are ten times more common. (Wilson 1998, 188–89)

Because the risk to potential offspring is exceedingly high, taboos naturally arise. However, it may be the case also that high parental investment in deformed offspring presents a sociobiological account for the incest taboo.⁴ Parents who have deformed children have a higher investment in the deformed child than in other children, thus risking valuable resources on this one child. Furthermore, there is a high probability that the deformed child will not survive, or, if it does, will have a great deal of difficulty reproducing.

Wilson claims that this natural urge to avoid incest indicates an innate tendency to experience moral emotions. These emotions have been shaped and adapted by natural selection with the result that they have become heritable traits all humans possess. The development of various emotions, especially guilt and shame, serves the evolutionary interests of the genes.

These emotions enable us to act for our own individual good and also to cooperate with others in a mutually beneficial manner. Empathy enables us to identify with others of our culture. For Wilson, there is no need to appeal to transcendentalist principles of morality; evolution and empirical science can explain it perfectly well.

Contrary to Tattersall's evolutionary relativism, Wilson's sociobiological views seem to provide a normative basis for ethics in evolution. However, Wilson shares with Tattersall the conviction that teleology is merely an illusion.

ARNHART'S "SUPPORT" THESIS

Larry Arnhart has argued that NLM would benefit from turning its attention away from the issues that presently occupy analytic philosophers and toward biology as a more helpful resource. Instead of trying to overcome the "naturalistic fallacy," philosophers interested in NLM should examine how humanity's biological nature might assist in making the theory more plausible in a post-Darwinian world. John Finnis (1982) and Robert George (1992), two of the most important contemporary defenders of NLM, both fail to consider biology in any significant way in their apologetic writings on NLM. Arnhart says that Finnis "ignores the importance of biological reasoning in Aquinas's claim that natural law is similar for human beings and other animals, he quickly dismisses this idea in his restatement of Aquinas" (Arnhart 2001, 8). Arnhart rightly argues that this revisionism of Thomistic NLM creates a radical division between humans and other animals, rendering Aquinas's NLM more Kantian than Aristotelian.

In order to turn NLM back to nature, Arnhart looks to Wilson's sociobiological analysis of human morality and believes that it can be reconciled with a Thomistic understanding of NLM. Even though Wilson explicitly rejects any transcendentalist interpretation of moral behavior, his theory of moral sentiments appears to have remarkable similarities with the biological origins of Aquinas's views on natural law.

ARNHART'S ANALYSIS OF THOMISTIC NLM

Arnhart claims that the following four points are central tenets of Thomistic NLM:

1. Animals have innate propensities.
2. The normal development of each kind of animal requires the fulfillment of these propensities.
3. Animals with conscious awareness desire the satisfaction of these propensities.
4. Human beings use their unique capacity for rational deliberation to formulate ethical standards as plans of life for the harmonious satisfaction of their natural desires over a complete life. (2001, 2)

Arnhart begins his treatment of Thomistic NLM with the famous passage from the *Summa Theologiae* concerning the origins of the natural law (IaIIae.94.2).⁵ In humans, we find three kinds of natural inclinations relative to the three kinds of powers humans possess. Aquinas calls each of these capacities "souls."

Humans share with all organic forms of life the capacity for self-preservation. Aquinas calls this power of the soul the "vegetative soul." In many ways, the vegetative soul functions on a subconscious level. We are not aware, for example, of our white blood cells attacking alien matter in our body, yet the body "knows" that it should do this. So, too, amoebas strive to preserve their own existence by an innate power that has survival as its aim. As Aquinas puts it, "For there is in humans, first, an inclination to the good in accordance with the nature which they share in common with all substances, in as much as every substance seeks the preservation of its own being . . . and by reason of this inclination, whatever is a means of preserving human life, and of warding off its obstacles, belongs to the natural law" (IaIIae.94.2). Humans have a *prima facie* obligation to preserve their lives. Because life is a basic good, there is an obligation to preserve it. There may be occasions when risking one's life takes precedence over self-preservation, as when defending the life of one's children or of one's community. In these examples, however, the intention is not, strictly speaking, the seeking of one's own death but rather the seeking of some greater good. For Aquinas, what is strictly forbidden is the act of suicide (the intentional destruction of the self), because this runs contrary to the natural impulse toward self-preservation.

Sentient life can be distinguished from nonsentient life by the possession of various sensual appetites: the powers of procreation, fight or flight mechanisms, and the capacity to act upon these desires. Aquinas says, "Secondly, there is in humans an inclination to things that pertain to them . . . according to that nature which they share in common with other animals; and in virtue of this inclination, those things are said to belong to the

natural law which nature has taught all animals, such as sexual intercourse, the education of the offspring and so forth" (IaIIae.94.2). Here Aquinas observes that all animals, humans included, have an innate desire to procreate, care for their young, and fight, if necessary, to defend what is theirs. Food, drink, procreation, and care of one's offspring are all part of what Aquinas calls sensual goods, or, more strictly speaking, "goods of the sensual appetites." They are goods because they are required for our survival, and survival is an important principle of NLM. Because sensual appetites foster survival, there are *prima facie* duties with respect to how we should pursue them. The ability to distinguish among sensual goods, however, is a sign that a rational power is at work in human nature that potentially can guide and direct behavior.

