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KARL RAHNER AND THE THEOLOGY OF HUMAN ORIGINS

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ONE OF THE MOST STRIKING developments in Karl Rahner's thought concerns the issue of original sin, a topic he came back to repeatedly over his long career. After having for many years defended the traditional view that all humanity is descended from a single couple, into the grip of whose sin we are born (monogenism), Rahner, it seemed, quite suddenly adopted the opposing idea that both our biological history and the history of sin must be traced back to a primordial community (polygenism). When he addressed the matter in 1954, writing in the wake of *Humani Generis*, the question for Rahner was not whether monogenism was true but how certain one may be of its truth. He concluded that although it had never been the subject, either expressly or implicitly, of an infallible pronouncement by the magisterium, still, given its close connection with the doctrine of original sin, it "must be affirmed with inner (but not in itself irreformable) assent."[1] Thirteen years later, Rahner denied that the doctrine of original sin even favored monogenism. There is "no reason," he wrote, "for the magisterium to intervene" against polygenism, for if anything, it is polygenism that marks the

[1] Karl Rahner, "Theological Reflexions on Monogenism," *Theological Investigations*, vol. 1 (London: Darton, Longman & Todd, 1961; New York: The Seabury Press, 1974), 234. Rahner observed that the argument in *Humani generis* considers monogenism to be "logically presupposed by the dogma of original sin" (236), but without appealing to either scriptural texts or statements of the magisterium to declare its certainty. Rahner saw this reserve as an indication that the letter did not intend absolutely to exclude the viability of polygenism.

superior approach, resting as it does on the insight of both theology and science that the individual must be understood in terms of the larger group.[2]

The course of Rahner's change in thought reflected that of many theologians, and educated laity too, during this period, with the conviction coming to be widely held that the Church's position, stubbornly monogenist, is simply untenable.[3] Yet this article will suggest that there are elements even in Rahner's later work, consistent and systematic as he was in its construction, that support the monogenist position.

I

"The remarkable aspect," George Vandervelde writes, "of this change of position on the question of origins is that, theologically, very little changes"[4]-meaning that very little changed in Rahner's understanding of original sin. Certainly at first glance this seems to have been so. As seriously as Rahner took the teaching that there was a personal sin committed at the beginning of human history, by which, in the words of Trent, we were "changed for the worse in body and soul,"[5] there were many points on which Rahner differed from the tradition. He seems from early on, for example, to have regarded human suffering and moral concupiscence as "natural" to our condition.[6] It is not the fact of

[2] Karl Rabner, "Evolution and Original Sin," *Consilium*, vol. 26, ed. Johannes Metz (New York: Paulist Press, 1967), 73. See also Rahner's "Exkurs: Erbsiinde und Monogenismus," in Karl-Heinz Weger, *Theologie der Erbsiinde* (Freiburg: Herder, 1970), 196-99.

[3] Jerry D. Korsmeyer writes on behalf of those anxious for a revision of this and other aspects of the teaching on original sin in *Evolution and Eden: Balancing Original Sin and Contemporary Science* (New York: Paulist Press, 1998).

[4] George Vandervelde, *Original Sin: Two Major Trends in Contemporary Roman Catholic Reinterpretation* (Amsterdam: Rodopi, 1975; Washington, D.C.: University Press of America, 1981), 235.

[5] "[f]otumque Adam per illam praevaricationis offensam secundum corpus et animam in deterius commutatum fuisse," *Deer. de peccato orig.* 1 (DS 1511), quoting from the Second Council of Orange, can. 1 (DS 371).

[6] Trent (*Deer. de peccato orig.* 5) had spoken of concupiscence as an inclination to sin, arising with the first transgression, which remains even after baptism ("Manere autem in baptizatis concupiscentiam vel fomitem" [DS 1515]). Rahner, in "The Theological Concept

death but the manner in which we experience it that must be attributed to the first sin.[7] The idea that we each have a share in the primal guilt he took as meaning that the human community never became a medium of grace.[8] In fact, the aspect of the doctrine of original sin, and monogenism in particular, that most commended itself to Rabner was its correspondence to our universal, existential experience of personal weakness and, in that weakness, of dragging each other down. "[Y]ou, I, all of us here below," Rahner wrote in 1954, "begin as the lost, so much so that we know from the start that everyone we come across in the course of our history, with whom we have to do as 'neighbor,' is of this kind."[9] The freedom and integrity of our decisions, already restricted by our individual sinfulness, is further compromised by the decisions of others, at times in ways that make their influence, for all practical purposes, inescapable. Years later, in *Foundations of Christian Faith,* Rabner would give this example:

> when someone buys a banana, he does not reflect upon the fact that its price is tied to many presuppositions. To them belongs, under certain circumstances, the pitiful lot of banana pickers, which in turn is co-determined by social injustice,

of Concupiscentia," *Theological Investigations,* vol. 1, p. 375, offered a definition at once more nuanced and more broad: "concupiscence is the inertia and impenetrability, in itself *bivalent,* of that 'nature' (in the earlier sense) which precedes the person's free decision, which inertia does not permit the person as freedom totally to integrate this 'nature' into his deeds." By "bivalent" Rahner meant that this inability (characteristic of any finite creature) to act with one's entire self in a given decision precludes the whole self from being engaged whether the decision is for good or for evil. Sanctifying grace overcame the distance between nature and freedom, and further between matter and spirit, in the first man, and salvation looks to their regained interpenetration, a full integration of our impulses and desires with our intellect and will, the lack of which now afflicts us like a plague.

[7] For the view that sin brought about the manner in which we experience death rather than death itself, see "Original Sin," in *Sacramentum Mundi: An Encyclopedia of Theology,* 6 vols., ed. Karl Rahner et al. (London: Burnes and Oates; New York: The Seabury Press, 1968-1970), 4:332; Karl Rahner, *Foundations of Christian Faith: An Introduction to the Idea of Christianity,* trans. William V. Dych (New York: The Seabury Press, A Crossroad Book, 1978), 115; Karl Rahner, "Natural Science and Reasonable Faith," *Theological Investigations,* vol. 21 (New York: The Crossroad Publishing Co., 1988), 46-48.

[8] Rahner, "Original Sin," 331; Karl Rahner, "The Sin Of Adam," *Theological Investigations,* vol. 11 (London: Darton, Longman & Todd, 1974; New York: The Seabury Press, 1974), 257-58.

[9] Rahner, "Theological Reflexions on Monogenism," 284.

exploitation, or a centuries-old commercial policy. This person himself now participates in this situation of guilt to his own advantage. Where does this person's personal responsibility in taking advantage of such a situation co-determined by guilt end, and where does it begin?[10]

This experience of belonging to an absolutely single history in which human mutuality works again and again to destroy rather than to build up human community is what drove Rahner's thought in his 1954 article. And to his mind, what justified our sense of belonging to a radically single moral history was an absolutely single biological history-hence the repeated reference in this article to the Augustinian idea of our derivation from a "common stock."[11] Rahner understood by this nothing less than our lineal descent from a single individual. Only if one posits that the entire race may be traced back to a first couple, and even the first woman back to her man (though Rahner does not describe the event), can it be said that each and every decision of every person has been made under the shadow of sin. "Is it possible," Rahner asked, "to conceive of and to maintain this universally pre-personal and yet historically realized situation of damnation proper to the stock as such, if its historical origin did not lie in a single real individual in the beginning and in his act? The answer is in the negative."[12] Carrying the logic through, Rahner wrote a few years later that the first man determined this situation for humanity in his initial act of freedom.[13]

Evidently it was the pressure of scientific research that led Rahner by 1967 to shift his support to polygenism. He referred at that time to «the fact that scientific anthropologists of today think in terms of polygenism," and continued, "It is a general

[10] Rahner, *Foundations,* 110-11.

[11] Augustine himself drew the image from Romans 11:17-24. For an example of his usage, see *De nupt. et concup.* 1.21, 37; *De civitate dei* 15.1; *Enchiridion* 26-27.

[12] Rahner, "Theological Reflexions on Monogenisrn," 281. For this reason, Rahner took the *ti;* £voe; of Hebrews 2:11 as arguing for strict rnonogenism (ibid., 266).

[13] "Original sin can only be thought of as the first act of man's real, authentic freedom" (Karl Rahner, *Hominisation: The Evolutionary Origin of Man as a Theological Problem* [New York: Herder and Herder, 1968], originally published as "Die Hominisation als theologische Frage," in Karl Rabner and Paul Overhage, *Das Problem der Hominisation* [Freiburg: Herder, 1958], 103).

principle of biology that true *concrete* genetic unity is not found in the individual but in the population within which alone many individuals can exist."[14] Even in 1954, Rahner had spoken of human community as lying at the core of human existence.[15] But now he took the point further by rooting the primordial condition of rectitude, called "original justice," in the relation that human beings bore to God through one another. It was God's intention, Rahner said, that our paradisal state of graced union with him be sustained by our union with each other: we were to be reciprocal mediators of grace.[16] The moment sin was committed, the first violation of God's will, this web of holy influence was torn, the pall was cast, and our universal condition was changed. This approach certainly saved Rahner from what, in terms of biology, seemed the indefensible idea that the race had its beginning in a single man. Our experience of unity in sin could be explained even with the supposition that the human species, like all others, arose within a single interbreeding genetic pool (though it would have to be a single pool, in a single location). Furthermore, the explanation worked whether one supposed that only a single individual sinned, or that some, or every living person, shared in one collective act; and whether the sin occurred at the very beginning of human freedom, or some time later, so long as it fell within the first generation.[17]

The adoption of polygenism did carry a price. As a monogenist Rahner had been able to attribute our single fallen history to the agency of the first man, the originator of that history, by whose freedom it had been shaped. Now he was forced to appeal to the mere decree of God. The stipulation that grace be received within the community as a whole, such that the personal sin of any one individual would forfeit grace for all, is located simply in the will

[14] Rahner, "Evolution and Original Sin," 64.

[15] Rahner, "Theological Reflexions on Monogenism," 287.

[16] Rahner, "Evolution and Original Sin," 70. Even this original grace may be regarded as *gratia Christi*, Rahner wrote in "The Sin of Adam" (255-56), if, like the Scotists, one considers the Incarnation to be the eternally proposed goal of creation, and not simply the Father's response to sin.

[17] Rahner, "Theological Reflexions on Monogenism," 107; "The Sin of Adam," 261.

of God. "'Since God owes grace to no one," Rahner said, "'he could link it to any meaningful condition, and therefore to the steadfastness of the first man, "[18] or the first group. [19] There is no intrinsic reason why the sin of one member of the group should cost everyone the inner order established by grace, nor why the sin of one or more within the group could not be overcome by the others who remained firm, bringing their fellows to conversion. In any case, the approach seems better suited to describe a situation, generation after generation, of mixed saints and sinners, rather than what Rahner himself understood to be the condition of original sin.

Morever, Rahner's previous commitment to examining the doctrine of original sin within the framework of monogenism had been motivated by such considerations as the parallel drawn repeatedly in the Pauline letters between the first man and the second, Adam and Christ. In other words, it was an effort made on scriptural and ecdesial grounds to deal with a teaching that is a scriptural and ecdesial affair. It is a little ironic that Rahner's turn to polygenism, which only multiplied his theological problems, was prompted by what were then widely held opinions in science. *As* noted above, Rahner's revised approach required that the race proceed from a single community within a specific region. Excluded at the outset was any model that proposed the local and separate development of population groups that eventually came together to form our present species, a theory commonly referred to as polyphylism. Rahner may well have summed up the general view in 1967 when he said that polyphylism is "rejected by most anthropologists on scientific grounds, "[20] but thirty years later that is hardly the case.[21]

One of the greatest problems to confront Rahner, and one that followed him from monogenism to polygenism, was his understanding of the Falt He spoke in 1954 of the consequence of

[18] Rahner, "Original Sin," 331.

[19] Rahner, "Evolution and Original Sin," 70-71.

[20] Ibid., 67.

[21] Henry Harpending reviews the ongoing debate concerning multiregional evolution in "Gene Frequencies, DNA Sequences, and Human Origins," *Perspectives in Biology and Medicine* 37 (Spring 1994): 384-94.

crediting our fragmented, conflicted condition to our nature as physical beings. "If the origin of this universal situation," he said, "were not historically human, what we should have would be Manicheism {as Augustine would say) or a conception which saw inevitable sinfulness in the very fact of being creaturely. "[22] Yet, certain though he always was that there had indeed been a Fall, he had an increasingly minimalist view of its effects. This was due to his analysis of matter.

Rahner spoke of matter in two ways: as a metaphysical principle and as referring to the collection of physical beings that make up the universe. As a metaphysical principle, which together with form constitutes the finite existent, matter was considered by Rahner as pure "negativity," as the limiting principle within a creature that determines the degree to which the creature is able to participate in the fullness of Absolute Being.[23] It is the principle of individuation, accounting for the fact that there can be many instances of the same sort of being. It is the principle of a thing's facticity, of its givenness which we as knowing subjects experience as otherness, even of being alien to us. It also underlies our experience of ourselves as other. "Matter means the condition for that otherness which estranges man from himself and precisely in doing so brings him to himself."[24] The material existent, as a limited instance of being, Rahner rather strikingly described as "frozen spirit." "What we call material," he wrote in 1963,

> has always been seen, at least in thomistic philosophy, as a limited and in a sense "frozen" spirit, as limited being whose being as such, i.e. prescinding from the real negativity and limitation of this being (commonly called *materia prima*, which of itself does not signify any positive reality), is exactly the same being which outside such a limitation means being-conscious-of-itself, knowledge, freedom and transcendence towards God.[25]

[22] Rahner, "Theological Reflexions on Monogenism," 281.

[23] Karl Rahner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," *Theolvgical Investigations,* vol. 6 (London: Darton, Longman & Todd, 1969; Baltimore: Helicon Press, 1969), 168-69.

[24] Rahner, *Foundations,* 183.

[25] Rahner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," 168. Rahner would take the same view in "Natural Science and Reasonable Faith" (34-35): "The postulate of an ultimate unity of the whole world which cannot be resolved into a definitive, ultimately unthinkable disparity of several worlds, and of an ultimate spiritual nature which

Hence the material existent has within itself the possibility of being something more, in the sense of giving greater expression to the range of being. This possibility is realized under the power of Absolute Being in the process that science knows as evolutionary development When this development reaches the point of true self-transcendence, there arises personal spirit, the human person, Rahner called this the "unlimiting of the limited,"' and wrote later in *Foundations,*

> we have to try to understand man as the existent in whom the basic tendency of matter to discover itself in spirit through self-transcendence reaches its definitive breakthrough, so that from this perspective the essence of man himself can be seen within a fundamental and total conception of the world, [26]

In 1954 Rahner described man as a spirit who belongs to the world as the world belongs to him, He is spiritual in and through his bodiliness, and his body is one with the entire spatio-temporal order, [27] Hence the history of material being and the history of

manifests itself in intelligibility, and of a being present to itself even though it admits of the highest degrees of differentiation, is implicit in the belief in creation. Materiality must be understood as the lowest stage of this spirit (even when this may perhaps be irrelevant to the pure natural scientist). Otherwise materiality cannot be conceived as originating from an absolute spirit, since this spirit cannot create something that is absolutely disparate from itself."

[26] Rabner, *Foundations,* 181. Concerning the divine-evolutionary causality of the human, Raimer states in "Natural Science and Reasonable Faith" (45): "if we further consider that the divine causality which we have postulated above, not as an individual phenomenon of natural science but as the dynamic ground and bearer of all evolution, specifies itself according to the respective goal of a transcendence from below to above, this causality being the ontological ground for this goal, then one can say that the divine causality which bears the evolution in general, in the way that it must be operating *here* can be identified with the 'creation of the soul' in the way in which Pius XII teaches [in *Humani generis* 36]." There are dear similarities between Rahner's approach to biological development and the rise of consciousness and the theory proposed by Teilhard de Chardin, whose censuring Rahner pointed to in this article (25) as one of the more recent mistakes the Church has made in coming to terms with the discoveries of science. Michael Barnes offers a comparison of Teilhard and Rahner in "The Evolution of the Soul from Matter and the Role of Science in Karl Rahner's Theology," *Horizons* 21 (1994): 85-104.

[27] Rahner, "Theological Reflexions on Monogenism," 287,

corporeal spirit is one history: one in origin, one in destiny, and one in its center, who is Christ.[28]

Yet even though there was for Rahner an intrinsic relation between the material and the spiritual in this world, an affinity of matter for spirit, one also has the sense that matter is resistant to spirit, that with the first sin we were abandoned by the Spirit[29] to the impulses and desires of our physical being that impede the fulfillment of our nature. Rahner would speak of matter as a principle of multiple, dispersed, and conflictual being, drawn together, "recapitulated," in the human spirit, and definitively united with the Absolute in Christ.[30] Following his departure from the monogenist position, Rahner placed even more emphasis on Christ as the source of human unity. In 1954 he declared that Christ became the exclusive goal of humanity by making our history his own; the son of God is also the son of Mary, born of our history into our history. Christ took into himself our common life, which is a single existence because it is physically single, one community having one physical source, just as it now has one resurrected end.[31] Twenty years later, Rahner remarked that Christ did not just presuppose the unity of the race, he "constituted" it.[32] Even with the offer of grace, human beings had not been able to form themselves into a true community until the coming of Christ. All of this seems to indicate that, although a believer may take historical experience as corroboration of a Fall, it will remain an event known by faith alone: unable to be deduced from history and unable to be defined by history.

II

When in 1954 Rahner stated that all humanity descended from a single person, he was dearly trying to locate the origin and

[28] Rahner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," 177; *Foundations,* 181, 186-88.

[29] This is the language Rahner uses in "Theological Reflexions on Monogenism," 279.

[30] Rahner, *Foundations,* 189.

[31] Rahner, "Theological Reflexions on Monogenism," 275-79; 282-85.

[32] Rahner, "The Sin of Adam," 260.

structure of human history in an antecedent order whose own nature, like that of history, was determined by human freedom. Our history, he was saying, in which absolutely every decision is preceded by the decision of another to whom we are intrinsically connected, is grounded in a human biological, moral, and spiritual order that was shaped by the first sin-an order that Rahner, following St. Paul, called an order of flesh. With the change to polygenism, Rahner could no longer speak in the same manner of an absolutely single human history, since in theory there might have been many whose personal histories had continued for some time before the first sin was committed. It was now the somewhat disparate history of matter, informed by grace which was eventually lost in sin, that was understood to develop into ours. But if Rahner was willing to accept the idea that matter and spirit are so closely united in the world that they share a single history, he was not at all comfortable with the suggestion that the order of existence in the world is essentially the order of matter. Spirit, he maintained, is both "logically and ontologically prior" to matter. [33] This meant for Rahner not just that it could only have been by the transcendent causality of the spiritual fullness of Being that matter was able to give rise to corporeal spirit, but that spirit, created spirit, must have been immanent and at work in the world from its beginning. Since matter "was created by God from the very start for the sake of and in view of the spirit," it is "meaningless" and "ontologically impossible" that God might "create a material world on its own," apart from spirit. [34]

At this point Rahner appealed to the angelic. Far from describing angels as "pure spirits" who are completely above and detached from this inferior world, Rahner believed that Scripture and tradition justify considering angels as "powers of the one and hence also material world to whose material nature they are genuinely and essentially related." [35] Arguably, the "creation of the

[33] Rabner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," 166.

[34] Ibid., 168.

[35] Ibid., 159. Rabner appears even to have been willing to entertain the possibility of a kind of angelic corporeality. Hence he wrote in the same article: "[W]ith regard to the angels, we have already said that it is an absolutely open question whether they too are not of their very

spiritual world of the angels" coincided with that of the "material cosmos." Both have the same end, both receive the same grace, both are perfected by one faith in Christ as Lord of all creation and redeemer of the physical world. It is legitimate, therefore, "to urge the inclusion of the angels and their history with the history of the cosmos," and on this basis, to conclude that there never has been "a spiritless and merely material world."[36]

One might add to these another consideration, which Rabner did not propose. The motion that is characteristic of material beings, their potency for change which, at its most fundamental level, is random, unstable, and spontaneous, but at higher levels is coherent, more stable, novel, and developmental, is, as Rabner would put it, a more limited expression of the motion characteristic of material beings who are personal, of self-aware, self-directing freedom. It is not just that the lower implies the higher, that the possibility of physical motion implies the possibility of personal freedom. The two belong to a single order which the higher defines. It is an order of distinct natures, each of which governs the capacity of particular individuals to exercise the motion that is displayed fully by personal subjects. This is in fact the world as we observe it to be: structured, but not determined; the opposite of a necessary, even if active, reflection of eternal essences. Our experience is of a range of phenomena belonging to an integrated order which, from the standpoint of metaphysics, has as the condition for its possibility the operation of personal freedom.

As so described, however, the freedom at work in this world, shaping its structure, cannot belong to the angelic. As closely

nature necessarily related to matter, without their having to be bodily beings on this account in the same way as human beings" (ibid., 169). It calls to mind Augustine's speculation on the same point. See Eugene Portalie, *A Guide to the Thought of Saint Augustine,* trans. Ralph J. Bastian (Chicago: Henry Regnery Company, 1960), 143.

[36] Rahner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," 158, 172. In "Theological Reflexions on Monogenism" (294), Rahner had described the angels as "created origins (dpxai) and principles of the unity of order of the material world." Later in *Foundations* (189) he would speak of the angels as the medium through whom there can be "a recapitulation of a world which is dispersed in time and space, a recapitulation into itself and into its ground."

related to the world as the angels may be in Scripture-depicted as messengers to humanity; even cosmic powers, to use Rahner's language--still, it is not the angels who live in the world, it is we. It is not the story of the angels that the Scriptures tell in speaking of creation, it is ours. We are the ones created on the sixth day, to whom God speaks directly for the first time (Gen 1:28). We are the ones given dominion, the first of all living things created by God in the second account of creation. To us is given the role of carrying through the physical creation begun by God, represented by the first man's commission to cultivate the garden (Gen 2: 15). Once again it is to the first man that God speaks directly in Genesis 2, and that first word is a command, engaging his freedom. The man, the only creature able to hear the word, is called upon to assign the word appropriate to each of the other creatures, to name them, and so complete their being. When the man, and the woman to whom he had been joined as one flesh, betray the word, and so each other, not only are they cursed, but the ground itself is cursed. Creation, bereft of the word that it was the mission of the first man and woman to declare and embed, falls into a chaotic swid of bloody violence (Gen. 6: 11-13) which the scriptural author describes as welling up and covering the earth like the waters of a universal flood. [37]

Earlier we referred to Rahner's opinion that God simultaneously created the angelic order and the physical world. This had been the position of Thomas Aquinas, too. [38] Since Thomas presumed that humans were present at the outset of world history, it is reasonable to say that he believed that angels and the

[37] Biblical scholar Nahum Sarna understands the description of man and woman as having been made in the image of God to mean not only that they "witness to the activity of God in the life of the world," but that they have been assigned a share in that activity, namely, to establish God's creative word in the world, and the world in his word, for it is as rooted in the word that the divinely constituted order of things is made complete and sustained. Hence the importance of God's declaration in Genesis 6: 13 that he will bring judgment upon all creation, since in consequence of the first couple's sin, the repudiation of their role, creation is now without law, lawless, bereft of God's word. See The JPS Torah Commentary, vol. 1, *Genesis,* commentary by Nahum M. Sama (Philadelphia: The Jewish Publication Society, 1989), 12-13, 51.

[38] Aquinas, *Sfh* I, q. 61, a. 3.

first humans were created in the same act. But they were created, of course, as intellectual beings of two entirely different sorts. Thomas spoke of matter (along with quantity) [39] as the principle of individuation which makes it possible for many separate things to share a common essence. Hence he referred to the immateriality of angels to explain why it is that, although there may be many kinds of angels, there can be no more than one angel of each kind. [40] *As* pure spirit, each angel, from the moment of his creation, enjoys the fullness of the being proper to his specific form. In this respect, he may be taken as a created image of the being of God as pure act. But according to Thomas, not only is the angel a full actualization of what he is, to a degree it is he who defines his nature in that initial moment of existence. He chooses in the very first act of mind and will following his creation either to turn to or avert himself from the beatifying God. By this one act he determines his nature as either perfected in grace or diminished in sin, and since he himself instantiates the fullness of his nature, simultaneously he determines his species or kind as well. What is more, he belongs to an order of countless other angels, each distinguished in species according to the acuity of his intellectual nature, each bearing a direct relationship to other angels, and the entire order being intrinsically tied to the created universe as a whole. Indeed, Thomas follows the opinion that it was the very highest of the angels who sinned principally, drawing into pride by his exhortation the other, lower angels, when it had been his office to direct them to God"[41] Thus, in that first act following their creation, in a decision concerning both themselves and each other in relation to God, the angelic order was determined in the primary manner in which it was in potency, namely, the hierarchical place and the role each would have in the providential work carried out by God. Even the demons cannot

[39] For Thomas Aquinas, Joseph Bobik writes, it is quantity together with matter that is the principle of individuation ("Matter and Individuation," in *The Concept of Matter in Greek and Medieval Philosophy,* ed. Em:m McMullin [Notre Dame: The University of Notre Dame Press, 1965], 288-92).