The human ability to deliberate, judge, and guide activities transcends animal nature. "There is in humans an inclination to the good according to the nature of their reason, which is proper to humans. Thus, humans have a natural inclination to know the truth about God, and to live in society; and in this respect, whatever pertains to this inclination belongs to the natural law: e.g. to shun ignorance, to avoid offending those among whom one has to live and so on" (IaIIae.94.2). Commenting on this passage, Arnhart says that "the human species' uniqueness lies in its capacity for conceptual reasoning as mediated by language" (2001, 7). The capacity for language makes possible the formulation of rules and customs for various kinds of human social activity, especially marriage and family life. According to Arnhart's interpretation of Aquinas, reason enables the human agent to adjudicate among various biological impulses and formulate rules for obtaining these goods in a human community; "human beings use their unique capacity for rational deliberation to formulate ethical standards as plans of life for the harmonious satisfaction of their natural desires over a complete life" (2001, 2). Reason functions as an instrumental means for deliberating how we adjudicate among competing sensual goods. In some dissonance with Aquinas, Arnhart holds that reason has no real goods, or ends, of its own apart from the development of rules for the purpose of "harmonizing of our desires."⁶ For example, reason creates rules for social interaction, especially rules concerning marriage and procreation.

On Aquinas's view, marriage functions for three purposes: procreation, raising the young, and companionship. Because marriage has these three purposes, specific behaviors will be prescribed and others will be prohibited. For instance, because procreation is critical, marriage serves an important cultural function in regulating sexual activity. Promiscuity and adultery are forbidden by NLM because they undermine the paternity of the child; if women engage in sexual relations outside the bonds of marriage, men will not have the assurance that the child is theirs and not another's, and this could result in males failing to provide for the children.

Polyandry and adultery, if practiced on a grand scale, would have dire

consequences. If there is doubt concerning the paternity of the child, there is a greater likelihood of low parental investment, and because children require a great deal of care from both parents, many children would die as a result.

Aquinas maintains that sexual promiscuity violates the bond between husband and wife. NLM considers fidelity an important element of the male-female relationship. Humans are seen as bonding for life, and this is to provide familial stability as well as companionship after the children have grown. As Arnhart comments, “rules for marriage provide formal structure to natural desires that are ultimately rooted in the animal nature of human beings” (2001, 5). Thus, reason is instrumentally employed to make moral norms—norms that determine which kinds of behavior, consistent with our biological nature, are appropriate in human relationships.

We can summarize Arnhart’s interpretation of Aquinas thus: (1) humans have basic instincts that they share with all other animals; (2) these instincts direct us to the satisfaction of our desires; (3) these desires include, among other things, self-preservation, food, drink, and procreation; and (4) reason functions as an arbiter among these desires and formulates rules for their harmonious satisfaction. NLM is a function of reason reflecting on the biological impulses all humans share. It determines what rules will bring about the greatest satisfaction of desire while simultaneously providing social stability.

ARNHART’S SYNTHESIS OF AQUINAS AND WILSON

In order to rehabilitate Wilson’s views, Arnhart has focused on the empiricist side of Aquinas’s account of NLM. Once the theological component of NLM has been excised, Aquinas becomes much more palatable to the sociobiologists. In summarizing Wilson, Arnhart says, “Once Wilson’s biology of moral sentiments is understood as an outgrowth of the natural law tradition, we can envision a recrudescence of interest in the study of natural law rooted in natural science. We might realize that much (if not all) of what Aquinas said about the natural inclinations supporting natural law would be confirmed by modern biological research” (2001, 28). Although much of NLM is clearly rooted in human biology, Arnhart’s claim that the entirety of human morality is merely biological certainly cannot be supported by NLM.

The reductionistic approach Arnhart takes to NLM distorts and confuses Aquinas’s views profoundly. In his desire to rid Aquinas’s theory of theological elements, Arnhart has simultaneously deprived the human person of the dignity that reason bestows. Furthermore, the theistic metaphysics and reason’s unique role in human morality provide Aquinas with the basis for the rational goods essential to NLM (Bradley 1997).

In order to make his interpretation more plausible Arnhart appeals to Aquinas’s distinction between natural and divine law. He says that “natu-

ral law conforms to the natural ends of human beings as directed toward earthly happiness. Divine law, in contrast, conforms to their supernatural ends as directed toward eternal happiness" (2001, 30). Following Wilson's terminology, Arnhart labels Aquinas's NLM "empiricist," while the theological dimension of Aquinas's ethics, which is based upon the divine law, is clearly "transcendentalist."

By drawing a sharp distinction between natural law and divine law, Arnhart hopes to make NLM acceptable to those who find the precepts agreeable but not the theistic baggage (Lisska 1996). The divine origins of NLM (as the creation of God) and the teleological direction of NLM (with God as the ultimate good) are considered inconsequential. It makes no difference where the precepts come from or what their purpose is, on Arnhart's view. What matters is that NLM provides humans with a kind of moral certitude that is necessary for living in communities with other humans. He concludes: "Aquinas believes that the Christian believer and the Aristotelian philosopher can both look to the laws of nature as a basis for a shared understanding of the world. Similarly, I would argue that today the religious believer and the Darwinian scientist, differing as they do in their worldviews, can each look to the laws of nature as a ground of common human experience that can be known by natural reason alone" (2001, 32). Arnhart's analysis that both Christians and non-Christians can affirm the precepts of NLM is certainly something that all Thomists will grant. Indeed, this is seen as one of the more attractive features of the theory (Finnis 1982). One can further contend that it is precisely the ontological account of NLM that makes it so widely acceptable. Although Arnhart's attempt at reconciling biology with NLM is not novel, his attempt to see NLM as consonant with evolutionary theory seems problematic.⁷ My concerns with Arnhart lie in his failure to address in an adequate fashion Aquinas's account of the rational goods.

AQUINAS ON NATURAL LAW AND RATIONAL GOODS

Aquinas considers three rational goods central to his theory of NLM that enable him to distinguish it from a purely naturalistic ethic: the desire for God, the need for truth, and the acquisition of virtue. Attention to each of these goods is necessary if we are to understand NLM in its classic sense.

In the passage quoted earlier from the *Summa*, Aquinas says that natural law is the rational creature's capacity to act freely and to direct herself to various activities. It is humanity's participation in the eternal law (IaIIae. 91.2). Unlike the rest of creation, humans are self-directed to their proper ends. This self-consciously purposive capacity is of critical importance to Aquinas's theory of NLM.

There are two ways in which a being can act for an end. In one way a being is directed to its end by another agent, as in the case of an arrow that

is guided to its target by the archer (Ia.3; IaIIae.94.2). In this case, awareness on the part of the guided object is not required. However, in other beings (humans), we find that they possess knowledge of their ends and have the ability to guide themselves to their ends. Thus, NLM is both a *being guided by* basic principles as well as a *guiding of oneself* in accordance with those principles. According to Jacques Maritain, “Since man (*sic*) is endowed with intelligence and determines his own ends, it is up to him to put himself in tune with the ends necessarily demanded by his nature. This means that there is, by the very virtue of human nature, an order or a disposition which human reason can discover and according to which the human will must act in order to attune itself to the essential and necessary ends of human being” (2001, 27).

NLM morality holds that there is an essential human nature—that is, there are actions that objectively contribute to our well-being and others that destroy that well-being—and that part of that essential nature is reason, which oddly enough is a means by which we can choose to act contrary to our nature. No other animals possess this unique capacity.

Among the precepts of natural law, the most important is that “the good is to be done and pursued while evil is to be avoided” (IaIIae.94.2). This precept serves as Aquinas’s initial statement of natural law and functions as the basis for all human activity in a formal sense as well as the foundation of all other precepts of natural law.

All the precepts of NLM are based upon human nature.⁸ As we have seen, humans have many features in common with all other forms of life. We share the good of self-preservation with both animals and non-animals. We share with sentient animals the sensual goods of procreation, the raising of the young, and so on. Yet, Aquinas also says that humans are unique among all animals. Humans alone possess reason. It is at this point that Arnhart’s interpretation becomes problematic.

For Aquinas, the goods of reason transcend the merely biological not merely because reason is able to adjudicate among competing biological desires but because there are goods appropriate to humans *qua* rational. Certainly, the capacity to regulate the biological is a part of reason’s functioning. However, Aquinas clearly states that living peaceably with others and pursuing the truth about God are also part and parcel of reason’s goods.⁹ From Arnhart’s treatment of Aquinas’s views on marriage, it may be inferred that reason’s primary role is to formulate rules to govern marriage and other social arrangements that address our biological impulses. However, as rational beings we pursue goods that are unique to us as rational.

Because humans always pursue their specific desires “under the formality of the good” (*sub ratio boni*), we see that all actions are undertaken with a view to the good. Yet, each individual object is not to be mistaken for the good itself. Accordingly, Aquinas says that we pursue the goods of the sensual appetite not as the good *qua* good but as fulfilling our sensual

nature. As a result, the attainment of our sensual desires can never satisfy us as rational beings. The rational desire for truth, especially truth about God, propels us beyond the merely biological.