[40] *STh* I, q. 50, a. 4.

[41] *STh* I, q. 63, aa. 7-8; q. 106, a. 4.

escape being used to God's purpose, no matter how energetically they may set themselves against it.

The case of the human is quite different. The fullness of what it means to be human cannot be realized in any single human person, but only in the totality of all the persons whom God will create, taken together. If the angelic images the being of God as pure act, the human images the nature of God as diversified within himself, according to the mutual self-donation between divine persons. It is, in fact, through a like donation between human persons that God creates humanity; The generative is an essential dimension of human nature. Not only are human beings, as Rahner wrote, necessarily members of community,[42] they with God are creators of it. This, Rahner had written back in 1954, is why God first made humanity as one man and one woman, in order that the race would be self-generative, a cause of its own life, having its beginning in their freedom. As such, Rahner said, for God to have created new persons or other couples independently of the first would have been to transfer his action into the realm of the miraculous, and the pointlessly miraculous at that.[43]

The human, however, is like the angelic in this: the decision concerning God has a formative influence on oneself. Since the human is material, and it is by virtue of their materiality that humans can be both multiple within the species and generative, the decision will have its effect on the nature of human materiality as well. As Rahner, like Thomas, always maintained, the materiality of human beings is one with that of the physical world; we share a single corporeality. What I am proposing here is that, granted the analogy between the human and the angelic, the most consistent position is to regard the decision of the first two human beings, which would determine the structure of the human generative order, as at the same time determining the structure of our physical world. And if, as Thomas stated, the first act of any intellectual creature is to dispose oneself in relation to

[42] "Where there is man, there is necessarily-not only in *fact-human* community, i.e., bodily, personal, community" (Rahner, "Theological Reflexions on Monogenism," 287).

[43] Ibid., 292-93.

God,[44] the decision that would determine, not definitively nor irretrievably, but fundamentally nevertheless, the corporeal order came in the first instant after this couple's creation. The argument is not that the first couple create their own materiality, since their material nature is the condition for the possibility of their being two, and they are not self-creative *ex nihilo.* But they are self-forming. Rahner once wrote that the transcendentality of human spirit towards God operates via the movement beyond oneself into a human thou.[45] In this uniting with himself through the other, God located the order whereby the human race would proceed. And this order of human multiplicity and diversity, the ground of a vastly rich and richly varied participation of beings, animate and inanimate, of almost boundless genera and species, in the divine being, was determined in the first act of human freedom.

The event of that first act is locked in mystery. It is only in light of Christ, St. Paul tells us, through whom all have life, that we have come to know of the decision, marking the outset of history, in consequence of which all die (1 Cor 15:22). Augustine conjectured in *The City Of God* (14.11) that it was out of attachment to "his only companion," the first woman, that the first man sinned. That the fruit of this sin was a devastation of union-between each other in the act of rejecting God-and not a more deeply formed attachment, is the theme taken up by Milton in his *ParadiseLost.* Aquinas takes it a step further when he intimates that the sin consisted in the decision of the first couple to make of their union, which would be the root of the human community, an expression of their own grandeur and glory.[46] This much, however, is clear: the movement within, and away from God, that characterized that primordial decision was at the same time a movement in repudiation of the human and physical order which God nonetheless created, though now in

[44] *STh* I-II, q. 89, a. 6.

[45] Karl Rahner, "Reflections on the Unity of the Love of Neighbor and the Love of God," *TheologicalInvestigations,* vol. 6, trans. Karl-H. and Boniface Kruger (Baltimore: Helicon Press; London: Darton, Longman & Todd, 1969), 241, 243, 245-46.

[46] *STh* I-II, q. 81, a. 1; II-II, q. 163, a. 1, ad 1; q. 163, a. 2.

spite of the couple's freedom which he had intended to be the medium of his action. It is impossible ever to know how that order would have looked. Perhaps the range of created being is no less than it would have been. But the nature and course of its action must certainly be different. Being, of course, remains being; and unity, diversity, novelty, complementarity-including, at the higher levels, gendered reproduction, in reflection of the pattern established in human nature-continue to be features of this order despite sin. But now the activity of being is not only unified, it is also conflictual, and change is not only cumulative, a matter of continual gain, but involves loss as well.

The ground of this order, in whom and through whom and for whom all have been made, is named the Christ, the one who alone can fulfill the covenant, the promise made to overcome sin (1 Cor 8:6; Col 1:16).[47] His is the only headship that the Pauline epistles know of (1 Cor 11:3; Eph 1:22; 4:15; 5:23; Col 1:18; 2:9-10, 19), an exclusive source of unity, even though the couple were to have established a unified and integrative pattern of activity in the world. Christ is the pattern of activity in the world, the whole Christ, Christ united with his body, the Church, who offers himself up for his bride (Eph 5:25-27), and because of whose immanent presence the world's history in all its vagaries is developmental and teleological, moving infallibly toward union with God. Alienated from the order at whose heart they had been set, what the couple bequeath is the legacy of their rebellion, an entropic tendency resisting integrative order on all levels of activity. Henceforth it is the laws of thermodynamics governing matter in motion that are the created element at work, affecting physical existence and finally the rise of life. Cut off from the primordial couple, the human community intended from the beginning arises in a time and manner proposed by the evolving world, even if still under the providence of Christ.

[47] For all the advertence to Colossians 1:16 one comes across in discussions of the doctrine of creation and redemption, no thinker has used this passage to greater systematic effect than Donald Keefe in his *Covenantal Theology: The Eucharistic Order of History*, 2 vols. (Lanham, Md.: University Press of America, 1991).

III

The doctrine of original sin has always been tied to the idea of a fall from original integrity, a violation in freedom of freedom, and the introduction of a principle of dissolution into the order established by God. The idea has protected the goodness of creation, avoiding the conclusion that the physical order, where birth entails death, is inimical to the life awaited in salvation. It has likewise protected the dignity of the human by protecting its priority: humanity was placed in its own hand under God's counsel, despite the fact it now finds itself under the counsel of the world. Saint Paul maintained that we began as a unity in Adam, and the doctrinal tradition built upon this by looking to Adam to explain our common physical vulnerability, our wrestling with concupiscence, even the universal guilt that underlay the practice of baptizing infants. The difficulty such architects of the tradition as Augustine and Aquinas met with came primarily of their effort to locate the event of the Fall within a world whose order owed nothing to human freedom. Hence Aquinas averred that if not for sin, humanity would have subsisted within the protected field of a kind of supernatural bubble, safe from the dangers inherent in a physical world.[48] And they both relied upon a theory that attempted to account for the transmission of Adam's sin through intercourse-which device, even in his most Augustinian moments, Rahner could never accept.[49] But the point is that the unity with our beginning, which the tradition commonly presumed, was severed completely. That was part of the cost of sin. Our only connection with each other is through the world, defined by the world. The dialectic of unification and fragmentation that we see all around us is found also within us; the conversion to self threatens with the first stirrings of self-awareness. Our guilt is that of belonging to a world which the first parents chose and acted to bring about entirely as an image of

[48] *SI'h* I, q. 97, a. 2, ad 4.

[49] Rahner, "Theological Reflexions on Monogenism," 278-79.

themselves. Death is ours by right; it is the due of all who are offspring of the earth.

With this our study of Rahner comes full circle, for his initial insight concerning monogenism was correct: there can be one history, of one race, and one world, redeemed by the one Christ, only if it has its beginning in the free decision of one couple, the first couple, the primordial instance of the human *imago Dei*. Thirty years ago, Rahner observed that the doctrine of original sin "no longer has any really formative influence in contemporary man's vital conception of human reality."[50] He noted a multitude of reasons for this. Certainly, evolutionary theory has only exacerbated the longstanding difficulty theology has had explaining how a single man, or a man and woman, who were merely the first in a generative series within the species, could be the cause of a universal loss of grace, justice, and integrity. To some minds the difficulty has matured into a full-scale crisis, thanks to, among other things, the findings of physics. "Theology," Christopher Mooney recently wrote, "absorbed as it must be with the self-transcendence of human persons, is being forced by science to see these hearers of God's word in their true physical insignificance in the cosmos."[51] Physically insignificant, yes; but as the physicist Brandon Carter pointed out, "privileged" by virtue of our status, perhaps unique in the universe, of being not just phenomena, but observers of phenomena.[52] And what is more, according to the approach taken in this paper, not just observers of phenomena, but authors of the entire order of phenomena, which was marked in the free decision of the first couple. This constitutes something of a Copernican Revolution of its own, taking humanity and its history as the key to understanding the structure and development of the physical world. It is a revolution that might expect some support from our

[50] "Original Sin," 329.

[51] Christopher F. Mooney, "Theology and Science: A New Comminnent to Dialogue," *Theological Studies* 52 (1991): 321.

[52] Carter made the remark in connection with his formulation in 1974 of the now-famous Anthropic Principle (quoted in M.A. Corey, *God and the New Cosmology: The Anthropic Design Argument* [Lanham, Md.: Rowman and Littlefield Publishers, Inc., 1993), 2).

common experience of sin, but that could have had but one instigator, and that is revelation. For in the end, it is only by unfolding the event of the Incarnation that one comes to the event of the Fall, and to an understanding of its true nature.

Rabner, the great apologist, was always concerned that the preaching of the faith address the experience of modern people. Yet it is also true that the experience of every time period must be interpreted with the mind of faith, as every theological inquiry, including the present one, is subject to the teaching of faith.

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SUBSTANTIALFORM AND THE RECOVERY OF AN ARISTOTELIAN NATURAL SCIENCE

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THE AIM OF THIS PAPER is to show the continued validity of Aristotelian natural science in light of the challenges posed by modern science. More specifically, I aim to defend the concept of nature as an intrinsic principle of motion and rest, especially the notion of substantial form that Aristotle deems to be "more nature" than matter.

The recovery of Aristotelian natural philosophy must begin with a defense of the notion of substantial form not only because this is the foundation of Aristotelian natural science, but also because it has been systematically rejected by modern science. Of the Aristotelian four causes, the formal cause has been the subject of the greatest attack. Modern science has, of course, always made use of material and efficient causality. And the notion of final causality, although criticized by the founders of modern science as well as contemporary scientists, has never been subject to the same kind of critique as the notion of substantial form. Newton, for example, endorses the modern rejection of "substantial forms and occult qualities" in the beginning of the *Principia,* but defends the use of final causality in the "General Scholium" that concludes the work. For Newton the world is a machine, but it is a machine that exhibits purpose: "it is not to be conceived that mere mechanical causes could give birth to so many regular motions . . . . This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an

intelligent and powerful Being."[1] He explicitly defends the indusion of final causes and discourse on divine providence within the scope of natural philosophy.[2] Substantial form is abandoned, but final causality is retained. We find something similar among contemporary design theorists such as Michael Behe and William Dembski, who argue, contrary to the neo-Darwinian orthodoxy, that intelligent design is the only reasonable explanation of the origin of living organisms. The design theorists do not dispute that living things are mere machines, only that their "irreducible complexity" is a product of blind chance.[3] While scientific reductionism goes unchallenged, the daim to explain the order of the world by chance has never gained universal approval among the proponents of modem science.

[1] Sir Isaac Newton, *Mathematical Principles of Natural Philosophy,* trans. Andrew Motte and Florian Cajori, vol. 2 (Berkeley, Calif.: University of California Press, 1962), 544.

[2] "We know [God] only by his most wise and excellent contrivances of things, and final causes ... and a god without dominion, providence, and final causes is nothing else but Fate and Nature. Blind metaphysical necessity, which is certainly the same always and everywhere, could produce no variety of things. All that diversity of natural things which we find suited to different times and places could arise from nothings but the ideas and will of a Being necessarily existing .... And thus much concerning God; to discourse of whom from the appeamnces of things, does certainly belong to Natural Philosophy" (ibid., 546).

[3] Michael Behe, who coined the phrase "irreducible complexity," refers to living things as "biochemical machines." organisms are made of molecules that act as the nuts and bolts, gears and pulleys of biological systems" *(Darwin's Black Box: The Biochemical Challenge to Evolution* [New York: The Free Press, 1996], p. x). William Dembski, who has a Ph.D. in philosophy, has a better sense of the position of Aristotle. In *Intelligent Design: The Bridge Between Science and Theology* (Downers Grove, HI.: Inter Varsity Press, 1999), 123, he notes that modem science, which is predominantly Baconian in character, limits science to material and efficient causes, thereby exduding design, which for Aristotle is related to formal and final causality. But Dembski does not advocate a return to Aristotle's four causes: "There are problems with Aristotle's theory, and it needed to be replaced" (ibid., 124). Although he believes that Aristotle's theory has been discredited by modem science, he believes that chance and necessity are not sufficient to explain the phenomena. Thus, while he does not call into question the mechanistic approach of modem science, he believes that it is necessary to reintroduce the notion of final causality in t.lie form of a theory of intelligent design in order to explain the origin of life. In "Are We Spiritual Machines?" *First Things* 96 (October 1999): 25-31, Dembski argues that we cannot understand intelligent human agency if we think of human beings as machines and advocates a return to the notion of "substantial form" to account for the spiritual nature of man; but he seems to posit a substantial form only in the case of man.

Reestablishing the credibility of substantial form, then, is the key to a recovery of an Aristotelian natural science. With a view to this end, I intend to explain and defend the notion of substantial form as an intrinsic principle of motion and rest. In defending the notion of substantial form I shall limit myself to the form of a living being since we ought to begin by raising the question whether living things have substantial forms and only later take up the question in regard to the nonliving. This is the best way to proceed not only because living things are better known to us (and we ought, as Aristotle notes, to begin with what is better known to us) but also because the evidence of modern science seems to indicate that nonliving things ought to be understood as analogous to those that are living. While Aristotle held living things to be organized bodies, that is, bodies made up of heterogeneous parts that form a whole, he regarded the elements as homeomeric-simple substances made up of homogeneous parts. From what we now know, molecules and atoms are also organized bodies with a much greater similarity to living things.

First, I shall briefly outline the typically modem position according to which living things can be reduced to the sum of their partso Second, I shall explain the notion of substantial form by appealing to the distinction between art and nature and by highlighting what I take to be the evidence in favor of the distinction between the substantial unity of a living organism and the accidental unity an artifact or machine. Third, I shall address some objections to Aristotle's position that are raised by modern science,"

I. SCIENTIFIC REDUCTIONISM

The prevailing tendency of modern science is to view the human body and *a fortiori* all living organisms as machines, as

[4] A further task, beyond the scope of the present essay, would be to show how, and to what extent, modern science can be incorporated within an Aristotelian understanding of nature. For this one might profitably consult William A. Wallace, *The Modeling of Nature* (Washington, D.C.: The Catholic of America Press, 1996).

wholes reducible to the sum of their parts. The modern position is captured by the common description of the human body as constituted by a certain set of material elements: a human being, we are told, is composed of 80% water, 10% carbon, *5%* nitrogen and a myriad of other elements such as cakium, phosphorous, and iron. The unstated assumption is that the chemical analysis of the human body somehow reveals its true nature. A human being *is* mostly water.

The view of man as a complex arrangement of particles is somewhat distant from ordinary experience, and many people are therefore somewhat hesitant to endorse this view. The reduction of a living organism to a complex arrangement of molecules is rendered more compelling, however, by the feats of modern medicine that appear to bridge the gap between the science of physics and chemistry and ordinary experience. We hear from generic engineers and molecular biologists of the promising new techniques by which genetic material can be manipulated in the interest of healing disease or, better, making improvements in our genetic endowment. On the other end of the spectrum, modem medicine has discovered new and more ways of remedying the defects of old age by replacing the failing organs of the body with transplants and-what is more amazing-artificial organs. These technological marvels hasten the thought that the human body is nothing more than a complex machine. This raises the question whether one can still defend the Aristotelian doctrine of substantial form"

II. ART AND NATURE

Aristotle defines nature as an intrinsic principle of motion and rest. According to Aristotle, the difference between natural things and artificial things is that the former come into being and function from an intrinsic principle whereas the latter move and rest the way they do owing to an extrinsic principle, art.

The difference between the natural and the artificial can be illustrated in a variety of ways, but Aristotle suggests that nature

as an intrinsic principle is most dearly exhibited by the growth of living things. He points out in the *Physics* that the term nature *(phusis)* comes from the verb to grow *(phuo).* If we compare the growth of a plant with the production of ship we can see the distinction Aristotle is attempting to convey. When a plant grows, the various parts of the plant-leaf, root, stalk, flower-are produced from within the plant. In the production of a ship, however, we see that its various parts are produced separately and later added together. In the case of the ship, the whole is reducible to the sum of its parts. Of course, a ship does not result merely by piling up iron, wood, and canvas. A ship is not a mere heap, like a pile of stones. The ship results from a certain kind of addition, an addition in which the parts are ordered and arranged in a very precise way-namely, by the art of shipbuilding. Nonetheless, the various properties and functions of the whole ship can be sufficiently accounted for by adding together the properties and functions of the parts. In the case of the plant, by contrast, the whole is in some sense prior to the parts. Of course, a plant must have certain very simple parts for it to be at all. Nonetheless, it starts out with few, if any, of the parts that characterize the mature organism. These parts must therefore be produced by the already existing plant.

According to Aristotle, the cause of the growth of an organism is its form or nature. This form is said to be a substantial form because it makes the organism to be one thing essentially, rather than having merely an accidental unity. Artifacts too can, loosely speaking, be said to have a form. A ship has a certain shape and its parts are arranged in a certain way, but its source of unity is extrinsic rather than intrinsic. Thus, one can distinguish between a substantial form (form in the precise sense) and an accidental form.

To help flesh out the distinction between substantial form and accidental form let us tum to a passage where St. Thomas distinguishes between the form of a living thing-its
the form of an artifact:

But since the soul is united to the body as its form, it must necessarily be in the whole body, and in each part thereof. For it is not an accidental form, but the substantial form of the body. Now the substantial form perfects not only the whole, but each part of the whole. For since a whole consists of parts, a form of the whole which does not give existence to each of the parts of the body is a form consisting in composition and order, such as the form of a house; and such a form is accidental. But the soul is a substantial form; and therefore it must be the form and the act, not only of the whole, but also of each part. Therefore, on the withdrawal of the soul, as we do not speak of an animal or a man unless equivocally, as we speak of a painted animal or a stone animal; so is it with the hand, the eye, the flesh and bones, as the Philosopher says (De Anima ii, 1). A proof of which is, that on the withdrawal of the soul, no part of the body retains its proper action; although that which retains its species, retains the action of the species. *(STh* I, q. 76, a. 8)

According to St. Thomas an artifact can be said to have a form, but it is a form that belongs to the artifact as a whole and not to each of the parts. The form of a natural thing, on the other hand, is not only the form of the whole but also the form of each of the parts. This is what we should expect from the manner in which an artifact comes into being; its parts come into being separately and are only later added together to produce the whole. The form of an artifact, then, is a *result* of the fact that the parts are brought together; it is a form consisting in "composition and order." The form of a natural thing, however, is the *cause* of the being of the parts. Again, this is evident from the fact that its parts come into being *as* parts of a larger whole. But St. Thomas adds further proof: when the soul departs at the time of death, the parts cease to be what they are. When a man dies, the hand, eye, flesh, and bones corrupt, they lose their proper function and therefore cease to be what they were. Thus, the generation and corruption of a living organism provide proof of the distinction between the substantial form of a natural being and the accidental form of an artifact or machine.

III. DNA AND GENETIC SCIENCE

Having briefly spelled out the distinction between art and nature, and having outlined what I take to be the evidence in

support of the distinction between an accidental form and a substantial form, I shall now tum to some objections of modem science. The first objection comes from genetic science and the discovery of DNA

One might argue that the appeal to some kind of substantial form as the explanation of the development of a living thing was the only plausible explanation until the discovery of genes by Mendel in 1865. Since that time, biology has moved more and more in the direction of explaining the growth and development of a living thing by appealing to an organism's genetic material. And since the discovery of the double helix by Watson and Crick in 1953, scientists have attempted to reduce the growth and function of living organisms to the mechanics of DNA-the complex molecule that constitutes a gene. As Crick himself declares, "The ultimate aim of the modem movement biology is in fact to explain all biology in terms of physics and chemistry. . . . Eventually one may hope to have the whole of biology 'explained' in terms of the level below it, and so on right down to the atomic level."[5] Obviously, if a molecule, or set of molecules, sufficiently explain the process of growth and development, then we have no need to appeal to substantial form. Indeed, if the growth of an organism is merely the result of the physical and chemical properties of the genetic material then there is no intrinsic principle in the sense meant by Aristotle and St. Thomas. DNA is found in every cell of the body, but it is not *in* all of the parts of the body the way that a substantial form is in every part; it is in the body the way that one body is contained another body, not the way that a form is matter. If is responsible for the growth development living things, then Aristotle's notion of nature as an principle appears superfluous.

The discovery of DNA, however, has not led to the hoped-for reduction of biological phenomena to physical and chemical causes. Scientists refer to DNA as a genetic code[5] as information stored by means of a combination of a set of simple nucleotide

[5] Francis Crick, *Of Molecules and Men* (Seattle: University of Washington Press, 1966), 10.

bases-adenine, guanine, thymine, and cytosine-similar to the letters of an alphabet. But immediately we run into a difficulty. Coded information as such cannot be reduced to the medium in which it is inscribed. As Nancy Pearcey notes, "Encoded messages are independent of the physical medium used to store and transmit them. If we know how to translate the message in a DNA molecule, we could write it out using ink or crayon or electronic impulses from a keyboard. We could even take a stick and write it in the sand-aU without affecting its meaning. "[6] The DNA molecule may be a carrier of information, but the information itself cannot be reduced to the molecular material any more than the meaning of the word "dog" can be reduced to the sound waves produced by my mouth. As Leon Kass points out, "One can hold DNA *molecules* in a bottle, but one cannot physically hold or grasp the *messages* they carry!' [7] If DNA is responsible for the growth and development of an organism by functioning as encoded information, it will not enable us, as Crick had hoped, "to explain all biology in terms of physics and chemistry."

Moreover, if DNA is encoded information, or a kind of blueprint for a living organism, who interprets the code? As Ian Stewart and jack Cohen argue, the notion of DNA as a blueprint fails to explain how the information it contains is translated into a living organism:

> [T]he common image of an organism's DNA as a "blueprint" begs the question of how the information in the blueprint is actually converted into a functioning organism. We know that some sections of DNA code for proteins, and we have an excellent understanding of how particular DNA sequences lead to the construction of particular protein molecules. We have a few inklings that other sequences of DNA have a more global function, switching other sequences on or off and thereby coordinating protein production. But what goes on between all that and a working organism is a total mystery. If we liken an organism to a ten-course banquet, then om current model of how to produce a banquet is that "it's all in Mrs. Beeton," and about 99% of our effort is going into listing all her recipes, page by page.... We are convinced that important structures that we

[6] Nancy Pearcey, MDNA: The Message in the Message," *First Things* 64 (June/July 1996): 13-14.

[7] Leon Kass, *The Hungry Soul: Eating and the Perfecting of Our Nature* (New York: The Free Press, 1994), 43.

observe being used in real banquets, such as "eggbeater" or "oven," are specified somewhere or somehow in the recipe book ... but ... we don't know where or how. The concept "kitchen" has not yet occurred to any body .... We collectively remain obsessed with sequencing the recipes, and any speculations about the need for eggbeaters or kitchens are dismissed with an airy "it's all in the book," as if they don't matter. [8]

If DNA is genetic information, then we must look for a more fundamental cause of the growth and development of an organism, the cause responsible for inscribing and interpreting the coded information.

When we look for a cause of genetic information we are led to consider that reading and writing coded information appear to require an intelligent cause, or at least a cause that is analogous to intelligence. This has led design theorists to propose God as the author of the message written in the DNA. While I do not wish to exclude or belittle the role of God in the design and function of living organisms, I think that the account of the design theorists is dangerous, and ultimately incoherent, because it removes the role of secondary causes from the world, turning living organisms into puppets or, to use a more contemporary analogy, robots. [9] In explaining the cause or principle responsible for inscribing and interpreting the message encoded in DNA, I think we would do well to look for a more proximate cause rather than turn immediately to God.