As we have seen, the natural law requires that we pursue the good and avoid evil. Yet, nowhere does Aquinas say that the good that we are directed to is solely an earthly good. On the contrary, because the good is the proper object of the will, we always pursue the good, whether it is revealed to us by God through special revelation or through the natural light of reason. The significance of the divine law is that it provides humans with new knowledge concerning their ultimate end. The natural law never ceases to function in our pursuit of the good. Indeed, the rational goods include the desire to know truth about God. The natural law leads us to an understanding of God that transcends the capacities of unaided human reason.¹⁰ This relationship of natural to divine law is somewhat complex, but what we should understand is that there are not simply two separate realms of ethics, the natural and the supernatural, that are governed by two separate and distinct laws. Both natural and divine law concern our duties to one another in this life, and both direct us to God. However, the epistemological basis for each is different, and so too is their efficacy. The natural law helps us in this life and directs us to that which is truly fulfilling, while the divine law, as grace, completes this task in a more perfect fashion. Yet, both kinds of law instruct humans how to govern their lives according to reason.¹¹

The Thomistic principle “Grace does not destroy nature but perfects it” (Ia.1,8) resolves the tension between the naturally known principles of natural law and the revealed precepts of divine law. Divine law does not replace natural law. It merely serves to elucidate further what the genuine human good is and how it can be pursued. Yet, reason can also be considered, to some degree, without reference to God’s ordinances (Lisska 1996).

Because human agents are rational creatures, they require certain kinds of activities for their flourishing. Among those activities are the acquisition of virtue, the need to know the truth, and the pursuit of the good. In fact, according to Aquinas, truth and goodness are intimately related:

Truth and good include one another; for truth is something good, or otherwise it would not be desirable, and good is something true, or otherwise it would not be intelligible. Therefore, just as the object of the appetite may be something true, as having the aspect of good (for example, when someone desires to know the truth), so the object of the practical intellect is the good directed to operation, under the aspect of truth. For the practical intellect knows the truth, just as the speculative, but it directs the known truth to operation. (Ia.79.11)

In this passage an underlying teleology informs both the act of knowing and the act of desiring. Truth is the object of the intellect, and goodness is the object of the will. Because both of these faculties constitute the rational soul, they must function together in any properly human activity. So it

is in understanding the natural law to be true that we are able to pursue the good. But in seeking the truth we are already pursuing the good. This is the reason why Aquinas says that truth and good include one another.

Truth is a rational desire we possess for two reasons. We need to know the truth about God in order to achieve perfect happiness, and we need the truth for more mundane matters—to enable us to distinguish between objects that harm us and those that help us. And because a good deal of our lives depends on a discernment that far exceeds the capacity of biological instinct, we must develop our rational capacities to their fullest.

These critical rational capacities include understanding, deliberation, and willing, because we are beings that require knowledge and freedom in order to survive and flourish. In this important sense we are said to be responsible for our behavior while other animals are not. Yet, our rational capacities also enable us to regulate, to a great extent, our biological impulses. The acquisition of virtue is the means by which we regulate and direct ourselves to the various goods.

Aquinas says that whatever pertains to reason also falls under the domain of the natural law. Although he never develops an elaborate list of the primary precepts of natural law, we see that any operation of the intellect toward the good is properly related to the natural law. So it is that the intellectual appetite pursues the truly human goods. Indeed, “By the intellectual appetite we may desire the immaterial good, which is not apprehended by sense, such as knowledge, virtue, and the like” (Ia.80.2, ad2).

Reference to the acquisition of virtue is especially important to our discussion. Natural law serves as the basis for our moral drives but does not spell out the details of moral behavior. This is the reason Aquinas’s theory of natural law requires a theory of the virtues. Roughly, we may say that anything that pertains to reason is a matter of NLM, and the acquisition of virtue is a function of reason; it follows that the acquisition of virtue is prescribed by the natural law. Aquinas addresses this aspect in more detail at IaIIae.94.3, where he considers whether all acts of virtue are prescribed by the natural law. He writes, “Since the rational soul is the proper form of the human, there is thus in every human a natural inclination to act according to reason; and this is to act according to virtue. Thus, all the acts of the virtues are prescribed by natural law, since each person’s reason naturally dictates to that one to act according to virtue.”¹² The key point here is that all the acts of the virtues fall under the sphere of the natural law because they are prescribed by reason (IaIIae.94.3).¹³ However, the natural law does not dictate precisely how one is to act according to reason. For Aquinas, the natural law simply indicates what specific kinds of actions are per se good and which are evil. He does not delineate in his NLM just how one goes about determining what kind of behavior is required. Indeed, the natural law determines what Aquinas calls the “object of the act” (IaIIae.18.1). One must not only know what kind of act is required in any

given moral situation; one must also act for the right purposes and in the right circumstances. Natural law does not simply provide prima facie obligations; it also requires the development of virtue, which enables a person to act consistently for the right reasons and in the right circumstances.

NLM AND THE CHALLENGE OF EVOLUTION

We find three different views operating on the questions of teleology and human nature. The traditional Darwinians (Mayr and Tattersall) deny both teleology and a universal human nature. Wilson denies teleology but accepts the view of a universal human nature due to evolutionary constraints. NLM embraces both teleology and the universality of human nature.

From the foregoing analysis, Thomistic NLM seems to be compatible with an account of sociobiology that avoids the naive metaphysical materialism that Wilson and the traditional Darwinians offer. Specifically, sociobiology offers a theory of human nature that applies universally to the entire species of *Homo sapiens*. Yet, we must still address the problems of evolutionary relativism and the teleological issues raised by the traditional Darwinians.

The challenges to NLM presented by Tattersall and Mayr constitute significant but hardly unanswerable questions for NLM. Tattersall's contention that there is "no human condition" can be refuted by two kinds of arguments. The first is what we might call the biological argument that Wilson presents. There are some behaviors, such as incest avoidance and nurture of the young, that are shared universally among humans. If society of any kind is to survive, these two principles must be at work among humans given how the facts of genetics affect the offspring of closely related individuals and how human infants take such an inordinate amount of time to mature.

The second argument against Tattersall's evolutionary relativism is what we can call the philosophical argument. Philosophers James Rachels (2002) and Michael Ruse (2001), both ardent Darwinians, reject relativism on the basis of social cooperation, a view that Wilson also holds. For social cooperation to take place there must be universally binding moral principles. According to Rachels, because humans are social animals, at least two moral principles apply necessarily and universally (2002, 25–26). The first is the principle of nonmaleficence, which holds that in order to cooperate all members of a community must agree not to harm other members of that community. The second principle is the principle of honesty: in order to be members of the community, all must speak truthfully in their promise not to harm others. Without these two principles no human society is even conceivable. These two arguments seem sufficient to refute Tattersall's evolutionary relativism.

The problem of teleology remains. There are at least two ways we can discuss teleology: biologically and philosophically. As we have seen, traditional Darwinians reject teleology as outdated and superfluous. Yet, even within the system that apparently has no purpose, it seems as if some of the parts are designed for very specific purposes. Yves Simon asks, "How is it that every time a biologist speaks of teleology, he calls this notion all sorts of names: primitive, archaic, pre-scientific, foreign to science, anti-scientific? Then he would look at his watch and say, "Goodbye, I have to go to the dentist," which implies that teeth have a function to fulfill and that they can fulfill their function satisfactorily or not—and thus we are back to a firm belief in finality" (1992, 47).

Etienne Gilson points out that "The adaptation of an organism to its surroundings and to its conditions of existence, and those of parts of an organism to other parts of it, are intelligible only from the point of view of their final result. That is what ad-apted means" (1984, 83). But even if these teleological arguments in biology are not conclusive, it certainly does not follow that teleology has no place in metaphysics.

The deeper problem for biologists is that, if teleology is relegated to the sphere of philosophy, most biologists are simply incapable of discussion. In metaphysical and moral matters teleology still contributes significantly. When a person kills her neighbor, we want to know why. A variety of explanations could be given, but unless we can determine the intention of the agent, which can only be a teleological principle, we cannot ascribe guilt or innocence. If the intent was to protect her innocent daughter from the neighbor's attack, we have determined the purpose of her action. Or perhaps her intent was to collect an inheritance. Teleological factors determine the moral value of the act. In the one case we have a morally praiseworthy action, in the other a morally despicable one. Yet, moral and philosophical analysis does not preclude the role of biology in explanations of human behavior.

Final and efficient causes are not mutually exclusive. We may appeal to both. Natural instinct might supply efficient causes, while reason may provide the teleological cause of the act in question. Biological evolution may provide an efficient causal explanation for human behaviors, but it does not follow that the biological explanation is the whole story (Lemos 2003). Clearly, philosophical explanations may be required for an adequate understanding.

Even though Mayr and Dawkins explicitly deny the validity of teleological explanations in biology (which is open to debate), they simply do not have the resources to deny supplemental or complementary philosophical explanations. We may consider this in the following dilemma:

1. If biology is a science, it does not engage in metaphysics. Therefore, Dawkins and Mayr cannot complain about philosophers who want to raise teleological questions in metaphysics.

2. If biology is an “explanation of everything,” they are obligated to provide a sophisticated metaphysic of their own. But they do not do this.
3. Either biology is a science or it is more than a science.

Therefore,

4. It must either remain silent about metaphysics or provide a much more comprehensive account of reality.

Mayr and Dawkins cannot have it both ways. Either they need to limit their remarks solely to the domain of the natural sciences or they need remedial work in metaphysics. Henry Plotkin has observed that those like Dawkins and Mayr who work in the empirical sciences often move from their own spheres of expertise into metaphysics without pausing to consider the philosophical value of their claims. Plotkin specifically criticizes the sociobiologists’ tendency to do this when he writes, “Underlying all the biological and social sciences, the reason for it all, is the ‘need’ (how else to express it, perhaps ‘drive’ would be better) for genes to perpetuate themselves. This is a metaphysical claim, and the reductionism that it entails is . . . best labeled as metaphysical reductionism. Because it is metaphysical it is neither right nor wrong nor empirically testable. It is simply a statement of belief that genes count above all else” (1998, 94).

One could ask Mayr’s question here: Where is the empirical mechanism that substantiates this claim? Because there is none, we can only assume that Dawkins and Wilson have subtly shifted the arena for the argument to metaphysics.