'Ian Stewart and Jack Cohen, "Why Are There Simple Rules in a Complicated Universe?" *Futures* 26 (1994): *656,* quoted in Michael J. Dodds, O,P., "Top Down, Bottom Up or Inside Out? Retrieving Aristotelian Causality in Contemporary Science," lecture delivered at the 1997 Thomistic Summer Institute sponsored by the Jacques Maritain Center, University of Notre Dame,

[9] If a living organism is really just a divinely designed machine, it has no nature, no intrinsic source of unity, and it therefore cannot properly be said to be or to act. This has dangerous implications. If God is unable to bring into being creatures that can truly be said to have their own being and perform their own operations, then we have drastically reduced the traditional notion of God's creative power. On this account, the divine art is only different in degree, not in kind, from human art. Moreover, if God produces a world of puppets or divine automatons, one wonders whether we can give a coherent explanation of *why* God creates the world. If God creates a world of things that do not have their own being or their own goodness, we can no longer explain God's creative act as his communication of being and goodness,

Msgr. Robert Sokolowski has given what I think is a more plausible explanation. He suggests that "it is the plant or animal form that encodes itself in the DNA, and that the form is what the DNA serves to communicate. The form is both speaker and message in DNA." [10] On his account, the information contained in the genetic material is a kind of expression of the form that is analogous to human speech and serves as a kind of intermediary betvveen form and matter. This may seem somewhat farfetched, but it is worth noting that Aristotle frequently refers to a thing's form as its logos-speech, formula, definition. [11] When Aristotle calls the form a *logos* he is not simply referring to the form as it exists in the mind of the knower; rather, .he is indicating that human speech is itself a reflection of the intelligibility of the form that is in the matter. [12] Indeed, Sokolowski suggests that the discovery of DNA lends greater credibility to Aristotle's notion of form by showing that it is not merely a projection of the human mind. When we "give expression to the form in our speech about the world, we are giving a more elevated spiritual formulation to something that has already been expressed by nature itself." [13] To the extent, then, that contemporary science has shown that DNA is a "genetic code," or "'blueprint/' for a living organism, it reveals the inadequacy of a purely mechanical explanation of life and seems to point instead towards the Aristotelian notion of substantial form.

In addition to the problem of genetic information, there is another difficulty with viewing DNA as the means of reducing biology to physics and chemistry. While molecular biology has provided powerful evidence that DNA contains a genetic code for

[10] Robert Sokolowski, "Formal and Material Causality in Science," *Proceedings of the American Catholic Philosophical Association* 69 (1995): 64.

[11] See Aristotle, *De Anima* 2.1.403b2 (with 403a24); 2.2.414a9, 13, 28; 2.4.415b15; *Metaphysics* 7.15.1039a21; 8.1.1042a28; 12.2.1069b33. See also *Parts of Animals* 1.1.642a20.

[12] For a discussion of human speech as a reflection of the language of nature and its place in Aristotelian philosophy, see Jacob Klein, "Aristotle, an Introduction," in *Jacob Klein: Lectures and Essays,* ed. Robert B. Williamson and Elliott Zuckerman (Annapolis, Md.: St. John's College Press, 1985), 175-79.

[13] Sokolowski, "Formal and Material Causality in Science," 64.

protein synthesis, this is insufficient to explain morphogenesis, the genesis of the overall shape, or form, of the organism. This is especially dear in multicellular organisms which contain identical DNA in every ceH of the body. The DNA in the nucleus of a heart cell is the same as the DNA contained in the nudei of the liver and lung cells. Thus, although every cell contains the same genes, not every gene is *expressed.* In the process of growth and development cells differentiate and different kinds of cells produce different proteins. Since each ceH makes use of only a part of the genetic code, we must appeal to some other principle to explain the specific shape or form of the whole organism. But this is precisely where Aristotle's notion of substantial form seems most readily to apply since he calls it the "shape" *(morphŞ)* or "look" *(eidos)* of a thing. Aristotle does not mean to reduce a thing's substantial form to its physical shape or outward appearance, [14] but a thing's shape, the way it looks, is the most immediate manifestation of its nature. Hence, although there is much we do not know about the function of DNA in the growth and development of a living organism, the little we do know does not support a mechanistic understanding of life, but points instead towards the need to posit a substantial form as an intrinsic principle of motion and rest.

ORGAN TRANSPLANTS

A second objection to the Aristotelian/Thomistic notion of substantial form comes from abHity of modern medicine to transplant organs of the body. Modem medicine that many, if not most, of the parts of the can be kept alive after the death of the organism and can even retain their various functions. During heart-transplant the heart is removed from the body of the donor and placed in an oxygen-rich solution that enables it to carry on metabolic functions. heart is even able to beat on its own outside the body. But if the heart and other organs of the body can be kept alive after the departure of

[14] See Aristotle, *Parts* L11640b27-64fa7.

the soul, this suggeststhat the soul is not the cause of the being of the heart. The solution to this difficulty is, I believe, relatively simple: the organs of the body need to be *kept* alive. Since the body begins to corrupt almost immediately after the departure of the soul, the organs of the body only retain their ability to function if they are *artificially*sustained. Indeed, even after an organ has been transplanted into the body of the recipient, it is able to stay alive and perform its function only with the help of drugs that suppress the immune system of the recipient which tends to reject the transplanted organ as a foreign body. Thus, the success of organ transplants does not undermine the principle that the being of the parts of a living body are caused by an intrinsic principle, namely, the soul, since transplanted organs are only able to stay alive by means of artificial interventions that aim to slow down the process of corruption and decay.

One might object that the organs of the body corrupt, and the cells corrupt, but the material elements of the body do not corrupt. Water does not chemically alter when it is absorbed by a living organism and when death ensues it remains unchanged. What prevents us from saying that we can account for the structure and function of the body and all of its organs by means of the material elements, elements whose physical and chemical propertie$ remain even when the organism corrupts? The difficulty here is that we cannot explain the unity of the organism by appealing to the material elements since the material elements are themselves in a state of constant flux. The cells of the body are constantly falling apart, only to be replaced by new cells. And this turnover requires a rather dramatic change in the material elements of the body, the most obvious being water. Given the dramatic turnover among the material elements we need some other source of unity.

There is another difficulty, however, with the materialist explanation of the body: it supposes that the properties of the heart measured by the physicist and the chemist are real, but the properties observed by the biologist can merely be explained away. But this is to suppose that one has already demonstrated

that living organisms can be reduced to the sum of their parts. Once we dismiss the heart's pumping of the blood, the seeing of the eye, and the grasping of the hand, we do away altogether with the phenomena of life. The materialist explanation explains the phenomena of life by simply explaining it away.

V. MECHANICAL CAUSES *VERSUS* THE FORMAL CAUSE

A final objection to the notion of substantial form is the assumption that a mechanical explanation of the body is somehow incompatible with an explanation that appeals to the wholeness of the living body. One might think that an explanation of how the body works by means of the physical and chemical properties of the parts is necessarily opposed to an explanation that begins with a principle that makes the parts to be parts. Thus, as modern science advances in its explanation of the mechanisms of the body, an appeal to some kind of holistic explanation seems less and less tenable.

For Aristotle, however, the mechanical explanation of *how* the body works is not opposed to the explanation of *why* it works the way it does. Things produced by nature, Aristotle notes, are produced in the same way as works of art: "Thus if a house, e.g., had been a thing made by nature, it would have been made in the same way as it is now by art; and if things made by nature were made also by art, they would come to be in the same way as by nature" *(Physics* 2.8.199a13-15). In commenting on this passage, St. Thomas notes that this principle is "dear in regard to health, which happens to be produced by art and by nature. For as nature heals by heating and cooling, so also does art" (II *Phys.*, lect. 13, sect. 257). For Aristotle and St. Thomas, then, the appeal to nature as an intrinsic principle is not opposed to employing what we might describe as a mechanical explanation. It is not as if artifacts operate mechanically and natural things somehow work in an entirely different way. Indeed, it appears that mechanical causes need to be supplemented by another kind of cause, one that complements rather than opposes mechanical causes. If we

look at an artifact such as a watch, we see that the mechanical explanation is only half of the story: I can explain *how* a watch works, but I still need to appeal to the watchmaker to explain *why* the various parts of the watch are found together. Similarly, the mechanical explanation of the functions of the body may explain how the parts of the body work together, but it does not explain why the material elements are found together in such and such an order in the first place nor how this order is maintained. It seems, then, that we must appeal to some other principle to account for the unity of an organism, a principle that makes use of mechanical causes in a way analogous to the artisan's use of the materials at his disposal. [15]

VI. CONCLUSION

Living things are similar to the organized bodies that are the product of art in that they need some kind of cause, in addition to material and mechanical causes, to explain their unity. Unlike art, however, an external intelligent agent alone is not enough to

[15] Aristotle describes the two forms of explanation I have been describing-the why and the how-as working in tandem in *Parts of Animals* 1.1.642a31-642b2b2, where he asserts that our explanations of natural things must alternate between two different senses of necessity, hypothetical necessity which explains *why* the materials are present in such and such an order and absolute necessity which refers to a kind of necessity that we would describe as mechanical:

> Of the method itself the following is an example. In dealing with respirntion we must show that it takes place for such or such a final object; and we must also show that this and that part of the process is necessitated by this and that other stage of it. By necessity we shall sometimes mean hypothetical necessity, the necessity, that is, that the requisite antecedents shall be there, if the final end is to be reached; and sometimes absolute necessity, such necessity as that which connects substances and their inherent properties and characters. For the alternate discharge and re-entrance of heat and the inflow of air are necessary if we are to live. Here we have at once a necessity in the former of the two senses. But the alternation of heat and refrigeration produces of necessity an alternate admission and discharge of the outer air, and this is a necessity of the second kind. (Aristotle, *De Partibus Animalium,* trans. William Ogle, in *The Basic Works of Aristotle,* ed. Richard McKeon [New York: Random House, 1941], 651)

account for the being of a living organism. The grovvth of a living organism, the dramatic corruption of the body after death, and the unity that prevails over the almost startling turnover among the parts of the body all point to the notion of substantial form, a form that is not a *result* of the coming together of the parts of the body, but their cause. Of course, as we know from St. Thomas's fifth way, a vigorous defense of the importance of a thing's nature or substantial form does not preclude us from asserting that we need God as an intelligent agent guiding nonintelligent beings to their end. Like the design theorists, Thomas appeals to nature as the "divine art." For Thomas, however, God is not an *external* agent; rather he works from within the creature, through its nature. [16]

[16] See Aquinas, *Summa Theologiae* I, q. 105, a. *5; De Potentia Dei* III, q. 7; and *Summa contra Gentiles* In, c. 67.

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NATURE ACTS FORAN END

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THIS ARTICLE I shall explain and defend the principle that nature acts for an end. When Aristotle and St. Thomas assert this principle they are speaking of purposefulness apart from intervention, since it is obvious that man can employ just about any natural thing for his own purposes. As Aristotle puts it, "We use everything [in nature] as if it were there for our sake."[1] Thus, the question is whether natural things of themselves have purposes. Other ways of stating the thesis are: Nature does nothing in vain; nature acts for what is better; nature does not fail in necessary things; apart from human influence purpose is a real cause in natural things. Or as Aristotle says in *On the Parts of Animals,* "Everything that nature makes is a means to an end."[2]

A sign of the great importance of the purposefulness of nature is that it has applications in several sciences. Whether nature acts for an end is important for natural science, since we know a thing most perfectly when we know its causes. Now purpose is not only a cause. It commands and illuminates the other kinds of cause: matter, form, and mover. Therefore, if purpose is found in natural things it will illuminate these things more than the other causes will in themselves.

[1] **Aristotle,*Plrysic.s*2.2, in RichardMcKeon, ed., *The Basic Works of Aristotle* (New York: Random House, 1970), 240. All subsequent quotations of Aristotle are from this edition.**

[2] **Aristotle, *On the Parts of Animals* 1.1 (McKeon, ed., 649).**

It is also important for ethics. If nature acts for ends then man has a natural purpose. It belongs to ethics to define the purpose of human life but the basis for this definition must be found in natural philosophy. Also, if there were no wisdom in nature, it would be pointless to use nature as a measure of human acts, as in the natural moral law. If our ability to eat, or our sexual faculty, or our power of speech do not have natural purposes, then it will be impossible to abuse them, since abuse means using a thing in a way contrary to its natural purpose.

The consequences for political science are equally serious. If human nature is ordered to a common good, then some sense the city will be "a creation of nature," as Aristotle contends. [3] But if nature does not aim at the common good, then human beings will have no natural inclination to live together and any government will have to be imposed artificially on them, as Hobbes, Locke, and Rousseau maintain.

It is important for the arts whether or not nature is wise and purposeful, especially those arts such as agriculture and medicine that build on nature and cooperate with it. Emphasizing the centrality of purpose, St. Thomas observes, "In those cases in which something is done for an end, as occurs in the realm of natural things, in moral matters and art, the most forceful demonstrations are derived from the final cause." [4]

There are consequences for metaphysics. Nature acting for an end can be used as a minor premise in a proof for God's existence, as in St. Thomas's fifth way. Further, if wisdom and goodness are found in nature, this can give us insight into the wisdom and goodness of God.

If natural things do not act for an end, then no action or product of nature is the object of an innate inclination or tendency. If that is true, then there are no innate inclinations or tendencies. And if that is true, there is no nature. This is why Aristotle says that those who daim nature does not act for end entirely do

[3] Aristotle, *Politics* 1.2 (McKeon, ed., 1129).

[4] Aquinas, V *Metaphys.,* lect. 3, in Thomas Aquinas, *Commentary on Aristotle's Metaphysics,* trans. John P. Rowan (Chicago: Henry Regnery, 1961), 311 (no. 782).

away with nature and what exists by nature. For those things are natural which, by a continuous movement originated from an internal principle, arrive at some completion: the same completion is not reached from every principle; nor any chance completion, but always the tendency in each is towards the same end, if there is no impediment. [5]

That nature acts for an end needs to be shown. In *Physics2.3* Aristotle distinguishes four kinds of cause. The first three are obviously found in natural things. He devotes a whole chapter (2.8), however, to showing that purpose is also a cause in nature. The material cause is evident since all natural substances are made from matter. The material cause explains why a tongue is flexible but bones are not. The formal cause is also obvious, since form and matter always go together. Form is what makes an incisor different from a molar. The moving cause is also obvious in natural things: the sun warms the earth, a snake kills a rodent. Purpose, however, though obvious in our own actions, is not as obvious as the other three causes are in natural things apart from man" It is easy to find examples of the good in nature, but it is not easy to see how the good is a cause in natural things. Proof and explanation are required"

Whether nature acts for an end is a disputed question, as can be seen from the many arguments raised on both sides" Consequently, in the tradition of St Thomas, I will follow in this article the format of an article in the *Questiones Disputatae.* Such articles have four main parts: numerous objections, several probable arguments to the contrary, a corpus that offers more coercive evidence, and responses to the objections" Hence we proceed to the objections"

VIDETUR QUOD NON

The scientific investigation of the truth begins with a careful consideration of the difficulties. [6] There are many reasons that

[5] Aristotle, *Physics* 2.8 (McKeon, ed., 251).

[6] Aristotle, *Metaplrysics* 3.1 (McKeon, edo, 715).

might lead someone to think that purpose, apart from our own ends, is not found in natural things.

1) Nature Has No Mind

Since nature does not have a mind of its own, it is anthropomorphic to say that nature acts for an end. Without a mind, nature cannot know which means are required to achieve a given end, and therefore cannot act for the sake of it. Embryologist and geneticist C.H. Waddington writes, "Natural philosophy nowadays rejects teleological ideas because they appear to demand the existence of some self-aware being who can formulate purposes and ends."[7]

2) The Posterior Cannot Cause the Prior

What comes after cannot be a cause of what comes before. Thus, the end result, which is the last thing in any sequence, cannot be the cause of anything prior to it. Therefore, the notion of an end as a cause is illogical and unscientific. Hence, Spinoza says the doctrine of final causes overturns nature, "for that which is really a cause it considers an effect and *vice versa.*"[8]

3) Darwin Banished Purpose from Natural Science

Darwinians argue that nature does not act for an end, but produces things at random and only those organisms with favorable characteristics survive. So what looks like purpose in natural things is not intended at all but is the result of survival of the fittest. Nineteenth-century biologist Thomas Huxley declared that "teleology ... received its death blow at Mr. Darwin's hands."[9]

[7] C.H. Waddington, *The Nature of Life* (New York: Harper & Row, 1961), 118-19

[8] Benedict de Spinoza, *The Ethics* [appendix to Part 1], trans. R. H. M. Elwes, in *The Rationalists* (Garden City, N.Y.: Doubleday, 1960), 211.

H. Huxley, *Lecturesand Essays* (New York: Macmillan, 1904), 178-79.

4) Simplicity Eliminates Purpose

The principle of simplicity is one of the most respected and most frequently used principles in all the sciences. It states that the simpler explanation is better (other things being equal). But everything in animals and plants can be explained by matter, structure, mover, and chance. Therefore, purpose is superfluous.

5) The Mover Explains the Entire Effect

If we can assign a cause that accounts for *all* of an effect, then any further cause is unnecessary. Growth, for instance, produces the entire structure of an animal, not just part of it. Therefore, apart from growth, there is no need to invoke any further cause such as purpose to explain the structures of animals and plants.

6) Nature Produces What Is Bad

Every day some babies are born with a defective heart, others with a dub foot, still others with a deft palate, yet others with cystic fibrosis. Thousands of birth defects occur every year. We see the same among animals. Two-headed animals and all sorts of other monstrosities are found in nature. Since in these cases nature produces what is bad, it cannot be maintained that nature is aiming at the good.

7) In Living Things Disease Is Common and Death Is Universal

If my body is invaded by a parasite transmitted through a mosquito bite and I contract malaria, nature is certainly not acting for my good. Thousands of diseases afflict plants, animals, and man. Also, since all living things die, and this is their natural end, we have to conclude either that death is a good thing, or that nature does not aim at the good.

8) Necessity Explains All

Rain falls to the ground not in order to make the wheat grow but from the necessity of material and agent causes. The heating of water by the sun, its consequent evaporation and rising, its subsequent condensation and falling to earth by gravity-all of these phenomena are inescapable processes having nothing to do with purpose. And if heavy rain happens to destroy the wheat, it did not fall for the sake of that either; this result just followed. Thus, things occur in nature not for the sake of anything, nor because it is better for them to happen, but out of necessity.

9) Many Natural Events Have No *Purpose*

No one can seriously suggest that earthquakes occur in order to achieve some kind of goal. Eclipses of the sun bring about no special benefit for the sun, the moon, or the earth. The same holds for hurricanes, tidal waves, avalanches, and other such things in nature, which are often very destructive. It is neither helpful nor illuminating to maintain that these events serve some kind of purpose.

10) Useless Organs and Waste Refute Purpose

We can point to many useless organs in animals: the wings of the ostrich, the human appendix, the functionless eyes of blind cave fish. Wasteful processes are also found in nature. For example, biologist Peter Farb points out that "only a small percentage of the water taken in by a tree's roots is retained; most of it is evaporated from the leaves, serving no use and being lost in the atmosphere. "[10] The average tree takes in eighteen times the amount of water it needs to maintain itself and produce wood. Therefore, the claim that nature does nothing in vain is untenable.

[10] Peter Farb, *The Forest* (New York: Time Life Books, 1969), 99,

11) Nonliving Things Exhibit No *Purposes*

If purpose is found in natural things because they are natural, then it must be found in nonliving natural things. But it is impossible even to imagine what a stone's purpose might be, or what end water could possibly be pursuing. Therefore, purpose is not in natural things.

12) Mathematics Does Not Use Purpose

Of all the sciences, mathematics has the greatest rigor, precision, and clarity. But mathematics never makes use of purpose to prove anything or to explain anything. Therefore, reference to purpose is not appropriate in any rigorous science.

13) Purpose Presumes God

Proponents of purpose presume a God who created all natural things and then argue that since God acts with intention and purpose, natural things must therefore be purposeful. This is an inappropriate intrusion of theology into natural science. In this vein Descartes says, "The species of cause which we term final is not applicable in respect of physical things; for, as it seems to me, we cannot without foolhardiness inquire into and profess to discover God's inscrutable ends."[11]

14) Purpose Is a Projection of the Human Mind

Purpose in natural things is an anthropomorphic projection of the human mind. Because we ourselves act purposefully, we unwittingly read purpose into natural phenomena. And because we use natural things for our own ends we presume that they are purposeful in themselves. For these reasons Spinoza concludes that "final causes are mere human fictions."[12]

[11] Rene Descartes, *Meditations N,* in *Descartes Philosophical Writings,* trans. Norman Kemp Smith (New York: Random House, 1958), 214.

[12] Spinoza, *The Ethics,* 211.

15) Purpose Is Too Easily Abused

If purpose is allowed into natural science there will be no way to prevent its abuse. Are we to say the purpose of noses is to support glasses? Or that rabbits have large, fluffy tails to make them better targets for hunters? This kind of pseudo explanation is ludicrous and incompatible with the dignity of science.

These are the chief philosophic and scientific arguments against purpose. Some urge that it is superfluous; others, that it cannot be a cause at alt They present a formidable case against nature acting for an end. There are, nevertheless probable arguments that indicate that there is truth in the contrary position, implying that the above reasons do not settle the question.

SEDCONTRA

1) Testimony from Biologists

The testimony of eminent biologists on this question is dear and emphatic. Alexander Oparin states, "The universal purposiveness of the organization of living beings is an objective and self-evident fact which cannot be ignored by any thoughtful student of nature. "[13] Peter Medawar offers examples: *"Of course,* birds build nests in order to house their young and, equally obviously, the enlargement of a second kidney when the first is removed comes about to allow one kidney to do the work formerly done by two. "[14] Edmund Sinott says, "Life is not aimless, nor are its actions at random. They are regulatory and either maintain a goal already achieved or move toward one which is yet to be realized. "[15] Francois Jacob: "There is a definite purpose in

[13] A. I. Oparin, "The Nature of Life," in *Interrelations: The Biological and Physical Sciences,* ed. Robert T. Blackburn (Chicago: Scott, Foresman, 1966), 194.

[14] P. B. Medawar and J. S. Medawar, *The Life Sciences: Current Ideas of Biology* (New York: Harper & Row, 1977), 11, 12.

[15] Edmund W. Sinott, *Cell and Psyche: The Biology of Purpose* (New York: Harper & Row, 1961), 46.

the fact that a hemoglobin molecule changes shape according to oxygen pressure; in the registration by a frog's eye of the forms moving in front of it; in the mouse fleeing from the cat; in the male bird parading in front of the female."[16] Ernst Mayr "The occurrence of goal-directed processes is perhaps the most characteristic feature of the world of living organisms."[17] Jacques Monod adds, "One of the fundamental characteristics common to all living beings without exception is that of being objects endowed with a purpose."[18] Further testimony of this same kind could be cited from Francisco Ayala, Theodosius Dobzhansky, W. H. Thorpe, George Simpson, Robert Ricklefs, and many others.[19] The agreement of these authorities does not make the conclusion that there is purpose in nature true, but it does make it probable.

2) Purpose Distinguishes Biology among the Sciences

Purpose is one of the features that distinguishes the life sciences from physics and chemistry. Biologist Niko Tinbergen says, "Whereas the physicist or the chemist is not intent on studying the purpose of the phenomena he studies, the biologist has to consider it."[20] Physicist Niels Bohr echoes the same sentiment, "A description of the internal functions of an organism and its reaction to external stimuli often requires the word purposeful, which is foreign to physics and chemistry."[21] Thus, purpose is an essential part of the method of biology in contrast to physics. But unique characteristics of a science's method flow

[16] Francois Jacob, *The Logic of Life: A History of Heredity,* trans. Betty E. Spillman (New York: Pantheon Books, 1973), 8.

[17] Ernst Mayr, *Toward a New Philosophy of Biology* (Cambridge, Mass.: Harvard University Press, 1988), 45.

[18] Jacques Monod, *Chance and Necessity: An Essay on the Natural Philosophy of Modem Biology,* trans. Autryn Wainhouse (New York: Knopf, 1971), 9.

[19] Robert Augros and George Stanciti, *The New Biology* (Warner, N.H.: Principle Source Pub., 2002), 196-99.

[20] Niko Tinbergen, *Social Behavior in Animals* (London & New York: Methuen and Wiley, 1962), 2.

[21] Niels Bohr, *Atomic Physics and Human Knowledge* (New York & London: Wiley, 1958), 92.

from the science's unique subject matter. The subject of biology is living things. Therefore, purpose is found in living things.

3) Agency Entails Purpose

If a natural agent were not inclined to produce any definite effect, then it would not be inclined to act at all. But if it were not inclined to act at all, it would not be an agent. Thus, in order to act, every natural agent must be indined to produce some definite effect. But this is what it means to act for an end. Therefore, every natural agent acts for an end.

4) Purpose Is a Principle of Discovery

Purpose is so pervasive and so fundamental that it is a principle of discovery in biology. Biologist Ernst Mayr asserts that "great advances in biology" have been made by asking what purpose is being served by an organ, a behavior, or a process. [22] Finding some unusual structure in a cell, or observing some unusual but consistent action in an animal, the experienced biologist knows that it is there for a reason. Biologist Lucien Cuenot remarks, "'Purpose has shown rare fecundity: it is because we thought that every instrument must have an end that we have discovered the roles of organs long considered enigmatic, such as internal secretory glands. "[23] H purpose were not inherent in living things, it would never be a helpful guide in making new discoveries in biology. But purpose is a fruitful source of prediction, and explanation in biology. Therefore, living things incorporate genuine purposes.

5) Purpose in the Universe at Large

Convincing evidence for purpose is also found outside biology. Physicists and astrophysicists such as Stephen Hawking, Freeman

[22] Mayr, *Toward a New Philosophy of Biology,* 54.

[23] Lucien Cuenot, *Invention et finalite en biologie* (Paris: Flammarion, 1941), 245, my translation.

Dyson, and John A. Wheeler,[24] among others, point to many characteristics of our universe, such as its present size, rate of expansion, and the life cyde of stars, that are inexplicable unless we assume that the universe is aimed at making life possible. This kind of reasoning from an end to the means necessary for it has been named the Anthropic Principle. It argues that orientation to a goal was dearly observable in the very structure of the universe itself billions of years before life began on the earth. Astronomer Hugh Ross documents sixteen physical and astronomical features of our universe that appear uniquely suited for life.[25] Molecular biologist George Wald asserts, "if any one of a considerable number of physical properties of the universe ... were other than it is, ... life ... would become impossible, here or anywhere." He concludes, "This is a life-breeding universe."[26] None of Darwin's theories have any application to these pre-life conditions of the universe and so are powerless to discredit this evidence for purpose.

Such are the probable arguments that support the purposiveness of natural things.

RESPONDEO DICENDUM QUOD

Aristotle, in *Physics* 2.8, offers cogent reasons by which the question of whether nature acts for an end can be resolved. I will review most of Aristotle's arguments, supplementing them with contemporary examples.

[24] In Robert Augros and George Stanciu, *The New Story of Sciem;e* (Warner, N.H.: Principle Source Pub., 2002), 65-69.

[25] Hugh Ross, *The Fingerprint of God* (Orange, Calif.: Promise Pub., 1989), 121-28.

[26] George Wald, "Life and Mind in the Universe," in *International Journal of Quantum Chemistry: Quantum Biology Symposium* 11 (New York: Wiley, 1984), 26-27.

1) Evidence From the Frequency of Natural Results

Everything that comes to be, does so either by chance or from some cause aiming at it, for chance is simply the denial that the result was intended. For example, if a man, while digging a hole to make a well, finds a buried treasure, we say that this occurs by chance, since he did not know about the treasure ahead of time and did not dig the hole for the sake of finding it. Conversely, if something occurs not apart from intention, then it was not from chance and something was aiming at it Thus everything that comes to be, does so either because something is aiming at it or by chance. Necessity is not a distinct alternative because if a natural thing produces a certain result by necessity, then it is aiming at that result.

But it is impossible that what comes about always or most of the time in the same way be the result of chance, for chance events are rare. We do not ascribe subzero weather in January to chance, but in July we do, because it is so rare. Therefore, whatever comes about always or most of the time in the same way comes to be because some cause is aiming at it.

Now the nature of each thing produces what is good for it either always or most of the time. Therefore, nature aims at the good, or, in other words, nature acts for an end.

2) Evidence from Growth

Growth is dearly going somewhere. It is aiming at something: the mature adult of the species. The proof is that it stops when it gets there, just like a sculptor keeps chipping away at the marble until the form of the statue is complete. If growth went in random directions or never stopped, then someone might plausibly daim that it occurs by chance. Notice that all plants and animals and their organs are produced by growth. Thus in these cases nature acts for an end. Growth is not just increase in bulk. It entails the production of different kinds of parts: brain, bones, lungs, digestive system, and aH the other organs. An organism makes its

own parts. No machine does this. In growth, the end illuminates the moving cause. We can understand why the embryo goes through this or that development, namely, because the final product requires, for example, sense organs to perceive things, a heart to pump blood, lungs to breathe.

A special case of growth is healing. Nature heals a wound and restores the natural tissue as much as possible, often to the point that the injury leaves no trace. And healing stops there. It does not continue adding new tissue indefinitely. This is obviously very good, and it is so natural that we take it for granted. Human artifacts do not have the power of self repair. Without the body's ability to heal itself, the art of medicine could not function. After all, it is not the doctor who knits a broken bone back together. The doctor only sets the bone in the right position. Nature does the healing. Healing also occurs in trees, as is seen when the tree's bark slowly grows over the wound left by a sawn-off limb. In lower animals and in plants growth can even restore a lost limb. As Aristotle points out, plants send their roots down, not up, for stability and nutrition. [27] This is clearly good for the plant. If boat builders could make the wood itself grow into a boat, they would do so. This shows the superiority of nature over art: nature grows her works.

3) Evidence from the Actions of Animals

Without purpose animal actions would be unintelligible. This is seen both in what animals make and in what they do. When a robin builds a nest, it does not make what just happens to be a nest. Nor does the bird build the nest by chance while trying to do something else. And a nest clearly serves a purpose. The word *nest* means a structure formed by a bird for the incubation and rearing of its young. A beaver builds a dam; a spider spins a web; a fox digs a burrow. These products are obviously purposeful.

During the spring, summer, and fall, worker bees, upon returning to the hive after foraging, will frequently move about in

[27] Aristotle, *Physics* 2.8 (McKeon, ed., 250).

a distinctive figure-eight pattern. They do not do this simply because of what they are made of or because of their structure, otherwise they would always do it. Nor does an exterior mover explain the activity. Neither gravity nor the wind explain it, since it happens on calm days and never in the winter. Why do certain bees do this only under certain conditions? The classic work by Karl Von Frisch on this topic established that it is a communication system. It is very useful if many worker bees can together exploit an abundant source of nectar and pollen. By the way it walks in a figure-eight pattern on the wall of the hive, wagging its bottom, the worker communicates to other bees the direction of the find and how far away it is. It is impossible to understand what the waggle dance is unless one sees what it is for: communication of important information. Matter, form, and moving causes explain why the bee is *able* to move in this way but not why it *does* so. Purpose cannot be avoided if one is to understand the actions of animals.

Biologist Ernst Mayr says, "Nothing could be more purposive ... than ... the escape behavior in many prey species."[28] Certain birds, such as the plover and the killdeer, lay their eggs on open ground. If a predator comes near, the parent that is incubating the eggs hurries away from the nest and begins to flop about, beat the dust, and drag one wing as if it were broken. This leads the intruder away from the nest, and when it doses in for the kill, the bird simply flies off. This is called "the broken wing display" and is very convincing even to human observers. No one is suggesting that these birds comprehend what they are doing or that they consciously invented these ingenious techniques. They just carry them out and benefit from them without verbalization, reflection or analysis. In all events, the instinct of these birds is dearly aiming at what is good for them.

Every instinct of every animal is purposeful: getting food, finding a mate, avoiding an enemy, providing shelter, or pursuing some other unmistakable end. In fact, Darwin puts purpose into his definition of instinct:

[28] Mayr, *Toward a New Philosopby of Biology,* 49.

An action, which we ourselves require experience . . . to perform, when performed by an animal, more especially by a very young one, without experience, and when performed by many individuals in the same way, without their knowing for what purpose it is performed, is usually said to be instinctive.[29]

Instinct is found in all animals. Nature enables each species to pursue what is good for it and avoid what is harmful by programming into it the right response to each critical stimulus. This is supremely purposeful. It would be a challenge for a human being to invent the proper instincts for *one* hypothetical species of animal-what it should do, when and how it should do it-so as to guarantee the best possible outcome in every critical situation during the entire life of the animal. Nature, however, has done just that, and not merely for the honey bee and the plover but for all animal species, from the cricket to the koala, from the stegosaurus to the blue whale.

Animal actions are clearly purposeful. But animals act by instinct, that is, by nature, not by understanding. Therefore, in millions of instances, nature acts for an end.

4) Evidence from the Organs of Animals and Plants

Every tool is defined by its purpose. An axe is for chopping wood. A hammer is for pounding things. All animals and plants are made up of tools that are called organs. The human eye, for instance, is made in such a way that it is perfect for seeing; if it is altered from its natural disposition, it is no longer suitable for that purpose.

The organs of animals are so obviously made for definite purposes that even a nonspecialist can figure out what kind of life an animal leads simply by looking at the equipment it has been given by nature. What does the eagle do with its powerful talons? They are as useless for swimming as the duck's webbed feet are for grasping prey. The beak of the cockatoo is short, blunt, and has a fulcrum as powerful as a pair of pliers. The cockatoo uses it to crack the hard nuts that are its food. Such a bill would be

[29] Charles Darwin, *The Origin of Species* (New York: Mentor, 1963), 228.

worthless for trying to sip the nectar from the bottom of the nectaries of orchids. The sword-bill humming bird, on the other hand, has a slim, pencil-shaped beak that is six inches long and perfect for such a task, though utterly incapable of cracking nuts. Each animal is magnificently equipped to perform the special operations necessary for it to make a living. In plants and trees the roots, leaves, and vascular systems are all clearly purposeful.

Purpose does not stop at the level of the organ. Each of the tissues composing the organ has its own purpose, as does each cell in the tissues and so on right down to the biomolecules. For example, the specific job of hemoglobin is to store oxygen in the blood. Chlorophyll captures from sunlight the energy plants need to live and grow. DNA stores the chemical blueprint for building an organism. Every living thing uses enzymes to facilitate metabolic reactions in the cell. All of these biomolecules are manufactured by the organism itself. Nature is shot through with purpose at every level. Every detail of the sciences of anatomy, physiology, embryology, histology, cytology, and molecular biology offers further evidence that nature is purposeful. The intensity of purpose in the organs of every living thing is nothing short of astonishing.

Organs and their parts are so purposeful that very often they serve more than one end at the same time, a rarity in human products. The slippery coating natural to fish, for example, helps them to foil predators. It also repels parasites, and this laminar layer of slime allows the fish to swim through the water with 40% greater efficiency. Whale blubber provides insulation, food storage, and buoyancy for the whale. Blood in the higher animals has six purposes: (1) it carries nutrients from intestines to all parts of the body, (2) it takes oxygen from lungs to cells and carbon dioxide back again, (3) it takes the waste products of metabolism to the excretory organs, (4) it distributes internal secretions such as hormones, (5) it defends the body against infective agents, (6) circulation aids in maintaining uniform distribution of body heat.

It is rare to find a human product that serves more than one purpose well. But it is normal for the parts of living things to

serve several ends at the same time. All the organs of plants and animals and their parts, and the parts of their parts, are purposeful. Everyone agrees that these organs are produced by nature. Therefore, in these millions of cases nature is purposeful-much more profoundly so, in fact, than are human artifacts.

5) The Argument from Art Imitating Nature

Nature is prior to art in six ways. (1) Nature is prior in time. Several million years ago there were no human beings on the earth, and consequently no artificial things. But at that time natural things certainly existed and functioned normally. All the laws of physics, chemistry, and biology were in place and fully operative. (2) Art depends on nature for the raw materials it uses. In this sense art is man added to nature. Artificial materials such as plastics are made from petroleum which ultimately comes out of the ground. (3) Art must operate on natural materials according to the laws of nature. "Nature to be commanded must be obeyed,"[30] writes Francis Bacon. (4) Man himself is a natural thing; he is an effect before he is a cause. His mind, hands and all of his faculties are provided by nature. (5) Man has a natural need to make artificial things. This is not true of other animals. Man is born naked and must provide himself with clothing of his own manufacture, invent a language to communicate, make his own weapons and tools and shelter. Nature provides these for the other animals by anatomy or by instinct. (6) Man often uses natural things as models for the artificial things he makes. In this last way art imitates nature.

Assume for a moment that it is impossible to become a great writer of epics without following Horner, either deliberately or unwittingly. If this were true, Homer would have to be the paradigm of epic writers. If it were impossible for anyone to compose beautiful music without following in the footsteps of

[30] Francis Bacon, *Novum Organum,* aphorism iii, in *The English Philosophers from Bacon to Mill,* ed. Edwin A. Burtt (New York: The Modern Library, 1939), 2!L

Mozart, then Mozart would have to be an outstanding composer of beautiful music. If no one could philosophize well without imitating Socrates, either knowingly or inadvertently, then Socrates must have been doing very good philosophy. And so universally, if to do something well we must imitate a certain model, then that model has the quality in question in a preeminent manner.

AH of the human arts are purposeful: each is defined by the goal at which it aims. *But no art can achieve its goal without imitating nature in this: nature puts the right matter into the appropriate form to achieve the goat* For instance, to make an incisor suitable for biting, nature puts enamel into a chisel-like shape. None of the practical sciences, and none of the arts, servile or fine, can achieve their goals without imitating this procedure. The axe maker cannot make a tool that is able to chop wood unless he puts metal into a blade shape. A builder cannot construct a house except by assembling the appropriate building materials into a suitable form. An orator cannot persuade the crowd unless he first assembles the materials of the case and then puts them into an ordered speech with enthymeme and example. In the foreword to his commentary on Aristotle's *Politics,* St. Thomas shows how political wisdom necessarily imitates nature. [31]

Therefore, if none of the human arts can act in a purposeful way without imitating the way nature does it, then nature must be *preeminently* purposeful. This is why Aristotle says, "In the works of nature the good end and the final cause are even more dominant than in works of art."[32]

Conformity to nature's prototypes occurs in two ways. Sometimes human art deliberately copies nature, as when military camouflage imitates the principles of camouflage in animals, as vaccination builds on and copies the body's natural process of developing immunity, or as the wings of the first fighter jets were patterned after the swept-back wings of the fastest flying birds.

[31] Aquinas, I *Polit.,* lect. 1., in Vernon J. Bourke, ed., *The Pocket Aquinas,* trans. Vernon J. Bourke (New York: Washington Square Press, 1960), 230-32.

[32] Aristotle, *On the Parts of Animals* 1.1 (McKeon, ed., 644).

There are hundreds of military, medical, and industrial applications of nature's purposefulness.

In other cases, human ingenuity finds the best way to do something, only to discover afterwards that nature thought of it first. For example, the largest seagoing vessel of the 1850s was the *Great Eastern,* a huge iron ocean liner. Despite paddle wheels, a screw propeller, and auxiliary sails, it could not be operated at a profit because it traveled too slowly. Its hull, designed largely by guesswork, caused it to move too much water as it traveled. It could never run efficiently. This engineering blunder provoked a research program that eventually designed a maximally efficient hull shape. Only afterwards was it discovered that the dolphin, the blue whale, the Greenland shark, and the tuna all had this optimal shape, enabling them to move through the water with the least amount of energy expended.[33] Nature never produces fiascoes like the *Great Eastern.*

Sonar was developed during World War II, and years later biologist Donald Griffin found the same principle in the echo-location of bats. Helicopter pilots have found that if they fly at the proper angle behind another helicopter, they can exploit the updraft caused by the other vehicle and get a more fuel-efficient ride. Only subsequently was it recognized that this is why migrating birds fly in V-formation. In human affairs recycling has only recently come into vogue, but if nature did not recycle all her raw materials she would have gone out of business millions of years ago. Omega gray, a paint developed at great cost and labor during the first world war to camouflage battleships, has the same optical properties, wave length, absorption and reflection as the color of an antarctic bird, the petrel. The implication is that human ingenuity could not have given the petrel a better color for camouflage than it received from nature. If whenever human intelligence finds the best way to do something, that way is already operative in natural things, then nature is supremely purposeful.

[33] See Augros and Stanciu, *The New Biology,* 146-47.

The wisdom of nature is very wide and very deep. This is why nature must be the foundation of all the arts and of all human actions. We must build on it, imitate it, and cooperate with it for the best results. For as Aristotle says, "Nothing contrary to nature is good. "[34]

6) The Universality of Purpose

Purpose is found everywhere in nature. In fact, we can discern in every living thing three levels of purpose: organs and activities that serve the individual, others that serve the whole species, and yet others that serve other species. In an oak tree the roots serve the individual good by bringing in nutrients and water from the soil. The oak's acorns are at the service of perpetuating the species, and the oak benefits other species by producing oxygen and preventing erosion. The same is true for animals. The digestive system of the fox serves the individual. Its reproductive organs and mating activities serve the species, and the carbon dioxide that it exhales is useful to plants.

The first two levels illustrate nature acting for an end in the strictest sense, since each organism directly acts for its own well being and for the continuance of its kind. The third level may be said to illustrate a generic sense of purposefulness in natural things but is not strictly a nature acting for an end. In these cases the utility is not aimed at by the organism in question. For example, oxygen is a waste product for the oak tree. The oak's nature is not striving to provide something for animals. Oxygen is a by-product of the oak's metabolism, which does strive to make and maintain wood. Similarly, the honey bee does not intend to pollinate the flowers it visits. It intends to gather nectar and pollen, but in so doing it happens to collect pollen on its body, inadvertently transferring it to the next flower it visits. The same holds for other cases where one species benefits another. This shows how powerful purpose is in nature since even by-products serve some end. In this third, generic sense of purpose, nonliving things are dearly at the service of living things. Life

[34] Aristotle, *Politics* 7.3 (McKeon, ed., 1282).

would be impossible without the sun, the elements, the atmosphere and the laws of physics and chemistry.

AD PRIMUM ERGO ...

Thus, we proceed to answering the objections raised above.

1) Nature Has No *Mind*

Purpose is most obvious in our own activities. We are capable of knowing what we are doing and why. We can freely select the end we pursue, reason about the best way to get there, and finally execute our plans while being fully aware that we can change our minds at any time if we wish. This is to act for a purpose in the fullest, most perfect manner. Only a being endowed with reason can act for an end in this way. Creatures such as animals and plants do not possess reason, so they cannot act for ends in this reflective, free, and fully aware manner. Nevertheless, the animal acting by instinct, though it has no intellectual understanding of what it is doing, is still aiming at some definite goal. Growth in the plant is trying to produce a fully grown mature, adult. Nonliving natural things strive toward something definite by means of the laws of physics and chemistry. If lack of a mind were a valid reason for denying purpose in a thing, then we would have to say thermostats, washing machines, and mouse traps do not have purposes.

2) The Posterior Cannot Cause the Prior

Note first that this objection attacks not only purpose in nature but purpose as a cause anywhere, even in human actions. It would require us to say that we ourselves cannot act for the sake of a purpose. It is true that what comes after cannot be a cause of what comes *before-unless* what comes after is pre-contained in some way in what is prior. In the case of ourselves it is easiest to see how this happens. By intellectual knowledge we understand the

desirability of a certain thing, decide to pursue it, and then initiate the means to get it. For example, a foreknowledge of the finished house already exists in the mind of the carpenter before he starts to build it. And this pre-existing image of the house directs all the activities of its construction.

In a less perfect manner, the future goals of an animal pre-exist in it by means of instinct which merely needs to be triggered by sense perception. How the animal will act, given certain stimuli, is predetermined before it actually encounters anything in experience. And in a similar way the adult oak tree is pre-contained in the power of growth of the acorn which moves toward that end until the oak is foll grown.

As St. Thomas writes, "In some things necessity is not from causes prior in being; namely, matter and mover, but from posterior causes, which are form and end."[35] The end does not precede the matter and the agent as things, but *as causes.* The lumber, bricks, cement, and the windows sitting in the lumber yard are only potentially the material cause of a house. Likewise, the carpenter is only a potential agent cause until a particular end motivates him to procure the necessary materials and begin construction.

3) Darwin Banished Purpose from Natural Science

First, it should be noted that all of the authorities cited above in the first *sed contra* argument are committed to evolution and to natural selection [5] yet they insist that explanations relying on purpose are unavoidable when dealing with living things. Francisco Ayala speaks for the majority of eminent evolutionary biologists when he asserts, "Teleological explanations cannot be dispensed with in biology, and are therefore distinctive of biology as a natural science."[36]

[35] Aquinas, II *Physic.,* lect. 12, no. 250, in *In Octo Libros Physicorum Aristotelis Expositio* (Rome: Marietti, 1954), 122, my translation.

[36] Francisco Ayala, "The Autonomy of Biology as a Natural Science," in *Biology, History and Natural Philosophy,* ed. Allen D. Breck and Wolfgang Yourgau (New York: Plenum Press, 1972), 7.

Second, we must also note that Darwin's theories of natural selection, gradualism, and survival of the fittest have been under attack for several decades from within biology. For example, fossil experts are saying that gradualism never did fit the fossil record and never will. Paleontologist Steven Stanley argues that Darwinian gradualism would require much more time than the age of the earth to produce the variety of mammals we see today.[37] Paleontologist Stephen Gould writes, "The synthetic theory [of evolution] as a general proposition, is effectively dead, despite its persistence as textbook orthodoxy."[38] Genetics has shown that no new species can emerge from point mutations.[39] Ecologists point out that neither geometric increase in populations nor competition between species can be demonstrated by field studies.[40] Also, 98 percent of all extinctions have occurred in massive extinction events, probably caused by meteorite impacts, having nothing to do with fitness or natural selection.[41] Thus if Darwin's theories themselves are suspect, their authority alone cannot be invoked to discard purpose from nature.[42]

Apart from these critiques by specialists, there are serious logical difficulties with neo-Darwinism. The character of nature right now is not to produce things at random but to bring about what is good, either always or almost always. If the Darwinians respond that nature was not that way in the remote past, that at some point it acted blindly and at random, they are postulating an unobserved and unevidenced state of nature. That is to discount what is known on the basis of what is unknown, an unscientific procedure. Also, natural selection presupposes that reproduction and heredity are in place and operating normally, otherwise

[37] Steven Stanley, "Darwin Done Over," *The Sciences* 21 (Oct 1981): 21.

[38] Stephen Jay Gould, "Is a New and General Theory of Evolution Emerging?", *Paleobiology* 6 (1980): 120.

[39] Theodosius Dobzhansky, *Genetics of the Evolutionary Process* (New York: Columbia University Press, 1970), 67

[40] See Augros and Stanciti, *The New Biology,* ch. 4.

[41] Stephen Jay Gould, "The Cosmic Dance of Siva," *Natural History* 93 (August 1984): 14. Also Luis Alvarez, "Mass Extinctions Caused by Large Bolide Impacts," *Physics Today* Uuly 1987): 24-32.

[42] For fuller documentation of the biological critiques of Darwin, see Augros and Stanciu, *The New Biology,* ch. 6.

changes could not be passed on to offspring. But reproduction is itself purposeful.

Finally, it is not generally recognized how destructive is the attempt to resolve everything to chance. It is unlikely but not impossible that all the world's fossils have been formed by chance forces of wind, erosion, and geological causes. In fact, this is much more likely than the odds that all animal species and plants were caused by chance, since living things grow their own organs, reproduce, and are made of many different kinds of parts, whereas fossils consist only of lifeless rock and mineral matter. But if all the world's fossils are mere chance formations and are not the remains of ancient animals, then there is no fossil evidence for evolution or for the origin of any species. And if that is absurd, then it is even more absurd to say that all animal and plant species were produced by chance. One might just as well destroy all of science by insisting that it is possible that all the regularities science observes in nature are mere coincidences.

4) Simplicity Eliminates Purpose

The partial truth in this objection is that a good result can sometimes come about by chance. But this occurs only rarely. A man digging a well finds a buried treasure by chance. But this does not happen with any regularity. One cannot hope to make a living by finding treasures in this way. The reason chance alone cannot produce the good always or most of the time is that useless or harmful possibilities always far outnumber the useful ones. So if there is not some cause *acting for the sake of the good*, the useless or the harmful will win out by sheer force of numbers. Opponents of purpose must offer an example of chance alone producing the good either always or most of the time. If they cannot, then their proposal that all nature is based on chance is not even probable.

Furthermore, simplicity cannot be used to overthrow purpose, for the principle of simplicity itself is based on the assumption that nature acts for an end! Isaac Newton writes, "We are to admit no more causes of natural things than such as are both true and sufficient to explain appearanceso To this purpose the

philosophers say that Nature does nothing in vain and more is vain when less will serve; for Nature is pleased with simplicity and affects not the pomp of superfluous causes."[43] Galileo says, "Nature ... doth not that by many things, which may be done by few."[44] This is *why* the simpler explanation is superior. If one is aiming at a goal and can achieve it with fewer things, it is *better* to do so. If a doctor can cure a patient with two treatments, it is better than using five (other things being equal). In a football game, getting a touchdown in one play is better than using seven, all else being equal. Thus the principle of simplicity cannot be used to attack purpose in nature.

What if someone protests that it is irrelevant how the principle of simplicity originated, and that today we do not rely on Newton's rationale for it, but use it merely because it works? Something having nothing to do with the operations of nature would not be a reliable guide for judging hypotheses in all of the sciences. The simplicity is in nature, not just in our methodology. Physicist Carl von Weizsacker says, "The often cited principle of economy of thought explains, at the most, why we *look* for simple laws, but not why we *find* themo"[45] Physicist Werner Heisenberg concurs: "The simplicity of natural laws has an objective character ... it is not just the result of thought economyo If nature leads us to mathematical forms of great simplicity and beauty ... we cannot help thinking they are true, that they reveal a genuine feature of nature. "[46]

5) The Mover Explains the Entire Effect

As Aristotle says in *Physics* 2.3, it is possible for an effect to be produced by more than one cause. For example, the materials of a house are the cause of the entire house, not just part of it. And

[43] Rule I for Reasoning in Philosophy, in *Newton's Philosophy of Nature,* ed. H. S. Thayer (New York: Hafner, 1974), 3.