One final problem for both the more traditional Darwinian views and Wilson’s sociobiology is the epistemological problem Darwin himself raises. In his 1881 letter to W. Graham, Darwin asks one of the most difficult questions anyone can ask of a naturalistic metaphysic. “The horrid doubt always arises whether the convictions of man’s mind, which has developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey’s mind, if there are any convictions in such a mind?” (1958, 68) If the human mind has simply evolved in the way it has to survive, it has no independent source of truth. J. B. S. Haldane observed the same problem half a century after Darwin when he wrote, “If my mental processes are determined wholly by the motions of atoms in my brain, I have no reason to suppose that my beliefs are true . . . and hence I have no reason for supposing my brain to be composed of atoms” (1927, 209).

Any purely naturalistic system of explanation cannot account for its own veracity. Del Ratzsch points out this embarrassing situation all naturalists must face sooner or later when he writes, “One question becomes inescapable: How does one give a non-circular *naturalistic* justification for

the cognitive faculties we employ in science—that is, a justification, recognition of the rational adequacy of which does not itself rely on precisely the cognitive faculties whose justification is at issue?” (2004, 75) All naturalist attempts at proving the coherence and veracity of their own views must have as a basic assumption the validity of the reasoning process. But this is precisely the issue that requires a proof! Thus, naturalism cannot produce any arguments that prove it to be true. Only a philosophical anthropology that gives reason the capacity to know truth and not merely to be shaped by blind evolutionary forces alone is up to the task.

According to Hilary Putnam (1983), reason always and irreducibly functions in a normative capacity and not merely as an evolutionary advantage for some members of the human species. All cultures use reason, at the very least, in an interpretative fashion. Of necessity, we pursue the truth, and reason guides and shapes how we come into possession of it. This is an unavoidable aspect of being human. Any attempt to explain away reason as merely the product of pure naturalism is an absurd self-referential attempt to deny humanity’s unique thinking capacity. Reason is evidence of humanity’s unique place in a world of beings guided solely by instinct and mechanism, and any attempt to deny this is simply a “self-refuting exercise if ever there was one” (Putnam 1983, 246). Putnam contends that reason always has a normative role to play in human thinking; it cannot be reduced to mere blind adaptation. He writes, “Let us recognize that one of our fundamental self-conceptualizations . . . is that we are *thinkers*, and that *as* thinkers we are committed to there being *some* kind of truth, some kind of correctness which is substantial. . . . That means that there is no eliminating the normative” (p. 246).

Richard Swinburne has argued that a purely materialist metaphysic cannot account for the normative role that reason plays in human affairs. That is, materialism simply confuses scientific explanations with ultimate explanations. Accordingly, evolution may give a scientific explanation for how humans come to possess a disproportionately larger brain than other animals, but it cannot give an ultimate explanation for this or for why humans have true beliefs (Swinburne 1996, 60). The normative function of reason must transcend purely biological and evolutionary explanations of how we have come into possession of a capacity that enables us to do metaphysics.

Aquinas’s appeal to the goods of reason plays a critical role in resolving this problem. Among the goods Aquinas lists, we find the natural desire for truth. Yet this desire is not what we would call a biological desire but a rational desire.

Human activity depends on reason knowing the truth. Indeed, truth is a basic need for humans, since much of our well-being depends on knowing the truth. Dallas Willard writes, “Truth is . . . a vital human need, and a major part of what makes knowledge valuable. It and its opposite, falsity,

are squarely at home in the midst of ordinary life. To know what truth is and to be able to recognize it and its opposite are basic components of ordinary human competence" (2000, 34).

Aquinas says that there is a natural teleology in the process of knowledge. This is why he sees the true and the good as convertible terms. That is, one must know what is truly good, not simply what seems to be good. Only a rational agent is capable of making the distinction between real and apparent goods. Real goods complete, or perfect, the agent. Peaceful coexistence with others, contemplation of the truth, and love of God truly perfect the agent. Seducing one's neighbor, squandering one's talents, and the shameless glorification of self never fulfill human desires. In order to *do* the good, one must first *know* the good. A being whose intellect has been formed only by the processes of blind evolution cannot make this distinction. However, a being that is capable of genuine rational thought can and must make these distinctions.

CONCLUSION

Traditional evolutionary thought attacks NLM on two fronts, denying teleology and advocating evolutionary relativism. The latter seems to be refuted by Wilson's sociobiological account of morality. Humans have evolved in specific ways with the result that some behaviors must be rejected universally as contrary to adaptation. The denial of teleology, at best, can be made only within the context of biology. In the domain of philosophy teleology still functions in a robust manner.

Arnhart has attempted to reformulate Aquinas's NLM in light of Wilson's sociobiological ethics. Although a NLM can be reconciled with some version of sociobiology, Arnhart's account falls seriously short of a coherent theory of NLM that is faithful to the spirit of Aquinas. The critical problem is a failure to adequately understand what Aquinas means by rational goods, and as a result the NLM he defends seems to be more consistent with the moral philosophy of Hume rather than that of Aquinas.

Aquinas's account of NLM is considerably more complex and nuanced than Arnhart presents. According to Arnhart's definition of NLM, "human beings use their unique capacity for rational deliberation to formulate ethical standards as plans of life for the harmonious satisfaction of their natural desires over a complete life" (2001, 2). In Arnhart's presentation, it becomes apparent that reason plays only an instrumental role in Aquinas's "naturalistic account of morality." Reason is merely the capacity for deliberation concerning how we adjudicate among various sensual goods.