[44] Galileo Galilei, quoted in Edwin A. Burtt, *The Metaphysical Foundations of Modern Physical Science* (New York: Doubleday, 1932), 74-75.

[45] Carl von Weizsacker, *World View of Physics* (Chicago: Chicago University Press, 1952), 179.

[46] "Werner Heisenberg, *Physics and Beyond* (New York: Harper & Row, 1972), 68-69.

yet the builder is also the cause of the entire house, not just part of it. This entails no contradiction because materials and mover are different kinds of causes. They do not duplicate each other; they complete each other.

The same holds for the mover and the purpose. The builder's actions are motivated by a desire for shelter. If he did not want a dwelling that would protect him from the elements, he would never begin to act. On the other hand, the desired end, without the action of the builder, is helpless to bring about anything. Thus, both mover and end are responsible, in different ways, for the entire house coming into being.

Why do human beings have a heart? To pump blood to all the parts of the body. This end explains the heart in its entirety. Yet in a different manner the processes of growth in the human embryo also explain the existence of the entire heart. These two explanations are not contrary but complimentary. One is mover and the other is purpose.

When the good is present, an explanation from the moving cause alone is never satisfactory. For example, saying the blade of a carpenter's hand saw is 22 inches long because the automatic shear at the factory cut the sheet metal to that length is true but not complete. We can still say, "But why was the machine set to precisely that specification?" The ultimate reason for the size has to be in terms of purpose and the good. For a carpenter's hand saw, 22 inches is a convenient blade length, while 2 inches long or 7 feet long are not suitable, even though the metal shear could easily be set to cut those lengths. The same holds for the useful structures produced by growth.

6) Nature Produces What Is Bad

One might just as well argue that the art of medicine does not aim at healing because sometimes after treatment the patient gets worse, or dies. Such reasoning ignores the predominance of good results and the intention of the art of medicine. Bad results in natural processes are rare. Even the most frequent birth defects

occur in less than 1% of cases. The nature of an organism produces what is good for it either always or almost always. Bad results show the interference of some other cause in the natural process. A defective gene produces cystic fibrosis, for example. Nature tries to produce a normal, healthy baby and will do so if not prevented. Abnormality in animals births are caused by mutations, disease, or some other such interfering cause, not by the natural growth process itself. If a carpenter finds in a box of 100 normal nails one nail that has no head, he will not conclude that the manufacturer was not trying to produce nails with heads.

Also, since nature does not have a mind, it cannot take into account interfering circumstances. This explains why mistakes occur in the generation of living things. If a cell had a mind of its own, it might recognize a defective gene, for instance, and work around it.

Finally, defects and mistakes actually presuppose action toward an end. We call a thing defective only if something else was intended, as with the defective nail mentioned above. In *Physics* 2.8, Aristotle makes this point against Empedodes. In the *Summa Contra Gentiles*, St. Thomas uses nature's defects to prove that nature acts for an end:

> There is no fault to be found, except in the case of things that are for the sake of an end. A fault is never attributed to an agent if the failure is related to something that is not the agent's end. Thus, the fault of failing to heal is imputed to the physician, but not to the builder or the grammarian. We do find fault with things done according to art, for instance, when the grammarian does not speak correctly, and also in things done according to nature, as is evident in the case of the birth of monsters. Therefore, it is just as true of the agent that acts in accord with nature as of the agent who acts in accord with art and as a result of previous planning that action is for the sake of an end.[47]

7) In Living Things Disease ls Common and Death Is Universal

That nature acts for an end does not mean that every natural thing works for the benefit of every other natural thing. It means

[47] Aquinas, *Summa contra Gentiles* HI, c. 7, in *Summa contra Gentiles*, trans, Anton C. Pegis (Notre Dame: Notte Dame University Press, 1975), 37.

that everything in the nature of a species works to its *own* benefit. And the objection fails to show anything either in the nature of man or of any other organism that acts against its own good.

In any given species, most individuals are healthy most of the time. No disease is natural to its victim; it has to be contracted. Malaria is not part of human nature and in fact is contrary to it. The human body has many mechanisms to prevent and combat diseases of all kinds. (Notice that the whole immune system is very purposeful.) On the side of the protozoan parasite (genus *Plasmodium)* that causes malaria, we see purpose at work also. The protozoan has organs, activities, and a life cycle that are wonderfully suited to perpetuating it. Likewise for the mosquito. In diseases the evil produced is accidental. It is not as if the mosquito intends to give us malaria. It intends to procure a blood meal in order to lay its eggs. If the mosquito happens to be carrying the protozoan parasite, then malaria ensues as an accidental by-product of what the insect intends.

As for death, the word *end* can mean two different things: termination point, and what a thing is for, that is, its purpose. Thus the termination point of a rope is not what the rope is for. Death is the end of life only in the sense of termination point. It is not the purpose of life. On this topic Aristotle remarks, "Not every stage that is last claims to be an end, but only that which is best."[48]

Living things do not aim at their own destruction. Quite the contrary, all their organs and acts work for their preservation in a clearly purposeful way. Nonetheless, since death happens always, some cause must be responsible for it. Saint Thomas explains that the death of an organism is a consequence of the matter out of which it is made, just as the ability to rust is an unwanted but unavoidable characteristic of the iron chosen by the axe maker to make the axe head. The iron is selected because of its hardness and despite its susceptibility to rust.[49] Likewise, the materials that make up living things are destructible and dis-

[48] Aristotle, *Physics* 2.2 (McKeon, ed., 240).

[49] *STh* 11-11, q. 164, a. 1.

solvable into the elements, not because of what the nature of the species intends but despite it. And here again, a result not intended by the nature of a given species serves a larger end. The corruption of one thing in nature entails the generation of something else, such that all materials are eventually recycled and all living things are perpetuated.

8) Necessity Explains All

In *Physics* 2.8, Aristotle himself raises this objection against his own position.[50] Saint Thomas, in his commentary, answers it as follows:

> Although rain has a necessary cause with respect to matter, nevertheless, it is ordered to an end; namely, to the preservation of generable and corruptible things. For the mutual generation and corruption in these inferior things is so that perpetual being may be preserved in them. Whence, the growth of wheat is improperly taken in the example; for a universal cause is paired with a particular effect.
>
> It must also be considered that the growth and preservation of things that spring from the earth happens for the most part from rain, while corruption occurs for the least part. Thus, although rain is not for the sake of destruction, it still does not follow that it is not for the sake of preservation and generation.[51]

In these two paragraphs, St. Thomas gives three telling refutations of the objection. First he points out that even the most inexorable necessity is not incompatible with purpose. In fact, if you are aiming at a goal, you will seek out means that will produce it *necessarily*, if possible. If I want to cut wood smoothly, I will not be satisfied with a tool that accomplishes this only some of the time. I want a tool that will cut smoothly always and necessarily. This is why I make it out of metal with a flat blade and sharp teeth, because such a material and structure will always cut wood smoothly. Purpose explains why the matter and form are what they are. So necessity is not incompatible with purpose but can serve it.

[50] Aristotle, *Physics* 2.8 (McKeon, ed., 249).

[51] II *Physic.*, lect. 12, no. 254 (Marietti edition, 123), my translation.

Second, St. Thomas indicates that cause and effect are wrongly matched in the example given. Aristotle says in *Physics* 2.3 that to avoid error "generic effects should be assigned to generic causes, particular effects to particular causes."[52] The wheat example assigns a particular effect to a generic cause, as if someone were to say that nature has given man a pair of hands so he might be able to play the piano. The purpose of hands is much more generic than that. St. Thomas shows that even if rain is not for the sake of destroying the wheat, it does not follow that it is not for the sake of it growing, as can be seen from the great predominance of this latter result.

9) Many Natural Events Have No Purpose

An earthquake is caused by the friction and slippage of two tectonic plates pushing against each other. The earthquake itself is not a natural substance, nor is it the action of an individual natural substance. Hence, there is no question here of any species of natural thing trying to produce an earthquake for the sake of some endo Therefore, there is no necessity to assign a purpose to earthquakes. The other causes-matter, form, and mover-are sufficient to account for this phenomenon. The same holds for tidal waves, which are often caused by earthquakes on the ocean floor, and for hurricanes and avalancheso Regarding eclipses, there is no reason to think that the earth, or the sun, or the moon is striving to cause this temporary darkness. Eclipses are adequately understood as a by-product of the movements and orbits of these three bodieso

Chance events occur in nature just as they do in human affairs, and by definition the outcome of chance is not intended by the agents involved. So a beaver being crushed by the falling of a tree that it was gnawing is not intended either by the beaver or by the tree,9 but is a rare coincidence. Because chance is the accidental intersection of two or more agents aiming at something, it

[52] Aristotle, *Physics* 2.3 (McKeon, ed., 242).

presupposes acting for an end, as Aristotle explains.[53] In this example the beaver was gnawing the tree to make a dam, and it was not by chance that the gnawed tree felL It was by chance that it happened this time to hit the beaver.

10) Useless Organs and Waste Refute Purpose

It is worth noting how rare these examples are, a tiny minority of doubtful cases among hundreds of thousands of organs with perfectly obvious functions. This ratio makes it dear what the norm in nature is. Indeed, it is usually precipitous to assert that an organ is useless. If it does not serve the purpose that first comes to mind, it will most likely serve another. The wings of the ostrich, for example, are not used for flight but they have many other uses. l) Ostriches use them to keep their balance when running fast and making sharp turns. 2) The wings insulate the bird's body from the scorching African sun. 3) Ostriches use their wings in mating rituals and threat displays. Similarly, the human appendix has been recognized as a part of the human immune system, so that surgeons no longer routinely remove it.[54] The tiny eyes of the blind cave fish are considered by all biologists to be vestigial organs. That is, they are believed to have developed as folly functional in an ancestor of the cave fish and then atrophied when not needed.

Concerning water loss in trees, investigation reveals that the prodigious evaporation is not a waste of water but rather serves an essential purpose. It permits the tree's leaves to avoid overheating and drying up in hot weather, operating in a way similar to evaporative cooling in animals. As temperatures rise, evaporation increases; as they fall, it decreases. Thus there is no excess at all, but a rather precise adjustment to the needs of the tree. Without evaporative cooling, a tree would become as hot as an automobile parked in the sun. Further, if ground water were never raised and recycled via evaporation in trees and other

[53] Aristotle, *Physics* 2.5 (McKeon, ed., 245).

[54] "What is the appendix?" on www.medicinenet.com

plants, huge amounts would become irretrievably locked underground. So what at first glance seems to be excessive and useless turns out to be beautifully suited for both the tree and the whole ecosystem.

11) Nonliving Things Exhibit No *Purposes*

Purpose is most obvious in living things. Consequently, purpose is most easily seen in nonliving things if we consider how they serve living things. The sun, for instance, is necessary for life on earth, not only for warmth but to supply energy for photosynthesis in plants. The chemical elements are constituents of our very bodies. Water has many properties that make it uniquely suited to making life possible. For example, the water covering 70% of the earth's surface buffers its temperature. Compare the waterless moon which goes from 212° F to -238° F in one day. Evidence for the Anthropic Principle in physics and astrophysics indicates that the universe itself is aiming at life as mentioned in the fifth *sed contra* argument.

If one demands evidence of purposes in nonliving things themselves, it will necessarily be more obscure, since the good at that level is so minimal. We can safely say, however, that all nonliving things strive to preserve themselves as far as possible. Fire heats things around it and spreads, making other things like itself. Water's surface tension and high capillarity keep it together. These remarks are provisional and somewhat conjectural, however, because it is not at all clear whether a stone, or a fire, or a body of water is a single substance or a collection of many substances. All nonliving things resist division. Active chemical elements have a strong inclination to take on, or give up, or share an electron so as to gain an electronic configuration similar to that of the six inert gases, thus achieving more stability, and therefore better preserving themselves.

Finally, we can always say that nonliving substances have definite physical inclinations that are in accord with their natures. In this sense they always act for definite ends, even if the aspect

of good in them is harder to see. Aristotle's last argument[55] in *Physics* 2.8 applies well to nonliving things: in them, too, matter is for the sake of form and ability is for the sake of act.

12) Mathematics Does Not Use Purpose

This objection assumes that any causes not used in mathematics ought to be discarded from other sciences. Since mathematics never proves anything by the material cause or by the mover, we would have to reject explanations by matter and mover from physics, chemistry, and biology-an absurd suggestion that would cripple those sciences. The logic of this objection would also force us to say that since mathematics never uses the authority of witnesses to prove anything, therefore, history should not do so either. But that would obliterate the discipline of history which necessarily argues from the authority of witnesses. Trying to impose everywhere the method appropriate to mathematical things would do violence to the widely different subject matters of each science. We cannot treat animals, human acts, and forms of government as if they were numbers. In addition to logic, there are special principles of method in each science, dictated by its unique subject matter. For example, although experiment is unnecessary and impossible in geometry, we do not conclude that it is unnecessary and impossible in the natural sciences. In the same way, though mathematics does not use purpose to demonstrate theorems, purpose is unavoidable for understanding living things, as explained in the body of this article.

13) Purpose Presumes God

The central assumption of this objection is simply false. The evidence for purpose in nature in no way relies on invoking God. In *Physics* 2.8 Aristotle never mentions God, nor does he use any theological reasons to show that nature acts for an end. He argues from examples of plants and animals, from the parallels between

[55] Aristotle, *Physics* 2.8 (McKeon, ed., 250).

art and nature, and by contrast with chance. It would be bad order to do otherwise. For since purpose is a principle in natural science, it must be presented in the beginning. But according to the natural order of learning a beginner in natural science knows only logic and mathematics.[56] He does not yet have philosophic knowledge of God's existence. So trying to use God to prove purpose in nature would be using the less known to argue for the better known, like trying to use the icosahedron to prove the existence of equilateral triangles. The proper order is the reverse, since the equilateral triangle is the first thing proven in Euclid's geometry and the icosahedron is one of the last, and depends on the first. In the same way, no wise man would ever try to use God to prove that nature acts for an end. On the contrary, once established *on its own merits,* purpose can function as a minor premise in a metaphysical proof for God, as in St. Thomas' fifth way in the *Summa Theologiae.*

Moreover, to establish that purpose is found in natural things one does not have to prove that all natural things taken together are aiming at a single goal. This is a much more difficult question and the resolution of it is in no way needed to prove that natures act for ends. Aristotle addresses the question of the purpose of the whole universe in the *Metaphysics.*[57]

We have already distinguished in an organism between those things that provide for its own welfare and those that serve other ends beyond the species. In the former category purpose is obvious; in the latter, it is sometimes less so. God may have as many inscrutable ends as Descartes likes, but it remains that the crab's claw is still for pinching, its eye for seeing, and its stomach for digesting.

14) Purpose Is a Projection of the Human Mind

This objection gives no proof but merely makes an unsubstantiated assertion. Offering an explanation of why we

[56] Aquinas, *In Liber de causis,* lect. 1, in *The Pocket Aquinas,* 43-44.
[57] Aristotle, *Metapbysics* 12.10 (McKeon, ed., 885-88).

mistakenly attribute purpose to natural things is irrelevant if purpose has not first been refuted with real evidence. Even if human beings do have an unavoidable tendency to project purpose onto natural things, that in itself, is not evidence against purpose in nature. A reason must be given. The fact that a certain ticket holder wants very much to win the lottery is not itself evidence that he has not won.

Moreover, if purpose is an inevitable projection of the human mind, we would find it in every science, not just biology. But we do not. No use is made of purpose in mathematics.[58] Mathematics does not ask what prime numbers are *for*, nor does it argue that the base angles of an isosceles triangle are equal because it is better that they be so. Therefore, the unavoidability of purpose in biology comes not from the human observer but from the subject matter of biology itself. Life incorporates genuine goals and purposes.

Finally, there is the claim that we attribute purpose to natural things because we use them. This allegation would have some weight if we ascribed purpose only to those natural things useful to ourselves. But as things are, we recognize what is good for an animal or plant quite independently of our own interests. We understand, for example, how ingenious the *plasmodia*'s life cycle is and how, by taking on different forms in different organisms, it perpetuates itself. Yet far from being useful to man, the *plasmodia* causes malaria, the most common deadly disease in the world today.

15) Purpose Is Too Easily Abused

If a thing can be used well, then the potential for its abuse is no reason to reject it. On that ground we would have to abolish very good and necessary things: political power, trust, speech, sex-everything human in fact, except perhaps moral virtue. Natural selection is notoriously subject to abuse. Biologist Niko

[58] Aristotle, *Metaphysics* 3.2 (McKeon, ed., 718).

Tinbergen speaks of a respected naturalist[59] who seriously claimed that the bright pink color of the roseate spoonbill was favored by natural selection since it camouflaged the bird at sunrise and sunset. The naturalist did not explain how the bird managed the rest of the time, with its neon pink color so conspicuous against any landscape. Gould and Lewontin complain that "evolutionists use *consistency* with natural selection as the sole criterion"' to judge whether a hypothesis is plausible.[60]

Finally, anything can be caricatured. It is childish to think that noses are made to support glasses, but not childish to think that noses are for smelling.

We are now in a position to consider the ulterior causes of the modem rejection of purpose in nature. The reasons advanced against purpose are weak and faulty, as we have seen, but behind them looms a mightier force-that of intellectual custom. The advent of mathematical physics in the seventeenth century changed Western civilization profoundly and permanently. Purpose first began to be eliminated from natural science when the new scientific method was introduced, and the dominance of mathematics in this method is dear from the start. Galileo, one of the founders of modern science, insisted that the Book of Nature is written in mathematical language.[61] Descartes, Galileo's contemporary, is famous for proposing that the method of mathematics be used in all the sciences. Descartes's consequent bias against purpose is very strong. He goes so far as to say, "The knowledge of a thing's purpose never leads to a knowledge of the thing itself."[62] He does not seem to realize that anyone who does not know what an eye is *for* does not know what an eye *is.*

[59] Niko Tinbergen, *Animal Behavior* (New York: Time-Life, 1965), 12.

[60] Stephen J. Gould and Richard Lewontin, "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme," *Proceedings of the Royal Society of London Series* B 205 (1979): 587-88.

[61] Galileo Galilei, quoted in Burtt, *The Metaphysical Foundations of Modem Physical Science,* 75.

[62] Rene Descartes, *Conversations with Berman,* trans. John Cottingham (London and New York: Oxford University Press, 1976), 19-20.

Spinoza, a disciple of Descartes, goes even further, writing a lengthy attack on purpose as a cause not only in nature at large but in human actions as well. The influence of the mathematical habit of mind is evident when he asserts that mankind would have foolishly believed in the purposefulness of nature "for all eternity, if mathematics had not furnished another standard of verity in considering solely the essence and properties of figures without regard to their final causes."[63] Spinoza tried to apply the method of geometry to ethics. He was so enamored of the necessity he found in mathematics that, wanting to impose it everywhere, he ended up denying free will in man and in God. Like Aristotle says of the Pythagoreans, these men, having been brought up in mathematics, "thought its principles were the principles of all things."[64] Anything that dashes with a deeply ingrained habit of mind will seem alien and therefore false, even if it is not. To a mind trained to see nature only through the lens of mathematics, reference to purpose in science seems unthinkable even if no reason is given, and weak reasons against purpose will easily pass for strong. Another less dominant aspect of the intellectual customs of our age is materialism, the contention that only matter exists. It, too, is a source for rejecting purpose, and is found in the ancient world in Empedocles and Lucretius, and in modern times with Darwin and the resurgence of materialism.

The second major reason why the modern mind tends to reject purpose is a misunderstanding of what it means to say that nature acts for an end; or misunderstanding why this principle is held; or ignorance of the distinction of the four kinds of cause, or of one of the corollaries that follow from that distinction, such as that two things can cause each other, or that one and the same effect can have more than one cause.[65] These misunderstandings account for the above objections 1-4, 13, and 14.

One source of these confusions is the nature of the final cause itself. It is the most subtle of the four causes. The Pre-Socratics

[63] Spinoza, *The Ethics,* appendix, in *The Rationalists,* 210.

[64] Aristotle, *Metaphysics* 1.5 (McKeon, ed., 698).

[65] Aristotle, *Physics* 2.3 (McKean, ed., 241).

never succeeded in disengaging purpose as a cause.[66] These first philosophers are generally so wholesome and so close to nature that even their deficiencies are instructive. What they agree on is probably what is most known. Whatever distinctions they fail to see are most likely less known. So their failure to recognize purpose as a cause is a clear sign that it is less known than the other three causes.

A second sign of the same conclusion is that Aristotle, both in the *Physics*[67] and in the *Metaphysics*[68] offers a proof that purpose is a kind of cause: it answers the question *why*. Aristotle does not deem it necessary to prove that matter, form, or mover are causes, thus signifying that it is not clear at first sight that purpose is a cause at all and that this needs to be manifested by example and reasoning.

There are two reasons why purpose is the least known kind of cause. First, it is the most intellectual of the four causes since it cannot be perceived by the senses. We can see and touch the wood that is the material cause of a chair. We can see and touch the structure that is its formal cause. We can watch the carpenter make the chair. We see these causes in operation. But purpose is hidden inside the maker. It is not grasped by the senses. Of the four causes, matter is the most obvious since it is there before the change, during the change, and after the change. It is hard to miss. Virtually all the Pre-Socratics recognized matter as a cause of natural things, but none penetrated as far as purpose.

Second, though purpose is first in the order of intention, it is last in the order of execution, whence it is named end and final cause.[69] Being last, it is most difficult to recognize *as a cause*. This is another reason why the Pre-Socratics overlooked it.[70] If someone is asked what the causes of a house are, the first things that will come to his mind are the materials and the construction workers. Everyone knows that a house is for shelter, but this

[66] Aristotle, *Physics* 2.8 (McKeon, ed., 249).
[67] Aristotle, *Physics* 2.3 (McKeon, ed., 241).
[68] Aristotle, *Metaphysics* 5.2 (McKeon, ed., 752).
[69] *STh* 1-11, q. 1, a. 1, ad 1.
[70] V *Metaphys.*, lect. 2, no. 771 (Rowan, trans., 307).

seems to be merely a result. It is obvious at first sight that shelter is an effect of the matter and the movers. It is not obvious that shelter is also a cause of the house coming to be.

Hence the Pre-Socratics saw the other three kinds of cause more or less clearly, but had only imperfect glimpses of purpose. Some confuse end with mover while others refer to the good as a cause but only accidentally.[71] In the *Phaedo,* Socrates complains that even though Anaxagoras posits mind as a cause, he never uses it to show why the things in nature are the way they are because it is better that they be such.[72] Even the Platonists who referred to the good as a cause used it in the mode of a formal cause and not as that for the sake of which.[73]

Now since purpose is the least known kind of cause it should not surprise us if some thinkers fail to see it. Biologist Konrad Lorenz, for example, almost sees it. Discussing the role of the question "What is it for?" in biology, he gives the following example:

> I am driving through the countryside in my old car, to give a lecture in a distant town, and I ponder on the usefulness of my car, the goals or aims which are so well served by its construction, and it pleases me to think how all this contributes to achieve the purpose of my journey. Suddenly the motor coughs once or twice and peters out. At this stage I am painfully aware that the reason for my journey does not make my car go; I am learning the hard way that aims and goals are not causes. It will be well for me to concentrate exclusively on the natural causes of the car's workings, and to find out at what stage the chain of the causation was so unpleasantly interrupted. [74]

Lorenz concludes that his desire to give the lecture is not at all a cause of his journey. He has seen that the mover is required to achieve the end, but he has not seen how the end is needed to orient the mover. Why does his auto not take him to Innsbruck or Salsburg instead of Linz? Surely it is capable of doing so. It is because the lecture he wishes to give is to be in Linz, the word

[71] Aristotle, *Metaphysics* l.7 (McKeon, ed., 703).

[72] W. H. D. Rouse, ed., *Great Dialogues of Plato* (New York: Mentor, 1956), 502.

[73] I *Metaphys.,* lect. 2, no. 178 (Rowan, trans., 73).

[74] Konrad Lorenz, *On Aggression* (New York: Harcourt, Brace & World, 1963), 230.

because signaling a cause. So Lorenz's desire to give the lecture turns out to be a cause of his going there after all, the first cause in fact, in the order of intention. Without a desired end the mover is directionless.

For the above reasons it is also common for the end to be confused with other more known kinds of cause, especially the mover. Arguing against mechanistic psychologists who reduce all human actions to "drives," Psychologist Viktor Frankl writes, "Values ... do not drive a man; they do not *push* him, but rather they *pull* him."[75] But pulling is just as mechanical as pushing. Both are moving causes. It is ironic that in trying to counter mechanism, Frankl inadvertently falls into its vocabulary. Values act on us as ends do, not as movers do.