Without an analysis of how reason regulates the biological impulses, we are left to what might best be called "Thomistic emotivism." By this I mean that Arnhart has placed Aquinas in the company of those who see our natural inclinations as the primary impulse behind all our activities.

Although lip service is paid to the role of reason, it becomes apparent that reason merely formulates rules that enable us to act upon our biological desires. This is reminiscent of Hume's statement "Reason is, and ought to be, the slave of the passions" (1951, 415). But then we are left with Mary Midgley's question (1998, 184), "How is it (reason) supposed to know which of them to obey? Slaves have a bad time in such circumstances."

Arnhart fails to see that for Aquinas there is a clear distinction between the biological, or the material, and the natural (IaIIae.10.1). The biological is concerned with our vegetative and sensual powers, which we share with all other animals. However, *nature*, while admittedly an ambiguous term, has a more specific meaning. It refers to the specific nature of the entity in question. Not only rocks, trees, and squirrels, but also humans, angels, and God, have a "nature." Nature, therefore, encompasses much more than the merely biological.

Arnhart's attempt to unify the science of sociobiology with the NLM of Thomas Aquinas is a laudable project. However, such an approach must address Aquinas's broader concerns for the rational goods. The results of our study are the following: If Arnhart wants to be faithful to the NLM of Thomas Aquinas, as he says he does, he must develop a more adequate account of what Aquinas means by rational goods. If Arnhart wants to be true to the sociobiology of E. O. Wilson, he needs to abandon Thomistic NLM.

NOTES

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1. Darwin himself harbored doubts about evolution destroying final causality. In a letter to W. Graham as late as 1881 he wrote that "the existence of so-called natural laws implies purpose. I cannot see that. . . . But I have no practice in abstract reasoning, and I may be all astray. . . . Nevertheless you have expressed my inward conviction, though far more vividly than I could have done, that the universe is not the result of chance" (Darwin 1958, 62).

2. Wilson consistently uses the terms *transcendentalist* and *transcendental* with reference to an objective and independent source of morality apart from human nature. Kant would be a transcendentalist; so too would Plato and Augustine. No technical philosophical sense of the term *transcendental* is intended by Wilson.

3. Wilson's naivete regarding Christian ethics becomes all too apparent here. First, Aquinas would say that ethics is quite clearly based upon the nature that God has created. As a result, Aquinas could to some degree be considered an empiricist. Second, natural-law morality rarely makes any appeal to "the will of God." Wilson has unwittingly conflated divine-command ethics with natural law. For analysis of Aquinas's views on the role of divine will and intellect in Aquinas's natural-law theory see Boyd 1998.

4. This argument is my own based upon parental investment theory. While it is not one of Wilson's arguments in *Consilience*, it clearly is one that can be used by the sociobiologist.

5. All translations of Aquinas are my own.

6. Arnhart fails to mention the natural desire for truth, virtue, and God in his discussion of Aquinas's discussion of the goods proper to the rational soul. This omission plays a significant role in my treatment of his views on NLM later in this essay.

7. I am here borrowing the term *consonance* from Ernan McMullin, who has used the term with reference to how Christians can understand the workings of primary and secondary causes in science and in philosophy (see McMullin 1981).

8. On Aquinas's view, this human nature is clearly the creation of God. Aquinas says, "Supposing that the world is ruled by divine providence, it is manifest that the whole community of the universe . . . is governed by divine reason. Thus, the very notion of the government of things in God, the ruler of the universe, has the nature of law" (IaIIae.91.1).

9. Although Arnhart quotes Aquinas's reference to the human pursuit of "the truth about God" in his "Thomistic Natural Law" (2001), he makes no mention of it as being a particular rational good. In his *Darwinian Natural Right* he does address the issue of religion as a rational good, but its importance is relegated to a generic desire to "make sense of everything" (1998, 267–75).

10. Aquinas says that all people have the natural urge to know the truth about God and have the ability to discover elementary truths about the creator. But this knowledge is not sufficient for salvation (IaIIae.3.5; also see Porter 1986).

11. On the relation of divine and natural law see Porter 1990; 2000.

12. Aquinas says that the virtues are good habits that perfect the various powers of the soul. Thus, there are intellectual virtues that perfect the rational powers of the soul. Included in these virtues are understanding, wisdom, science, prudence, and art (IaIIae.57). The moral virtues perfect the appetitive powers of the soul and must be shaped by human reason and its grasp of the peculiarly human goods (IaIIae.60). In the case of both types of virtue, reason, not instinct, understands what the good is and guides the agent to its proper end.

13. For further discussion on the relationship between virtue and natural law see Bourke 1974.

REFERENCES

- Aquinas, Thomas. 1873. *Summa Theologiae*. Rome: Leonine ed.
- Arnhart, Larry. 1998. *Darwinian Natural Right: The Biological Ethics of Human Nature*. Albany: SUNY Press.
- . 2001. "Thomistic Natural Law as Darwinian Natural Right." *Social Philosophy and Policy* 18 (Winter): 1–33.
- Bourke, Vernon. 1974. "Is Thomas Aquinas a Natural Law Ethician?" *The Monist* 58 (January): 52–66.
- Boyd, Craig A. 1998. "Is Thomas Aquinas a Divine Command Ethicist?" *The Modern Schoolman* 75 (March): 209–26.
- Bradley, Denis. 1997. *Aquinas on the Twofold Human Good: Reason and Happiness in Aquinas' Moral Science*. Washington, D.C.: Catholic Univ. of America Press.
- Darwin, Charles. 1958. *The Autobiography of Charles Darwin and Selected Letters*. Ed. Francis Darwin. New York: Dover.
- Dawkins, Richard. 1996. *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design*. New York: Norton.
- Finnis, John. 1982. *Natural Law and Natural Rights*. New York: Oxford Univ. Press.
- George, Robert P. 1992. *In Defense of Natural Law*. Oxford: Oxford Univ. Press.
- Gilson, Etienne. 1984. *From Aristotle to Darwin and Back Again: A Journey in Final Causality, Species, and Evolution*. Trans. John Lyon. Notre Dame, Ind.: Univ. of Notre Dame Press.
- Haldane, J. B. S. 1927. *Possible Worlds and Other Essays*. London: Chatto and Windus.
- Hare, R. M. 1961. *The Language of Morals*. Oxford: Oxford Univ. Press.
- Hull, David. 1989. *The Metaphysics of Evolution*. Albany: State Univ. of New York Press.
- Hume, David. 1951. *A Treatise of Human Nature*. Oxford: Oxford Univ. Press.
- Lemos, John. 2003. "Rachels on Darwinism and Theism." *American Catholic Philosophical Quarterly* 77:399–415.
- Lisska, Anthony. 1996. *Aquinas' Theory of Natural Law: An Analytic Reconstruction*. New York: Oxford Univ. Press.
- MacIntyre, Alasdair. 2001. *Dependent Rational Animals: Why Human Beings Need the Virtues*. Chicago: Open Court.

- Maritain, Jacques. 2001. *Natural Law: Reflections on Theory and Practice*. South Bend, Ind.: St. Augustine's.
- Mayr, Ernst. 2001. *What Evolution Is*. New York: Basic Books.
- McMullin, Ernan. 1981. "How Should Cosmology Relate to Theology?" In *The Sciences and Theology in the Twentieth Century*, ed. Arthur Peacocke, 17–57. Notre Dame, Ind.: Univ. of Notre Dame Press.
- Midgley, Mary. 1998. *Beast and Man: The Roots of Human Nature*. New York: Routledge.
- Moore, G. E. 1903. *Principia Ethica*. New York: Cambridge Univ. Press.
- Plotkin, Henry. 1998. *Evolution in Mind: An Introduction to Evolutionary Psychology*. Cambridge: Harvard Univ. Press.
- Pope, Stephen. 1994. *The Evolution of Altruism and the Ordering of Love*. Washington, D.C.: Georgetown Univ. Press.
- Porter, Jean. 1986. "Natural Desire for God: Ground of the Moral Life in Aquinas." *Theological Studies* 47:48–68.
- . 1990. *The Recovery of Virtue: The Relevance of Aquinas for Christian Ethics*. Louisville, Ky.: Westminster/John Knox.
- . 2000. *Natural and Divine Law: Reclaiming the Tradition for Christian Ethics*. Grand Rapids, Mich.: Wm. B. Eerdmans.
- Putnam, Hilary. 1983. *Realism and Reason: Philosophical Papers*. Vol. 3. New York: Cambridge Univ. Press.
- Rachels, James. 2002. *The Elements of Moral Philosophy*. New York: McGraw-Hill.
- Ratzsch, Del. 2004. "The Demise of Religion: Greatly Exaggerated Reports from the Science/Religion 'Wars.'" In *Contemporary Debates in Philosophy of Religion*, ed. Michael L. Peterson and Raymond van Arragon, 72–87. Malden, Mass.: Blackwell.
- Ruse, Michael. 2001. *Can a Darwinian Be a Christian? The Relationship between Science and Religion*. New York: Cambridge Univ. Press.
- Simon, Yves. 1992. *The Tradition of Natural Law: A Philosopher's Reflections*. Ed. Vukan Kuic. New York: Fordham Univ. Press.
- Swinburne, Richard. 1996. *Is There a God?* New York: Oxford Univ. Press.
- Tattersall, Ian. 1998. *Becoming Human: Evolution and Human Uniqueness*. New York: Harcourt Brace.
- . 1922. *The History of Human Marriage*. 3 vols. New York: Allerton.
- Willard, Dallas. 2000. "Knowledge and Naturalism." In *Naturalism: A Critical Analysis*, ed. William Lane Craig and J. P. Moreland, 24–48. New York: Routledge.
- Wilson, E. O. 1975. *Sociobiology: The New Synthesis*. Cambridge: Harvard Univ. Press.
- . 1998. *Consilience: The Unity of Knowledge*. New York: Vintage Books.