Spinoza tries to explain away purpose as merely a kind of desire, asserting that when we say "having a house to live in was the final cause of this or that house," we are merely indicating "a particular desire, which is really an efficient cause, and is considered as primary, because men are usually ignorant of the causes of their desires."[76] Desire falls between knowledge and action. Knowledge causes desire and desire causes action. But knowledge causes desire as an end, while desire causes action as mover. We see the confusion of end and moving cause in the word *motive,* which names the end from a likeness to the moving cause. It is true to say that the end moves the agent and the agent moves the matter, but the word *moves* here is equivocal. For the end does not push or pull the agent, heat him up or cool him off, shift him from one place to another, or physically modify the agent with respect to any other species of motion. The end does nothing to the agent except supply a possible goal for action. If purpose is the most subtle kind of cause, then it is understandable that those not trained in philosophy would easily fall into confusions about it. Those called philosophers like Descartes and Spinoza have less excuse.

[75] Viktor Frankl, *Man's Search for Meaning* (New York: Washington Square Press, 1959), 157-58.

[76] Benedict de Spinoza, quoted in *Great Books of the Western World,* ed. Robert M. Hutchins (Chicago: Encyclopedia Britannica, 1990), 1:124.

Being able to answer difficulties is a sign that the truth has been reached.[77] On the topic of purpose in nature, we have not only answered the difficulties raised by our predecessors but have also shown why they held the position that they did. Thus we can conclude with Aristotle, "It is plain then that nature is a cause, a cause that operates for a purpose."[78]

[77] I *Physic.,* lect. 15, no. 121 (Marietti edition, 63).
[78] Aristotle, *Physics* 2.8 (McKeon, ed., 251).

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INSTINCT AND CUSTOM

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STUDY OF St. Thomas Aquinas's theory of animal perception is needed in order to help us understand how humans think. Both speculative and practical reasoning typically involve many layers of influence of sense and intellect upon each other, and this mutual influence needs to be sorted out. Practical reasoning, for example, commences only once one has recognized a situation as calling for possible action. Reason's initial grasp of that situation is brought about by perception. But this perception is determined in part by decisions one has made and deeds one has performed in previous, similar situations. For that reason, Aquinas assigns a special role to the cogitative power in *intellectus*, the virtue through which one is disposed to form a good initial estimation of a situation.[1] The cogitative power, which stands at the pinnacle of human sentient awareness, is the secondary subject of the virtue of prudence, to which *intellectus* belongs as an integral part.[2] As a secondary subject of a virtue, the cogitative power is capable of being modified and perfected by past decisions and commands made by reason. In that way, the very perception that gives rise to the practical intellect's initial

[1] See *STh* H-II, q. 49, a. 2, ad 3 (8:368) and VI *Eth.*, c. 7 (47.2:359). Unless otherwise noted, all citations of and quotations from Aquinas's texts are from the Leonine edition, *Sancti Thomae de Aquino opera omnia* (Rome, 1882-). Parenthetical numbers indicate volume and page of this edition. All translations are mine unless otherwise indicated.

[2] Aquinas says that the cogitative power is the secondary subject of the virtue of prudence, which contains the virtue of *intellectus* as one of its integral parts *(STh* H-H, q. 49, a. 2).

understanding of a situation can be shaped by previous acts of reason.

A similar pattern is found in the intellectual apprehensions that figure in the formation of propositions, where once again the cogitative power plays a key, instrumental role in the operation of reason. As Aquinas says in the *Summa contra Gentiles*, the cogitative power prepares the phantasm that serves as the object of the intellect's abstractive activity. He adds that not all humans can understand what they imagine, for only those who have had adequate instruction and practice have a cogitative power well-suited for preparing the phantasm.[3] This reference to previous instruction implies that the very perception that plays an instrumental role in abstraction may be the result of previous reasoning, inasmuch as reasoning is involved in the taking of instruction. The same theme arises in the *Commentary on the Posterior Analytics*, where Aquinas makes it clear that the cogitative power's apprehension of "this human" is a necessary condition for the intellectual apprehension of "human."[4] This internal sense power comes to perceive "this human" by comparing many similar individuals that one has perceived in the past until it recognizes something common to them. This process of comparing individuals, says Aquinas in the same work, is a special form of reasoning called *ratiocinatio*.[5] Hence reasoning of some sort is involved in the process that leads to the development of cogitative perception, through which one acquires new concepts.

In order to be able to sort out the influence of reason and perception upon each other, we must first identify those properties that belong to human perception apart from any influence by reason. The present study attempts to uncover such properties by looking at those features of perception that seem to

[3] See *ScG* II, c. 76 (13:481), quoted below, inn. 13.

[4] II *Post.Anal.*, lect. 20 (1:402, par.14). InScG II, c. 77 (13:488).Aquinas makes asimilar remark about the sentient awareness of "this human" being a necessary condition for the intellectual apprehension of "human."

[5] II *Post.Anal.*, lect. 20 (1:410, par. 11; see also par. 10). *Ratiocinatio* is synonymous with counsel or deliberation (VI *Eth.*, cc. 1, 6 [47.2:333, 353)).

be common to brutes and humans. This study will look not only to those passages in Aquinas's writings that are concerned with perception as such, but also to his discussions of animal actions and passions. By merging the more standard approach with the latter, it obtains a more comprehensive view of perception than could otherwise be obtained.

I. PROBLEM: How DOES ONE INIBRNAL SENSE PERFORM A MULTIPLICI1YOF ROLES?

Saint Thomas argues that a special internal sense is needed to guide the actions of animals so that they may pursue goals and avoid evils that are remote or entirely absent. He illustrates this need with two examples. The first, borrowed from Avicenna, is of a sheep that avoids death by fleeing at the sight of a wolf. Since such behavior is caused by appetite, which in turn is caused by cognition, it follows that the sheep must in some way have perceived that the wolf is harmful *(nociva)* or an enemy.[6] But neither the external senses nor the common sense of the sheep perceives harmfulness, and since the imagination can only form sensible species of the same sort as those found in the common sense, the imagination is likewise unable to perceive harmfulness. Therefore, there must be another internal sense, which perceives enmity or harmfulness. The second example is of a bird that gathers sticks to build a nest. It does so not merely because of what it perceives through its external senses at that moment but because it is in some way cognizant of the usefulness of this activity.[7] In fact, Aquinas insists in the *Sentences* that a bird makes a nest only if it hopes thereby to be able to care for its offspring.[8] Since neither the bird's external senses nor its common sense is cognizant of utility, there must be another sense that is aware of

[6] II *Sent.,* d. 24, q. 2, a. 1; in *Scriptum super libros Sententiarium magistri Petri Lombardi,* vol. 2, ed. Pierre F. Mandonnet (Paris: P. Lethielleux, 1929), 601-2.

[7] *STh* I, q. 78, a. 4 (5:256).

[8] III *Sent.,* d. 26, q. 1, a. 1, r.; in *Scriptum super Sententiis magistri Petri Lombardi,* vol. 3, ed. R. P. Maria Fabianus Moos (Paris: P. Lethielleux, 1956), 814.

utility *(convenientia)* as well.[9] Using language that he adopts from Latin translations of Avicenna's writing on this topic, Aquinas refers both to utility and to its contrary, harmfulness, as "intentions" *(intentiones),* which he contrasts with the forms *(formas)* apprehended by the external senses, the common sense, and the imagination.

The internal sense power through which animals perceive intentions is called the estimative power or *vis aestimativa* in brutes. The same type of internal sense power is also found in humans, where it is instead called the cogitative power or *vis cogitativa.* The different name indicates that this sentient power is able to reach a higher level of awareness thanks to the influence of reason.[10] This higher level of awareness is reflected in the three roles that Aquinas attributes to the *vis cogitativa* in humans. The first and most obvious role-one that roughly parallels that of the *vis aestimativa* in brutes-is to evoke the passions that help energize our actions.[11] The second role has to do with the way that the cogitative power enables universal reason to apply its

[9] Note that in some texts he says that this power perceives friendship *(amicitiam)* and enmity *(inimicitiam).* He apparently regards these two terms as somewhat interchangeable with usefulness and harmfulness respectively, for he alternates use of the term "enmity" with "danger" to name the very same perceptual object, that is, the one that causes the sheep to avoid the wolf: "[f]he estimative power, through which the animal grasps intentions not received through the senses (such as friendship and enmity), belongs to the sensitive soul inasmuch as it participates in reason. Whence, because of this estimative [power], animals are said to have a certain prudence, as is plain at the beginning of the *Metaphysics,* [which says] that the sheep flees the wolf, whose enmity it never senses" (De *Veritate,* q. 25, a. 2 [22.3:733]); "[f]he sheep that sees an approaching wolf runs away not because of [the wolfs] unbecoming color or shape, but rather because of natural enmity, as it were .... The animal therefore needs to perceive such intentions, which the exterior sense does not perceive" *(STh* I, q. 78, a. 4 [5:256]); see also *ScG* II, c. 74 (13:469); and II *Sent.,* d. 24, q. 2, a. 1, r.

[10] *STh* I, q. 78, a. 4, ad *5* (5:257).

[11] Since humans are endowed with very little instinctive awareness of what is useful and harmful, they must learn much through a process of comparing intentions, through which the *vis cogitativa* comes to form estimations of harmfulness and utility. The cogitative power is able to perform these comparisons thanks to the influence of reason *(STh* I, q. 78, a. 4). Note also that humans, unlike brutes, do not necessarily act whenever they are moved by a passion. Under normal circumstances, passions yield actions only inasmuch as they concur with the movement of the will *(STh* I, q. 81, a. 3).

judgments to particular individuals during practical reasoning. [12] The third role is the cogitative power's preparation of the phantasm for abstraction. [13]

Upon reviewing the list of roles attributed by Aquinas to the cogitative and estimative powers, one might fail to discern a common thread uniting them all. After all, what does instinctive judgment have to do with the preparation of the phantasm for abstraction? Anthony Kenny points out that so far no Thomist has found a common thread linking together the diverse roles

[12] Aquinas assigns a cardinal role to the *vis cogitativa* in each of the phases of practical reasoning. This role is apparent even before deliberation, for prior to that one must first apprehend that a concrete end is suitable under the present circumstances (see n. 1). In the same spirit, he assigns a key role to the *vis cogitativa* in *eubu/ia,* the virtue that perfects the inquiry into the suitability of each means. Aquinas ties *eubulia,* the virtue that perfects counsel, to the discursive nature of the cogitative power in VI *Eth.,* c. 9 (47.2:368). The *vis cogitativa* is indispensable to counsel or deliberation, says Aquinas, because of that power's ability to compare the particular variables (VI *Eth.,* c. 1 [47.2:334]). Likewise, the cogitative power is central to *synesis,* the virtue that perfects the choice of one means over the others: VI *Eth.,* c. 9 (47.2:368). Practical reasoning comes to completion with command, which is perfected by *prudentia.* The cogitative sense plays a central role in this virtue as well; in fact, he states that it is the secondary subject of prudence, while universal reason is the primary *(STh* IHI, q. 47, a. 3, ad 3 [8:351]).

[13] "[I]t can be said that the agent intellect is, in itself, always acting, but that the phantasms are not always made actually intelligible, but only when they are disposed to this... Now, they are so disposed by the act of the cogitative power, the use of which is in our power. Hence, to understand is in our power. And this is the reason why not all men understand the things whose phantasms they have, since not all are possessed of the requisite act of the cogitative power, but only those who are instructed and habituated" ("Potest autem dici quod intellectus agens semper agit quantum in se est, sed non semper phantasmata fiunt intelligibilia actu, sed solum quando sunt ad hoc disposita. Disponuntur autem ad hoc per actum cogitativae virtutis, cuius usus est in nostra potestate. Et ideo intelligere actu est in nostra potestate. Et ob hoc etiam contingit quod non omnes homines intelligunt ea quorum habent phantasmata: quia non omnes habent actum virtutis cogitativae convenientem, sed solum qui sunt instructi et consueti" [ScG II, c. 76 *(Summa contra gentiles,* trans. James F. Anderson, bk. 2, *Creation* [Garden City, NY: Hanover House, 1956; reprint, Notre Dame: University of Notre Dame Press, 1975], par. 8, p. 241; Leonine ed., 13:481]). Note that this statement is criticized in the next paragraph as inadequate, because it fails to mention that the agent intellect is not a separate agent. Hence, says Aquinas, the preceding statement (i.e., the one quoted above) does not sufficiently distinguish itself from the position held by Averroes, who, like Aquinas, taught that the cogitative power prepares phantasms for abstraction, but who also taught that the agent intellect is a separate substance. Aquinas outlines Averroes's explanation of how the cogitative power prepares phantasms for abstraction in *ScG* U, c. 60 (13:419).

assigned to the same species of power.[14] It may appear, therefore, that this attribution is somewhat *ad hoc*. That is, Aquinas may seem to have placed all of these perceptual roles in the same "black box" for the sake of apparent simplicity, but without being able to give justification for this move.[15] Could it be that his theory of perception is more a hodgepodge than a coherent synthesis?

II. jORG TELL.KAMP'$ SOLUTION

In a remarkable study of Aquinas's theory of perception, Jorg Tellkamp claims to have identified a unity in the multiplicity of roles played by these powers. He argues that the *sensibile per accidens* perceived by these internal senses is a state of affairs *(Sachverhalt)*.A state of affairs is a complex object; for example, when a bird sees a little stick as something with which it can build a nest, it perceives not only the *per se sensibilia* such as the shape and size, but also the usefulness of the stick.[16] Similarly, the sheep perceives the wolf not only in terms of shape and size but also as a natural enemy.[17] In both examples, the animal perceives its object under more than one aspect.[18] This complexity

[14] Speaking of the roles played by the *vis cogitativa* in virtue of the influence of reason, Kenny says, "I know of no passage where St. Thomas makes clear how the faculty thus defined is the same as the faculty introduced by reference to the notions of danger and utility" (Anthony Kenny, *Aquinas on Mind* [Routledge: New York, 1993), 37).

[15] Harry Wolfson, for example, implies that Aquinas's own theory of the cogitative and estimative powers is based upon a misunderstanding of Avicenna and Averroes ("The Internal Senses in Latin, Arabic and Hebrew Philosophic Texts," *Harvard Theological Review* 28 [1935): 121).

[16] Jorg Alejandro Tellkamp, *Sinne, Gegenstandeund Sensibilia:zur Wahrnebmungslehre des Thomas von Aquin* (Leiden: Brill, 1999), 136. On page 171, he distinguishes the sentient awareness of *sensibiliaper accidens* from the intellectual awareness of the same: "In any case there is a kind of complex knowledge that is connected with universal structures but which does not refer immediately to intellectual knowledge .... The *sensibiliaper accidens* are, it seems, propositional in nature" ("[A]llerdings gibt es eine Art des komplexen, mit allgemeinen Strukntren verbundenen Wissens, das nichtunmittelbar auf die Verstandeserkenntnis verweist. . . • Die *sensibiliaper accidens* sind, wie es scheint, propositionaler Art").

[17] Ibid., 172.

[18] Reviewing both human and animal perception of states of affairs, Tellkamp says, "In one respect, sheep and humans are alike in forming perceptual awareness: by means of using their senses they achieve knowledge of a particular object, which is not grasped under a perceptible

characterizes the objects of distinctively human perception as welL For example, one who sees the shape and color of Socrates might perceive "Socrates" or "this man" through the cogitative power.[19] These perceptions may serve as the basis for forming the intellectual judgment that "Socrates is human."[20] Hence the complexity that guides animal behavior also serves as a partial basis of human opinion. Of course, humans perceive *Sachverhalte* differently, for brutes are confined to perceiving states of affairs in terms of their practically relevant factors, while humans may also perceive them in terms of their cognitively relevant factors.[21]

aspect. This [non-perceptible] aspect is summed up in the concept of *intentio,* which contains either practically or cognitively relevant states of affairs" ("In einer Hinsicht sind Schafe und Menschen bei der Formnng von Wahmehmungswissen gleich: sie gelangen mittels des Gebrachs ihrer Sinne zur Erkenntnis eines partikularen Gegenstands, der nicht unter eninem wahmehmbaren Aspekt erfasst wird. Dieser Aspekt wird im Begriff der *intentio* zusammengefasst, wekher entweder praktische oder erkennmisrelevante Sachverhalte beinhaltet" [ibid., 173]).

[19] The cogitative power, says St. Thomas, perceives Socrates, for the individual to which various *per se sensibilia* belong is itself a *sensibile per accidens (N Sent.,* d. 49, q. 2, a. 2 [S. *Thomae Aquinatis opera omnia ut sunt in indice thomistico additis 61 scriptis ex aliis medii aevi auctoribus,* ed. Roberto Busa, vol. 1 (Stuttgart-Bad Cannstatt: Friedrich Frommann. Verlag Giinther Holzboog KG, 1980), 685]).

[20] Tellkamp's own example is of the proposition, "There is Diares with property y" (Tellkamp, *Sinne, Gegenstiinde und Sensibilia,* 177).

[21] Tellkamp illustrates this limitation of brutes with the example of a wolf as it is perceived by a sheep, "The wolf is in any case perceived, not as an individual being under a universal aspect (sub *natura communi),* but rather as a terminus or endpoint of a sensible striving." ("Der Wolf wird allerdings nicht als individuelles Wesen unter einem allgemeinen Aspekt *[sub natura communi]* wahrgenommen, sondem nur als Ausgangspunkt bzw. Endpunkt eines sinnlichen Strebens" [ibid., 172]). "The object of human knowledge is exclusively the universal, and this [universal] comes into play at the level of perception in a *sensibile per accidens* in so far as the latter embodies an object under the aspect of a common nature *(sub natura commum).* This [fact] suggests, as we have seen, the characteristic [that belongs to] intellectual activities" ("Das Objekt der menschlichen Erkenntnis ist ausschliebblich das Universelle, und dieses spiegelt sich auf der Ebene der Wahmehmung in einem *sensibile per accidens* insofem wider, als es einen Gegenstand unter dem Aspekt *sub natura communi* enthalt. Dies gemahnt, wie gesehen, an die Charakterizierung intellekriver Tatigkeiten" [ibid., 173]). "Thomas confines the refined perceptual operation of so-called higher animals to behaviorally relevant states of affairs. The basis for the limitation of perception of animals to the behaviorally relevant *intentiones* is [the animal's] inability to seek sensible properties under the aspect of a cognitive acquisition that is always understood as the grasping of universal characteristics" ("Thomas schrankt den Vorgang der differenzierten Wahmehmung sogenannter hoherer Tiere auf verhaltensrelevente Sachverhalte ein. Der Grund fur die Eingrenzung der Wahmehmung von Tieren auf die verhaltensrelevanten *intentiones* ist in

In spite of the way in which brutes fall short of human modes of perception, their ability to cognize complex objects tells us a lot about the relation between sense and reason in humans. For if brutes can perceive states of affairs, Tellkamp tells us, it follows that human perception achieves some degree of complexity and coherency owing to what it shares in common with that of other animals. Reason needs not impose order upon sensation according to a priori structures. [22] Tellkamp makes a related point in terms of the philosophy of language. Language is not the sole source of coherency, for animals can perceive a complex yet orderly world without being able to describe that order through language. [23] Humans can likewise perceive a coherent world without yet having formulated in linguistic terms what they have perceived (though, of course, such perceptions may give rise to expressions of belief). [24] The complexity that characterizes animal perception therefore provides the basis of a human understanding of the world.

Tellkamp's claim that particular intentions (i.e., those perceived by the *vis cogitativa* and *vis aestimativa)* are complex relationships or states of affairs is quite helpful. By noting the similarities between instinctive awareness and the distinctively human modes of perception, he lets us see how Aquinas could rightly claim that the *vis cogitativa* and the *vis aestimativa* belong to the same species of power. By noting the parallels between human perception and the formation of a proposition he gives us

ihrer mangelnden Fahigkeit, sensible Eigenschaften unter dem Aspekt des Erkenntnisgewinns, der ja immer in Begriffen der Erfassung universeller Merkmale verstanden wird, zu suchen" [ibid., 276]).

[21] Tellkamp doesn't mention Kant by name but seems to have him in mind in the following passage. Aquinas's theory of perception "denies any direct dependence of the *sensibiliaper accidens* upon intellectual contents, which therefore do not have to be presupposed as necessary conditions for perception; since it can be established that non-rational beings, as well as humans, can achieve a correct and differentiated way of relating to the world" ("dies spricht iibrigens gegen eine direkte Abhiingigkeit der *sensibiliaper accidens* von intellektiven Inhalten, miissen deshalb nicht als notwendige Bedingungen fiir Wahrnehmung vorausgesetz werden, wei! festgestellt werden kann, dass nichtrationale Wesen, ebenso wie Menschen, zu einem korrekten und differenzierten Weltbezug gelangen" [ibid., 171]).

[23] Ibid., 173; 174 n. 116.

[24] Ibid., 173.

a glimpse of how the human perception of intentions mediates between sense and reason. [25]

Although Tellkamp brings us closer to a clear understanding of Aquinas's theory of perception, he does not bring us all the way there. He encounters two obstacles along the way. First, by identifying utility as one of the two elements that make up the state of affairs perceived by an animal, he gives the impression that utility itself is simple in nature. Were that so, utility might be thought of as a quality that inheres in the perceived object but is not apparent to the external senses. But utility seems instead to involve a relation, that is, the usefulness *of* the perceived individual object *to* the perceiver. A more complete account of perception recognizes and explores this relatedness. The second problem com:erns the animal's awareness of its own actions. Although Tellkamp repeatedly affirms that animals perceive circumstances that are relevant to guiding behavior/ [6] he never examines how or whether an animal is aware of behavior itself. This problem surfaces in his characterization of the perceptual object as a state of affairs: when he gives an example of a *Sachverhalt,* he leaves behind any mention of the animal's awareness of its own response to what it perceives. The young sheep, says Tellkamp, perceives its mother as a source of nourishment. [27] Aquinas, on the other hand, says that the sheep perceives its mother as something to be suckled. [28] Other examples of states of affairs also leave behind any mention of awareness of the perceiver's own response. [29] The impression that one gets from reading these passages is that animals interact with their surroundings through a kind of automatic response, one that involves no awareness of the perceiver's own acts of pursuit or avoidance. Such perception could hardly guide an animal's actions.

[25] **Ibid., 171.**

[26] **Ibid., 172, 173, 276, 280.**

[27] **Ibid., 172.**

[2] ***s De Anima* II, c. 13 (45.1:122). See text at n. 31, below.**

[29] **Tellkamp, *Sinne, Gegenstiindeund Sensibilia,* 138, 171.**

III. FURTHER SOLUTIONS PROPOSED

The following sections remedy the above-mentioned shortcomings by turning to those passages in which Aquinas describes an animal's awareness of its own actions as well as its awareness of how it stands in relation to its perceptual object. Most of these descriptions are to be found in Aquinas's remarks about the role of perception in the concupiscible and irascible passions, By merging the latter passages with his remarks about the estimative awareness of intentions, this study shows that animal perception involves three kinds of components. They are the awareness of (1) the individual object presently being sensed, (2) an imagined conjunction with something that is either good or bad for the perceiver, and (3) the imagined self-movement through which the perceiver interacts with (1) and thereby either achieves or avoids (2).

This study examines not only inborn perceptual dispositions but acquired ones as well. Here memory plays a key role, for all but the simplest animals rely upon their memory in order to engage in any act of pursuit or avoidance. Aquinas gives the name of "custom" *(consuetudo)* to the disposition in the memory through which past perceptions guide present ones. The present study will argue that custom enhances perception by elaborating upon the basic structures already found in instinctive judgments. It does not give rise to the perception of new types of objects. According to Aquinas, therefore, even the most advanced forms of animal learning belong within the parameters of instinct.

A) Actions and Passions and the "vis aestimativa"

Aquinas sometimes describes the content of perceptual intentions in terms of the perceiver's interactions with other individuals. For example, when contrasting instinct with free judgment, he says that the sheep, upon seeing the wolf, naturally judges that the wolf is to be avoided *ifugiendum).* [30] While

[30] *STh* I, q. 83, a. 1 (5:307); see Q. D. *De Anima,* a. 13 (ed. James H. Robb [foronto: Pontifical Institute of Medieval Studies, 1968], 191).

contrasting the estimative power of brutes with the cogitative power found in humans, Aquinas says in his *Commentary on De Anima* that the estimative power of a lamb regards its mother as something to be nursed, and the same power in a ewe regards grass as something to be eaten. A brute regards an object in terms of the perceiver's own response, be it pursuit or flight. But an animal seems to be aware of how other individuals might act upon it as well. Aquinas captures this two-way interaction by saying that the estimative power regards its object as the principle or terminus of an action or passion.[31] The wolf regards the sheep as the terminus of an action inasmuch as it regards its potential prey as something to be eaten, and the sheep regards the wolf as a principle of a passion inasmuch as it regards it as the source of harm. While the *Commentary on De Anima* proposes that the estimative awareness of individuals may be either in terms of actions or *(aut)* in terms of passions, the *Commentary on the Metaphysics* gets rid of this strict disjunctive and instead combines these two aspects. The sheep that flees a wolf, says Aquinas in the latter commentary, is aware that something harmful is to be avoided.[32] According to the latter text, the estimative power may combine the awareness of how the wolf will act with the awareness of how the perceiver is to respond.

Aquinas's theory of the passions confirms the above indications concerning the complex nature of perceptual awareness. We will start with an examination of the concupiscible passions and work our way toward the irascible passions, which have a more obvious connection with perceptual intentions. The most basic passions, that is, love and hate, are caused by the perception of something as respectively suitable or unsuitable to the perceiver.[33] An animal,

[31] *IIDeAnima,* c.13 (45.1:122).

[32] I *Metaphys.,* lect. 1, in *Sancti Thomae Aquinatis doctoris angelici ordinis praedictorum In Metaphysicam Aristotelis Commentaria* (Turin: Marietti, 1915), 8, par. 11.

[33] In this essay I shall not offer an account of how one becomes sentiently aware of the kind of suitability that moves the sense appetite with love. Note, however, that in II *Sent.,* d. 24, q. 2, a. 1, r. (Mandonnet, ed., 602), St. Thomas distinguishes the estimative power's apprehension of something as suitable *(sub ratione convenientis)* from the perception of what is suitable to the external senses. This claim gives the impression that the common sense (as the terminus of the external senses) and the imagination (as the power that retains and reproduces sensible species in the common sense) could perceive some forms of suitability.

however, perceives not only suitability and its contrary, but also whether the object is absent or present. Hence it never merely loves or hates: it will be moved either with craving *(concupiscentia)* or desire *(desiderium)*[34] when it perceives that something beloved is absent, and it wiH be moved with pleasure *(delectatio)* should the same object be perceived as present.[35] Likewise, it will be moved with aversion when an odious object is perceived as absent and sorrow when the same is perceived as present.

The irascible appetite could be compared to the concupisdble as the complex is to the simple. This higher level of complexity is apparent in Aquinas's descriptions of the two species of sensible objects. The proper object of the concupiscible passions is what is "simply" or "absolutely" suitable.[36] Sometimes, however, pursuit and avoidance are difficult; in these cases, the object of pursuit is no longer "simply good" but is instead a "difficult good." The irascible passions, says Aquinas, enable animals to act in such situations. For example, when aware of a future good as attainable only with difficulty, an animal is moved by hope to pursue it.[37] If, however, it perceives this good as so difficult that it seems unattainable, then the animal will despair. And if an animal

The *Summa Theologiae's* article on the internal senses *(STh* I, q. 78, a. 4) implies the same. There he states that an animal's pursuit of what is present and easily attainable (and the turning away from what is easily avoidable) can be explained by the perceptions of *formas,* which pertain to the common sense and imagination. H we insert his theory of the passions into this remark, then it becomes apparent that the corresponding appetitive movements are craving and aversion. In such a case, the apprehensions that pertain to the common sense and imagination would be sufficient to cause these concupiscible passions. If perceptions by these internal senses were sufficient to cause craving, then they would likewise be sufficient to cause love, which is a necessary condition of all concupiscible passions.

[34] Humans can be moved not only by craving for bodily well-being but also by desire *(desiderium),* owing to the influence of reason upon sentient awareness and appetite. Similarly, they may be moved not only by delight but also by joy *(gaudium)* when perceiving that they are in the presence of what they love. In the *Summa Theologiae,* Aquinas speaks of joy and its contrary as belonging exclusively to rational animals. Similarly desire is the properly rational inclination toward what gives joy: *STh* I-II, q. 31, a. 3 (6:217).

[35] *STh* HI, q. 30, a. 2 (6:210).

[36] *STh* HI, q. 23, a. 1 (6:173); q. 25, a. 1, sc (6:183). See also *STh* I-II, q. 23, a. 2 (6:175); q. 26, a. 1 (6:188).

[37] *STh* I-II, q. 40, a. 3 (8:267).

encounters difficulty in avoiding a future evil, then it will be moved either by courage or by fear, depending upon whether or not it perceives that it can overcome that difficulty.[38]

In each of the above cases, an irascible passion originates from a concupiscible passion. For example, hope originates from desire, just as fear does from aversion.[39] It follows that the forms of awareness that cause the irascible passions presuppose and build upon the forms of awareness that cause the concupiscible passions.[40] For example, the awareness that causes hope builds upon the cognition that causes one to desire to attain the same object, adding to it the awareness of the difficult, perhaps even painful, activities that one must engage in before obtaining what one desires. When the perception that causes desire is combined with this awareness of the difficulty involved in attaining what is desired, then hope will arise-at least as long as this difficulty is not regarded as insurmountable.

[38] *SI'h* I-II, q. 41, a. 2 (8:273). Courage or daring follows from hope *(SI'h* I-II, q. 45, a. 2, ad 2) when the latter regards a fearful impediment to some good as being able to be overcome.

[39] SI'h1-11,q. 41, a. 2, ad 3 (6:273). Anger is even more complex than the other irascible passions, for it originates from two concupiscible passions directed toward two different objects, that is, sorrow for a present evil and the desire for future vengeance (see *SI'h* 1-11, q. 46, a. 1, ad 2 (6:292)). While contrasting anger (which involves a complex appetitive movement following upon a complex apprehensive act) with hatred (which involves a simple appetitive movement and cognitive act), Aquinas says, "We must, however, observe a twofold difference in this respect, between anger on the one side, and hatred and love on the other. The first difference is that anger always regards two objects: whereas love and hatred sometimes regard but one object, as when a man is said to love wine or something of the kind, or to hate it. The second difference is, that both the objects of love are good: since the lover wishes good to someone, as to something agreeable to himself: while both the objects of hatred bear the character of evil: for the man who hates, wishes evil to someone, as to something disagreeable to him. Whereas anger regards one object under the aspect of good, viz., vengeance, which it desires to have; and the other object under the aspect of evil, viz., the noxious person, on whom it seeks to be avenged." *(SI'h* 1-11, q. 46, a. 2 *[Summa theologica,* trans., Fathers of the English Dominican Province (London, 1920; 2d reprint, Westiminster, MD: Christian Classics, 1981), vol. 2, p. 779; Leonine ed., 6:293).

[40] Note, however, that although both hope and desire are directed toward a future good, there is a difference iri the range of objects toward which these two passions can be directed. Hope is always directed toward what is absent, whereas desire can often be directed toward what is already being presently enjoyed, albeit in an imperfect manner *(SI'h* I-II, q. 33, a. 2, ad 1 [6:232]). And hope is not directed toward trivial things, while desire can sometimes have trivial objects.

Although he does not mention the perception of *intentiones* when discussing the passions, Aquinas does on occasion contrast the roles of estimation and imagination in causing the passions. The imagination, says Aquinas, apprehends the object of the concupiscible passions, while the estimative power apprehends the object of the irascible passions.[41] In the *Sentences* he explains that a purely sensory appetite is directed toward goods according to how they are apprehended by the senses. Since the senses as such are aware of the here and now, a purely sensory appetite inclines toward a particular thing inasmuch as it is good now *(ut nunc).* Such an inclination is found in the concupiscible appetite, for this power seeks union with whatever is pleasant now and avoids whatever is painful now. And the imagination can direct the concupiscible appetite by reproducing the form of awareness found in the common sense. But sometimes a brute must do something that is painful here and now in order to survive. For example, a lion must fight off scavengers when eating its prey. Such behavior requires appetite and apprehension that go beyond the recognition of and striving after the good *ut nunc.* For that reason, brute awareness and appetite in some way participate in reason's awareness of order in moving the animal to avoid pleasure or even do what is painful so as to attain future benefits. Hence the irascible appetite, which is capable of such passions, and the estimative power, which apprehends the object of the irascible appetite, both transcend the purely sensory order. The concupiscible passions and the imagination, however, are strictly sensory appetitive and apprehensive powers.[42]

B) Anticipation, Interaction and Holism

Two themes come to the surface in our examination of what Aquinas has to say about animal perception. First, some form of anticipation is involved in those passions that cause movement in animals. This involvement is most apparent in the irascible

[41] *De Verit.,* q. 25, a. 2 (22.3:733). For the discussion in the same passage of how the estimative power pertains to the irascible appetite, see above, note 9.

[42] III *Sent.,* d. 26, q. 1, a. 2, r. (Moos ed., 816-17, pars. 25-27).

passions, all of which are directed toward a future good or evil,[43] but it can also be found to a lessor degree in two of the concupisdble passions, namely, craving and aversion. In each of these cases, the animal anticipates being united with something suitable or unsuitable to itself. Of course, this anticipation in brutes must be distinguished from the way in which humans think about the future. We thematize the future as such, making calendars and mapping out sequences of events when engaged in practical reasoning. Surely, these human activities involve a level of complexity and precision in our perception that lies beyond the scope of nonrational animals. Aquinas has this difference in mind when he insists at the beginning of the *Summa Theologiae's* discussion of prudence that only reason is cognizant of the future. [44] In his article on hope too he insists that brutes are not cognizant of the future. [45] Nevertheless, a more basic future-directed awareness seems to be implicit in Aquinas's descriptions of many of the passions. For example, he mentions the future when describing the objects of desire and aversion. [46] He also says that craving and aversion are caused by the perception of their respective objects as absent. But in this case, "absent" means something like "coming soon." Aquinas hints at this futural

[43] HI *Sent.,* d. 26, q. 1, a. 1, ad 4 (Moos ed., 815, par. 16). In *De Veritate,* Aquinas distinguishes the futural orientation of the irascible passions from desire. At first he objects to the notion that hope and fear are principal passions, pointing out that their orientation toward the future ("in irascibili est passio respectu foturi") is something shared in common with desire. Since desire is not considered one of the four principal passions, neither should hope and fear. He then replies that future-directed concupiscible passions originate from passions directed toward the present, and those other passions (i.e., joy and sorrow,) falling under the same concupiscible power; hence joy and sorrow are the principal concupiscible passions rather than desire and aversion. But hope and fear are not derived from other irascible passions; hence they are the two primary irascible passions *(De Verit.,* q. 26, a. 5, obj. 4 and ad 4 [22.3:763-641).

[44] *STh* H-H, q. 47, a. 1 (8:348).

[45] *STh* I-II, q. 40, a. 3, ad 1 (6:267).

[46] *STh* I-II, q. 59, a. 3 (6:382); q. 40, a. 1 (6:265); q. 36, a. 2, ad 2 (6:251); see also *STh* I-H, q. 30, a. 2, ad 3. Note that one may desire or crave what one already really possesses, provided that one does not possess it fully. For example, one may crave food even while eating it, providing that one is not yet full. See *STh* I-II, q. 33, a. 2 (6:232). Hope, on the other hand, may not be directed toward what is imperfectly or incompletely present. Unlike craving, hope is directed only toward what is fully absent.

orientation by saying that the object of craving or desire is something "not yet possessed" *(nondum habitum).*[47] "Not yet" seems to imply that one expects to possess it soon. Otherwise, one could not distinguish the perceptions that cause desire from those that cause sorrow. One who perceives that something beloved is absent may be moved by sorrow instead of desire.[48] In the latter case, however, "absent" means something more like "not coming for a long while" or perhaps "not ever coming" rather than "coming soon." In the second context, the term "absent" signifies a stable condition, while in the case of craving and aversion, "absence" refers to one that is in flux. Both cases, however, involve some sort of anticipation.

The second theme that surfaces in Aquinas's account of the passions is interaction. In order for an animal to be united with a future good or avoid a future evil, it must interact with the things in its environment. Hence the same perceptions that involve anticipation also involve some awareness of the interactions that one must engage in while en route to the desired goal. This aspect of perception is quite apparent in Aquinas's descriptions of the irascible passions. In order to be moved by hope one must first perceive something desirable and difficult to attain. But difficulty has two sides to it, and each of these implies the awareness of interaction. Aquinas mentions these two facets when discussing human passions in the *Summa Theologiae*. One fears because one regards a harmful object as difficult to avoid. But one regards the object in this way, Aquinas tells us, either because one regards oneself as too weak to avoid the evil or because one regards one's enemy as too strong.[49] Of course, the explicit and thematic awareness of one's own weakness or one's enemy's strength occurs only in humans. Thanks to the ability to think abstractly, a human can grasp the end and means as such, and while doing so

[47] *STh* 1-11, q. 23, a. 4 (6:176).

[48] One can be moved with sorrow by the loss of some good, as Aquinas notes in *STh* 1-11, q. 35, a. 6 (6:245); and q. 36, a. 1, ad 2 (6:249). Conversely, as he notes in *STb* 1-11, q. 32, a. 3 (6:230), joy can occur when one perceives that one has avoided a great evil. Both sorrow and joy presuppose that the good or evil will remain absent.

[49] *STh* 1-11, q. 42, a. 5 (6:279); see *STh* 1-11, q. 43, a. 2 (6:282).

may consider one's own power or that of others. Such considerations may exceed the ability of nonrational animals. Nevertheless, it seems that Aquinas believes that some more basic estimation of what the perceiver and its object are capable of doing is contained in brute perceptions as well. When he says in the *Summa Theologiae,* for example, that a dog appears to be moved by hope to pursue its prey, he presupposes that the animal is aware of difficulty. In fact, he says that when the potential prey is exceedingly far away, the dog will perceive it without pursuing it.[50] The difference between the two situations lies in the estimation of the level of difficulty involved. In order to act differently in these different situations, the animal must be in some way aware of the degree of difficulty involved in pursuit or avoidance. And inasmuch as difficulty itself involves interaction, animals that are capable of irascible passions (i.e., perfect animals) are in some obscure way aware of interaction as well.

The level of difficulty that humans associate with their actions influences their perception of presence and absence as well as how they anticipate the future. One hopes to possess something that is difficult to obtain inasmuch as one considers it in one's power to attain it.[51] In fact, one who considers an object in this manner already takes a certain delight, as if it were already possessed: the object of hope is already present in some qualified manner.[52] Yet if the difficulty involved in attainment were to become too great, one would regard the same object as fixedly absent and be moved instead with despair and sorrow.[53] And one who regards a future evil as unavoidable regards that evil as if it were already present.[54] In each of these cases, the awareness of presence and absence extends beyond the present moment and into the anticipated future. These anticipations are a function of our perception of our

[50] *Sfh* 1-11, q. 40, a. 3 (6:267).

[51] *Sfh* I-II, q. 40, a. 5 (6:269); see also III *Sent.,* d. 26, q. 1, a. 3, ad 5 (Moos ed., 824). Note that hope may be based upon the ability of another to act effectively: see *Sfh* 1-11, q. 40, a. 2, ad l; q. 40, a. 7.

[52] *Sfh* I-II, q. 36, a. 2, ad 2 (6:251).

[53] *De Verit.,* q. 26, a. 4 (22.3:761); *Sfh* I-II, q. 36, a. 2, ad 3 (6:251).

[54] *Sfh* 1-11, q. 42, a. 2 (6:277).

own ability to engage in pursuit or avoidance effectively. That is, we anticipate differently on the basis of how we perceive our own actions. The converse is also true: how we perceive our own ability to act is a function of what we anticipate will happen. Consider the person who is aware that an evil will occur very suddenly, so suddenly that he does not expect to be able to deal with it successfully. *As* a result of perceiving himself as helpless, he will be moved by a special form of fear, which we call anxiety.[55]

The perception of difficulty and the perception of presence or absence are able to affect each other in the manner described above because of the holistic nature of perception. Consider what the contrary, that is, atomistic perception, would be like. An animal would be separately aware of the individual before the external senses, an anticipated good, and its own self-movement. In order to perform the sorts of judgments that Aquinas attributes to the *vis aestimativa,* the animal would have to discover or contrive a way of connecting the objects of these three perceptions with each other. According to Aquinas's description of perception as it relates to the passions, however, animals are not separately aware of these various components. On the contrary, the estimative power sees all of these facets in terms of each other. An animal imagines its own self-movement not in an isolated fashion, but as movement toward or away from an individual before the senses. It perceives that individual in terms of its own interactions with it. Nor does it imagine and anticipate some future situation in isolation from the other facets. Rather, it regards that situation as the terminus of the present interactions. For these reasons, Aquinas's two accounts of perception (i.e., as an apprehensive power and vis-a-vis the passions) are decidedly holistic rather than atomistic.

C) Instinctive Judgment as a Complex Mental Act

The above analyses of instinct and the passions hint at a substantial overlap between the two ways in which Aquinas

[55] *STh* 1-11, q. 42, a. 5.

describes animal cognition. For example, the perception of the *intentio* danger or enmity consists of the awareness of the individual presently acting upon the senses as both a source of future harm and as something to be avoided through determinate actions here and now. But these two elements are also found in the perception of that which causes fear, for an animal fears as the result of imagining both a possible evil and the difficult actions involved in the avoidance of that evil. It seems, therefore, that an animal becomes aware of both the difficult good and the *intentio* danger through one and the same perceptual act. Aquinas himself insinuates this when he remarks in the *Summa Theologiae* that the sheep fears the wolf once it has opined, as it were, that the wolf is its enemy.[56] Enmity, as we have seen, is *sensibile per accidens*, but the immediate effect of the perception of enmity is fear. Since fear is an irascible passion caused by the perception of the difficult good, it follows that through one and the same perception an animal is aware of both an intention (i.e., danger) and the difficult good.

Note, however, that danger and the difficult good are not entirely synonymous with each other, for these two terms focus upon different aspects of the same complex perceptual object. In the examples just noted, the terms "danger" and "enemy" signify principally the wolf that is presently acting upon the senses, while the "difficult good" signifies principally what is anticipated. "Danger" and the "difficult good" are not so much two different objects as they are two aspects of one multifaceted object.

One can name the same instinctive judgment in different ways according to the focal point of one's concern. When one is concerned mainly with the role of the *vis aestimativa* as an apprehensive power, one may say that it perceives an enemy or a friend. When one is principally concerned with how its judgment precipitates the passions, one may call the same act the apprehension of the difficult good or (in the case of craving and aversion) the absolute good. Our adoption of either focal point

[56] *STh* I, q. 81, a. 3; *De Verit.*, q. 24, a. 2 (22.3:686.131). Aquinas likewise ties the bird's nest-building activity to hope, an irascible passion, in III *Sent.*, d. 26, q. 1, a. 2 (Moos, ed., 814).

should not obscure the fact that both names signify a complex awareness that interrelates the same basic elements.

Although it may be clear that all perceptions of the difficult good are perceptions of intentions, one must not infer the converse from this-namely, that all instinctive perceptions of intentions are likewise perceptions of the difficult good. Aquinas gives examples of perceptions of intentions that clearly do not involve the awareness of the object of any of the irascible passions. For example, when discussing the perception of *sensibilia per accidens,* Aquinas notes that the estimative power of a lamb regards its mother as something to be nursed, while a mature sheep regards grass as something to be eaten.[57] If we assume that consuming such food is a pleasant activity for the lamb, then we can conclude that such instinctive judgments do not involve the awareness of a difficult good. Instead, they move the animal to action through the perception of the absolute or simple good, that is, the object of the concupiscible appetite. More precisely, the lamb's perception of the *sensibile per accidens* (i.e., regarding the ewe as something to be nursed) causes the offspring to suck through the mediation of craving.[58] We can infer that aversion, the contrary passion, likewise involves the perception of a *sensibile per accidens,* that is, that something odious is to be avoided. Among perfect animals, the perception of a *sensibile per accidens* is involved in causing actions motivated not only by the irascible passions but by craving and aversion as well.[59]

[57] II *De Anima,* c. 13 (45.1:122). Note that even humans possess some instinctive awareness, for Aquinas says in the *Commentary on the Sentences* that infants instinctively take to the breast (II *Sent.,* d. 20, q. 20, a. 2, ad *5* [Mandonnet, ed., 515]).

[58] Note that craving and its contrary are the only concupiscible appetites that suffice to cause self-movement. The other concupiscible passions (i.e., love, hate, bodily pleasure and pain, joy and sorrow) cause movement only inasmuch as they are conjoined with craving or aversion.

[59] Imperfect animals, which lack memory, are incapable of irascible passions: see *Sententia Libri de sensu et sensato, prohemium* (45.2:8). They seem to be moved by craving *(concupiscentia),* but seem to lack not only memory, but an estimative power as well. Still, they possess an indeterminate imagination, through which they imagine their own actions when sensing something suitable *(De Anima* II, c. 29 (45.1:194]). Note that Aquinas affirms that even these animals imagine their own actions.

Instinctive judgment always involves three components: (1) the estimative power of a brute recognizes something presently acting upon the senses,[60] (2) the animal imagines a bodily condition that it regards as suitable or unsuitable to itself, and (3) the brute imagines its own self-movement.[61] The estimative power's judgment interrelates these factors.[62] In those cases involving the difficult good, the judgment is still more complex than it is for the simple good (i.e., the object of the concupiscible appetite), for the brute must be cognizant of that self-movement that is associated not only with enjoyment of something pleasant *per se* (e.g., chewing food), but also with antecedent activities that are either painful or at least involve turning away from what is pleasant.[63]

D) Prudence and Custom

With the above analysis of the operation of the *vis aestimativa* in hand, we can now turn to memory to see how it perfects instinctive judgment. Aquinas joins Aristotle in distinguishing the animals that lack memory from those that possess it. The former, called imperfect animals, are capable only of very simple and

[60] The very recognition of a multiplicity of sensible features as belonging to the same individual seems to pertain to the cogitative power. For a discussion of why the cogitative rather than the common sense performs this synthetic function, see Robert Schmidt, "The Unifying Sense: Which?" *The New Scholasticism* 57 (1983): 4-5.

[61] If we extrapolate from what Aquinas says we may include more than movement under (3), for animals sometimes remain still when hunting or avoiding being hunted.

[62] Prior to making this judgment, however, a bmte may sometimes undergo a kind of cognitive process whereby it first relates what it presently senses to some future good or evil, and soon but not immediately associates the anticipated situation with a fitting response. Perhaps it is for this reason that Aquinas frequently identifies only some of the three elements when describing the working of instinct. Note, however, that the judgment that moves the passions and thereby causes self-movement must interrelate all three of the other elements. For a brute could not judge that something is to be avoided unless it sustained its regard for it as unsuitable. Furthermore, such a process, if it does occur, is not to be confused with deliberation, for a brute inexorably relates a particular end with a particular course of action. This course is determined, says Aquinas, by instinct and custom, not by a comparison of alternatives.

[63] *De Verit,*, q. 25, a. 2 (22.3:732).

indeterminate movements of grasping and retracting.[64] Perfect animals, on the other hand, are able to move in a determinate manner toward a remote or even an absent object.[65] In order to perform the complex instinctive judgments that direct them toward such objects, perfect animals must rely upon their memory.[66] Of course, memory is not the sole cause of instinctive judgment. The very first time that a sheep sees a wolf, it is able to judge it as harmful without relying upon the memory of past wolves,[67] and a bird instinctively gathers straw for building a nest without having done so in the past.[68] But even when performing these activities for the very first time, the perfect animal requires memory in order to direct its activities toward what is absent. The

[64] *De Sensu et sensato, prohemium* (45.2:13). Earlier in that passage he treats *animalia inmobilia* as synonymous with *animalia inperfecta*. In his commentary on *De anima*, Aquinas reviews what Aristotle says about imperfect animals: "[Aristotle] shows what the principles of motion are in imperfect animals . . . It seems that they have craving, because they seem to have joy and sorrow (for they retract themselves when they are touched by something harmful and they open themselves up and stretch themselves out toward something suitable to themselves, which would not occur unless they had pain and pleasure). If they have these [i.e., pain, pleasure and movement], however, they then it is necessary that that they have craving. But since craving does not occur without imagination, it still must be asked in what way might they might have imagination. And [Aristotle] responds that that these animals have imagination and craving in the same manner that they move. But they move indeterminately, without aiming their movement, as it were, at some determinate place, as happens in animals that move progressively by imagining something distant, craving it, and moving toward it. But such imperfect animals do not imagine something distant, for they do not imagine anything except in the presence of the sensible thing. But when they are harmed, they imagine it as something harmful and pull themselves back, and when they delight [in something], they spread themselves over it and attach themselves to it. And thus they have an indeterminate imagination and craving inasmuch as they imagine and desire something as suitable but not as this or that thing or as something here or there. Instead, they have a confused imagination and craving." (*De Anima* III, c. 10 [45.1:249-50]).

[65] *De Sensu et sensato, prohemium* (45.2:13) The same paragraph goes on to discuss how smell enables perfect animals to detect suitable food when it is remote, while vision and hearing enable these animals to deal with whatever is to be avoided or sought after.

[66] Aquinas explains the need of perfect animals for memory in *De Sensu et sensato, prohemium* (45.2:8.229): "[S]ense according to its proper notion is aware only of what is present. It is owing to a participation in reason or intellect that a power in the sensitive part [of the soul] tends toward things that are not present. Whence memory, which is aware of things past, belongs only to perfect animals, inasmuch as they are a kind of high point of sensitive cognition."

[67] II *Post. Anal.*, lect. 20 (1:399-402, pars. 8-11).

[68] *STh* I, q. 78, a. 4 (5:256).

sheep depends upon its memory of its surroundings in order to set upon a path of escape from the wolf, and the bird can build a nest only if it remembers where the nest is located while gathering straw.

Memory enables animals to learn how to act more effectively in two ways. The first way, which is common to all perfect animals, consists of first encountering what one already regards as suitable or unsuitable within a broader context, and later letting one's actions be guided by associating elements of that context with that good or evil. The second way occurs through communication with other animals;[69] for example, Aquinas believes that birds learn to fly by being taught how to do so by their parents.[70] For this reason, Aquinas distinguishes two grades of perfect animals: those belonging to the lower have memory but no hearing; hence they cannot be taught. Those belonging to the second, higher grade possess hearing and hence can be instructed.[71] Both of these forms of learning result in a disposition that is analogous to prudence in humans, for prudence enables one to deal with things in the present on the basis of the past.[72] Aquinas says, therefore, that perfect animals participate imperfectly in prudence-imperfectly because they do not form their judgments about what is useful or harmful by performing comparisons during deliberation.[73]

Aquinas makes a similar comparison between humans and brutes in his *Commentary on the Metaphysics.* Custom in brutes, he says, is a meager participation in experience, which is found in human beings alone.[74] These statements about prudence and custom are closely related. Experience, an act of the cogitative power, is the discovery of what is suitable or unsuitable that takes place after comparing various individuals that one has perceived

[69] III *De Anima,* c. 12 (45.1:260).

[70] *SI'h* I, q. 101, a. 2, ad 2 (5:447).

[71] I *Metaphys.,* lect. 1 (Marietti ed., 8, par. 12).

[72] *Sententia Libri De Memoria et Reminiscentia,* c. 1 (45.2:104). Aquinas also attributes prudence exclusively to animals with memory in *IMetaphys.,* lect. 1 (Marietti ed., 8, par. 11).

[73] *De Verit.,* q. 24, a. 2 (22.3:686). I *Metaphys.,* lect. 1 (Marietti ed., 8, par. 11) also contrasts how human prudence involves deliberation, while that of brutes does not.

[74] I *Metaphys.,* lect. 1 (Marietti ed., 9, par. 15).

in the past.[75] Since brutes cannot engage in such comparisons, they must rely instead upon natural judgment and past perceptions to guide their present actions. Aquinas tells us about the nature of this guidance by comparing custom in brutes to two forms of human cognition. Custom, he says, is related to the memory of brutes just as experience is to particular reason (i.e., the cogitative power) and art is related to reason in human beings.[76] Brutes arrive at a perfect way of life through custom just as the human way of life is perfected by art.[77] Custom is therefore an acquired disposition in the memory that helps guide animal actions to achieve their goal more effectively. Note, however, that humans are guided by custom as well. When treating the virtues, Aquinas says that custom makes actions easier and faster. In fact, he says in one passage that experience makes actions easier on account of custom.[78] It may be more accurate, therefore, to say that custom is the component of human experience that humans and brutes have in common.

In order to understand how custom guides behavior we must unpack the above analogy with experience in humans. The *vis cogitativa* relies upon the memory of the past in forming the comparisons that yield the discovery of what is suitable or unsuitable. Once it has acquired such an experience, the cogitative power is able to perceive individuals as suitable or unsuitable without repeating the comparative process. Custom likewise relies upon memory to yield a new way of perceiving things around one's self. This relation between memory and the perception of things in the present is apparent in Aquinas's discussion of animal training. While insisting in the *Summa Theologiae* that brutes cannot, strictly speaking, acquire habits (because habit is a function of choice), he grants that reason can modify the dispositions found in animals inasmuch as human trainers can establish custom within them.[79] In *De Veritate,* Aquinas mentions

[75] Ibid.
[76] Ibid. (Marietti ed., 9, par. 16).
[77] Ibid.
[78] *STh* I-II, q. 40, a. *5,* ad 1 (6:270).
[79] *STh* I-II, q. *50,* a. 3, ad 2 (6:319).

that a trainer can use the memory of an animal to cause it to fear and thereby learn to obey its master.[8] Fear, however, involves the perception of something present as a source of possible harm, and it pertains to the estimative power to perceive the object of fear. Hence while custom may first of all affect the memory by establishing a certain order in the way memory recalls things,[81] it affects animal behavior only inasmuch as it modifies how the *vis aestimativa* perceives things that are presently acting upon the senses. This modification touches the three components of instinctive judgment that we have already examined. For the animal learns to fear something by relating a previously neutral object or action to an imagined harm as well as the activity of flight. Custom's modification of the structure of natural judgment becomes second nature, as Aquinas frequently says,[82] precisely by

[80] *De Verit.,* q. 24, a. 2, ad 7 (22.3:687).

[81] Speaking about the cause of reminiscence, he says that it is caused by an order that remains in the soul after receiving an initial impression *(De Mem. et Remin.,* c. 5 [45.2: 120)). In the following chapter he says that reminiscing is made easy by custom (ibid., c. 6 [45.2:126)). Note that John Ryan gives historical evidence in "Aquinas and Hume on the Laws of Association" *(New Scholasticism* 12 [1938): 366-77) that David Hume possessed a copy of Aquinas's commentary ()n *De Memoria et Reminiscentia,* in which Aquinas develops a theory of custom as the basis of reminiscence. In developing his own laws of association, Hume apparently relied upon Aquinas's analysis of the various modes of reminiscence, but without giving credit to his Scholastic source. One very significant difference between the two, however, is that Aquinas's theory of perception is, at the level of the *vis cogitativa,* thoroughly holistic, while Hume's analysis of the laws of mind is at its foundation atomistic. Another difference concerns the relation between cognition and appetite. According to Aquinas, we take pleasure in something because we perceive that it is good (i.e., that the object is suitable to ourselves); for Hume, we perceive something as good because it gives pleasure.

[82] In *STh* I-II, q. 58, a. 1, St. Thomas examines the twofold meaning of the term *custom:* it may refer either to a practice or to a quasi-natural inclination found in brutes and humans to act a certain way. This inclination arises from practice; hence Aquinas says that custom becomes second nature and causes inclination ("consuetudo quodammodo vertitur in naturam, et facit inclinationem"). Hence the two meanings of custom are interrelated. Aquinas repeats the claim that habits-which make actions easier and more pleasant-are caused by custom, which in turn which makes those actions second nature to us *(STh* 1-11, q. 56, a. 5 [6:360); II *Metaphys.,* lect. 5 [Marietti ed.,135, par. 332); ill *Eth.,* c. 15 [47.1:165]). The last quotation relates custom as it pertains to habit and appetite to custom as it is found in the memory. The *Commentary on De Memoria* explains that we become better able to reminisce on account of the customary inclination, which manifests itself in a certain order in which things happen, and this order is like that of nature (De *Mem. et Remin.,* c. 6 [45.2:126)).

elaborating upon the complex structure of natural or instinctive judgment.

Note that custom as it is found in brutes never departs from the basic structure found in instinctive awareness. An offspring may learn hunting techniques from its parent, but such learning merely refines the preexisting judgment that what is suitable is to be pursued. After repeated encounters with something painful, an animal may learn to avoid the source of that harm, but the new judgment that this thing is to be avoided merely builds upon the natural judgment that bodily harm is to be avoided.[83]

E) Animal Perceptionand Concepts

Tellkamp argues that brutes are incapable of knowing universally because they are restricted to perceiving things in practical terms, that is, in terms of their usefulness for bodily well being.[84] One who is convinced that other animals use concepts might reasonably object to explanation even after granting that these animals are restricted to regarding things in purely practical terms. After all, when humans are engaged in *practical* reasoning about such practical matters as their own bodily well-being, they seem to rely upon concepts of some sort. Hence it might seem it might seem to the objector that other animals likewise rely upon concepts in forming their own practical judgments.

[83] After noting the ability of nonrational animals to modify their behavior on the basis of the past, John Deely objects rightly to the notion of instinct as something innate and fixed Uohn Deely, "Animal Intelligence and Concept-Formation," *The Thomist* 34 [1971]: 58. He proposes instead that we complement the use of the term *instinct* to signify something "species-predictable" with the term *animal intelligence* (ibid., 62-63). For one who is concerned about how these terms cohere with the rest of Aquinas's vocabulary, however, it seems that Aquinas's designations "imperfectly prudent" and "participating in prudence" better capture the spirit of what Deely is aiming at. For animal learning is inherently practical and intelligence need not be so. In fact, humans are, properly speaking, rational rather than intelligent, while angels are, properly speaking, intelligent. Humans merely participate in intelligence in a manner slightly analogous to the way brutes participate in reason and in prudence.

[84] Tellkamp, *Sinne, Gegenstiinde und Sensibilia,* 267; 279-80.

Although the above objection undermines Tellkmp's argument that other animals do not use concepts, it does not undermine the explanation offered by Aquinas. Instead of arguing that animals do not conceptualize because they are restricted to the practical sphere, he simply points out that the awareness of universals is not a necessary condition for instinctive judgment. In the *Summa Theologiae,* he grants that the sheep hates a wolf not because of something peculiar to that particular wolf but because of something common to the nature of all wolves; hence the sheep hates the wolf *generaliter.* But this general hatred does not imply ovine awareness of the universal "enemy" any more than vision's capacity to perceive color *generaliter* would imply cognizance of the universal "color." [85] The ability to perceive many things in the same way doesn't require that one distinguish in any way what an individual possesses in common with others from what belongs solely to that individual. The sheep, in perceiving danger, does not perceive the wolf as an example *of* danger, nor does the sheep regard danger as something distinct from the wolf itself. Rather it simply imagines that the wolf that it sees before it will soon chase it, pull it down, start biting it, etc.[86] Instinctive judgments regard danger (and its contrary) in utterly concrete and immediate terms.

In spite of the concrete nature of instinctive judgment, Aquinas sometimes refers to the object of estimative power as a concept

[85] *STh* I-II, q. 29, a. 6 (6:207-8).

[86] Tellkamp makes similar points: "The lamb that perceives the mother, does not regard [the perception itself] as a cognitive gain. Nor, therefore, does it regard the mother sheep as an individual realization of the universal concept of sheep. It regards this object X only as presenting a source of nourishment, which stays its hunger and thereby serves survival" ("Dem Lamm, das das Muttertier wahrnimmt, geht es nicht um Erkenntnisgewinn, also darum, ob es sich beim wahrgenommen Muttertier um eine individuelle Realisierung des allgemeinen Begriffs des Schafes handelt; es geht ihm allein darum, dass dieser Gegenstand X eine Nahrungsquelle darstellt, die den Hunger stllllt und somit dem eigenen Oberleben dient" [fellkamp, *Sinne, Gegenstiinde und Sensibilia,* 279)); and, "The sheep, for example, recognizes its mother not as 'this sheep' under the universal aspect of sheepness, but rather only insofar as its mother is a source of nourishment" ("Das Schaf z.B. erkennt das Muttertier nicht als 'dieses Schaf' unter dem allgemeinen Aspekt der Schafheit, sondem nur insofern das Muttertier eine Nahrungsquelle ist" [ibid., 172)).

(conceptum) or conception *(conceptio)*.[87] The sheep, says Aquinas, is naturally endowed with the conception that the wolf is its enemy.[88] This language underscores the parallel between the way particular intentions guide animal behavior and universal intentions (which are known through intellection) guide human action. It also suggests that there is some common ground between instinctive judgment and the preparation of the phantasm for abstraction. For this reason, John Deely says that animal learning, which he calls "animal intelligence," serves as a partial foundation of human conceptual awareness.[89] John Haldane also suggests that animals possess a kind of sortal awareness that lies between external sensation and conceptualization.[90]

IV. CONCLUSION

This study has shown that animal perception consists of three facets that are seamlessly interrelated. Since the same species of sense power plays a cardinal role in the interplay of sense and intellect in humans, the main conclusion of this paper also opens the door to many fruitful inquiries into the ways in which perception is related to reasoning. Consider how practical reasoning likewise concerns the same three components that have

[87] *De Verit.*, q. 9, a. 4, ad 10 (22.2:290); IV *Metaphys.*, c. 9 (Marietti ed., 217, par. 653). See also III *Sent.*, d. 33, q. 1, a. 1, r. (Moos, ed., 1015).

[88] *De Verit.*, q. 22, a. 7 (22.3:629).

[89] John Deely describes the example of a dog that learns to discriminate between humans that are hostile and those that are friendly. This process, he says "is the very process which the birth of conceptual thought in man presupposes and from which the primitive concepts directly take rise, both those of the theoretical and those of the practical order ..•• So it is true that there is a communality between the highest attainments of animal intelligence and the origin of the primitive concepts in man" (Deely, "Animal Intelligence and Concept Formation," 75).

[90] Reviewingan earlier discussion of how animals manifest discriminatory powers, Haldane says, "[T]he question of abstract conceptualisation does not arise as one contemplates the actions of animals. However, there is space for further organizational principles between, on the one hand, patterns of sensation, and on the other, conceptual relations between abstracted universals. In this space may lie percepts: individuating perceptual sortals constituted out of sensible and behavioural features of things" (John Haldane, "Rational and Other Animals," in *"Verstehen"and Humane Understanding*,ed. Anthony O'Hear [Cambridge and New York: Cambridge University Press, 1996], 25).

already been mentioned: namely, the present situation, the goal, and the actions through which one might attain that goal. Human perception of these components may be quite different from brute perception of the same, for, thanks to reason, we can apprehend a concrete goal without immediately judging that it is to be pursued through a particular avenue. We instead compare various concrete means according to how they promise to be effective in attaining the proposed end. Surely the perceptual operations that are instrumental to practical reason's initial apprehension *of* the end and subsequent comparisons of means diverge from the basic structure that we find in instinctive judgment. Nevertheless, it seems that the three components found in animal perception lie at the center of the perceptions that undergird practical reasoning.

Aquinas also tells us that the cogitative power is responsible for preparing phantasms for abstraction. Could it be that the same three components are also involved in the perceptual processes that are instrumental to intellectual apprehension? Aquinas certainly never mentions the awareness of self-movement when discussing the preparation of the phantasm. Nevertheless, this suggestion seems quite plausible once one considers how humans use language whenever they engage in reasoning. Perhaps even the most advanced forms of speculative reasoning involve phantasms that have imagined linguistic activity as *one* of their components. Although no final conclusion regarding the veracity of the latter suggestion is offered here, the present study at least shines a light on paths well worth traveling by those who would take St. Thomas as their guide toward a better understanding of the relation between perception and intellection.

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THE SCOTIST BACKGROUND IN HERVAEUS NATALIS'S INTERPRETATION OF THOMISM

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UNDERLYING HERVAEUS NATALIS'S work is an intelligent development of Thomistic theses that, while not altogether deviating from Thomas Aquinas, prepares the ground for an elaboration of Thomism along the lines of John Duns Scotus's theological insights.[1] This is already apparent in Hervaeus's *Sentences* commentary, and becomes explicit in his quodlibetal questions. Thus, as Thomistic enthusiasm develops within the Dominican order, Hervaeus gradually incorporates (and endorses) elements alien to Aquinas's theology-an aspect of Hervaeus's thought worth remarking as it stands in contrast to a meeker image of the Dominican as the "champion of Thomism." As a leading Dominican, Hervaeus[2] serves as a good example of the type of interpretation of Aquinas's thought undertaken by second-generation Thomists. An examination of Hervaeus's work will therefore shed some light on our understanding of the evolution

[1] Hester G. Gelber is, to my knowledge, the first to point out this development in Hervaeus's interpretation of Thomism. See her *Logic and the Trinity: A Clash of Values in Scholastic Thought, 1300-1335* (Ph.D. diss., University of Wisconsin, 1974), especially 110-26.

[2] Hervaeus Natalis (d. 1323) became provincial of France in 1309 and General Master in 1318. For a biographical study of Hervaeus, see B. Haureau, "Herve Nedelec, general des Frl!res Prl!cheurs," in *Histoire litterairede la France* 34 (1915): 308-51; A. De Guimares, "Herve Noel (m.1323): Etude biographique," *inArchivum FratrumPraedicatornm* 8 (1938): see esp. 5-77

of Thomism as a theological authority within the Dominican order. [3]

Hervaeus's view of relations in Trinitarian theology proves to be a good vantage point from which to appreciate his elaboration of Aquinas's teaching, since it reveals his willingness to borrow from sources alien to Thomism if only to update the material according to the subtleties of the day. In what follows, I shall first give a brief account of Aquinas's view of relations as the main sounding board for Hervaeus's own elaboration of this view; second, I shall present Scotus's notion of 'formality' and the connected notion of 'formal distinction'; third, I shall give an account of Hervaeus's Scotist development of the Thomistic theses in his *Sentences* commentary and, fourth and finally, in his quodlibetal questions. The question at hand concerns the type of distinction between relation and its foundation, especially in its repercussions on the issue of the distinction between the divine processions.

L THOMAS AQUINAS ON RELATIONS

With respect to categorical relations, [4] Aquinas holds that for each of the nine accidental categories there is a distinction between the accidental being common to all categories and the

[3] By 1286 there was already clear evidence that the Dominican order had begun to recognize itself in the figure and teaching of Thomas Aquinas. In that year, the General Chapter in Paris commanded its friars to teach and defend according to Aquinas, thus actively promoting the Thomistic doctrine within the order. The doctrinal allegiance to Aquinas was repeatedly emphasized in subsequent Dominican legislations, notably in Saragossa in 1309 and in Metz in 1313. See B. M. Reichert, *Acta Capitulorum Generalium Ordinis Fratrum Praedicatorum* I (Rome, 1889), 235. For a standard history of the order and the significance of Thomism for the shaping of the order's identity, see W. A. Hinnebusch, *The History of the Dominican Order in the Middle Ages,* vol. 2 (New York: Alba House, 1966), especially 154ff. See also M. Mulchahey, *"First the Bow Is Bent in Study ... ": Do-minican E.ducation before 1350,* Studies and Texts 132 (Toronto: Pontifical Institute of Medieval Studies, 1998); M. Grabmann, "Die Kanonisation des hi. Thomas von Aquin in ihrer Bedeutung for die Ausbreitung und Verteidigung seiner Lehre im 14. Jahrhundert," in *Divus Thomas,* 1 (Freiburg, 1923), 233-49.

[4] For a comprehensive study of Aquinas's theory of relations, see A. Krempel, *La doctrine de la relation chez saint Thomas* (Paris, 1952). See also M. Henninger, *Relations: Medieval Theories 1250-1325* (Oxford, 1989), 13-39.

ratio that defines each particular category.[5] The accidental being (including that of relation) consists in inhering in a subject, and to that extent an accident is said to effect composition with its subject. By contrast, the *ratio* of absolute accidents such as quality and quantity is distinct from the *ratio* of relation. Absolute accidents can only be understood as existing in a subject *(esse in),* that is, as inhering. The *ratio* of relation, on the other hand, does not imply inherence, but only signifies a condition towards another *(esse ad aliud).*[6] In this respect, relation does not add anything to the being of its subject, and the arrival of a new relation does not change anything *in* its subject.[7]

According to Aquinas, two terms are really related if (1) the terms are really distinct extramental things, (2) there is a real foundation in one of the terms for its relation with the other term, and (3) there exists a real order between the terms identical in being but different in *ratio* from its foundation.[8] That is to say, in virtue of its identity with the reality of its foundation on an absolute accident, relation (in creatures) is real, is an accident, and inheres in a subject. What makes a relation real is then not a relative character of its own, its *ratio,* but the absolute accident that serves as its foundation.[9] The category of relation is then only different from absolute accidents in that its *ratio* does not necessarily consist in inhering in a subject, but in connoting

[5] Aquinas, I *Sent.,* d. 8, q. 4, a. 3; d. 26, q. 2, a. 1; *De Pot.,* q. 8, a. 4, ad 5; *STh* I, q. 28, a. 2.

[6] Aquinas, I *Sent.,* d. 8, q. 4, a. 3: "Quantitas enim habet propriam rationem in comparationem ad subiectum .... Ad aliquid autem ... non importat aliquam dependentiam ad subiectum, immo refertur ad extra"; d. 30, q. 1, a. 1: "Ea quae absolute dicuntur, secundum prnprias rationes ponum in eo aliquid in quo didtur [i.e., in subiecto], ut quantitas et qualitas"; m *Phys.,* lect. 1, n. 6: "Relatio ... consisrit tantum in hoc, quod est ad aliud se habere"; *De Pot.,* q. 7, a. 9, ad 7.

[7] Aquinas, *De Pot.,* q. 7, a. 8, ad 5: "Non oportet ad hoc quod de aliquo relatio aliqua de novo dicatur, quod aliqua mutatio in ipso fiat, sed sufficit quod fiat mutatio in aliquo

[8] Aquinas, *De Pot.,* q. 7, a. 11; I *Sent.,* d. 26, q. 2, a. *1.*

[9] Aquinas, I *Sent.,* d. 26, q. 2, a. 2, ad 3: "Quamvis relationi, *ex* hoc quod ad alterum dicitur, non debeatur quod sit res quaedam, est tarnen res aliqua secundum quod habet fundamentum in eo quod referrur"; d. 27, q. 1, a. 1; d. 29, q. 1, a. 3, ad 4; *De Verit.,* q. *21,* a. 1; *STh* I, q. 28, a. 2.

another term. In this respect, Aquinas holds with Aristotle that relation has "the lowest and most imperfect form of being." [10]

In a Trinitarian context, Aquinas maintains that essence and relations *(proprietates)* are really identical, and only distinct according to the *ratio* of relation. [11] Since the *ratio* of relation does not imply inherence *in* an actual substance, relations can assume the subsistent reality of the essence without thereby introducing accidents in the divinity. It was important for Aquinas that relations assumed the subsistent reality of the essence, for otherwise the persons would be only distinguished from one another according to reason. By the same token, only by asserting the real identity between essence and relations can we avoid composition in the divinity. [12]

Although Aquinas is unequivocal in his assertion of a real identity between essence and relation, we must not overlook the implications of his statement that essence and relation nevertheless differ [13] according to the *ratio* of relation. [14] For Aquinas *ratio* is a term of second imposition, in that it does not signify the thing itself, but the concept or definition of a thing. [15] However, this is not to say that the plurality of *rationes* according

[10] Aristotle, XIV *Metaph.,* 1.1088a23, b3. For Aquinas, see *De Verit.,* q. 27, a. 4; I *Sent.,* d. 26, q. 2, a. 2, ad 2: "Ens minimum, sc. relatio"; *De Pot.,* q. 2, a. 5: "Relatio creata habet esse debilissirnum, quod est eius tantum."

[11] Aquinas, *STh* I, q. 28, a. 1.

[12] Aquinas, I *Sent.,* d. 33, q. 1, a. 1: "Istud ergo esse patemitatis non potest esse aliud esse quarn esse essenriae; et cum esse essenriae sit ipsa essentia, et esse paternitatis sit ipsa paternitas; relinquitm de necessitate quod ipsa paternitas secundum rem estipsa essentia; unde non facit compositionem cum ea."

[13] Note that for Aquinas essence and relations *Jiffer* and are not *distinct,* since distinction requires some opposition. See I *Sent.,* d. 33, q. 1, a. 1, ad 1: "omnis autem distinctionis formalis principium est aliqua oppositio."

[14] I owe the following insight to Russell L. Friedman, "Relations, Emanations, and Henry of Ghent's use of the *Verbum Mentis* in Trinitarian Theology: The Background in Thomas Aquinas and Bonaventure," in M. Bertagna and G. Pini, eds., *Documenti e studi sulla tradizione filosofica medievale,* vol. 7 (Brepols, 1996), 131-82, esp. 138-41.

[15] Aquinas, I *Sent.,* d. 2, q. 1, a. 3: "Ratio ... nihil aliud est quam id quod apprehendit intellectus de significatione alicuius nominis: et hoc in his quae habent definitionem, est ipsa rei definitio .... Nee tamen hoc nomen 'ratio' significat ipsam conceptionem, quia hoc significatur per nomen rei; sed significat intentionern huius conceptionis, sicut et hoc nomen 'definitio,' et alia nomina secundae impositionis."

to which we understand divine perfections do not reflect the reality of the divinity, for according to Aquinas there are really in God perfections corresponding to the *rationes* that our intellect has about him. Thus, goodness, paternity, and filiation are all conceptions formed by our intellect that nevertheless respond to something that is really in God's nature, without thereby compromising its simplicity.[16] In this sense, essence and relation differ according to the *ratio* or 'quidditative being' of relation, in that in being towards another, the *ratio* of relation differs from the *ratio* of the essence as an absolute substance. As we shall see, Hervaeus will eventually assimilate Aquinas's understanding of *ratio* to Scotus's notion of the 'formality' of a thing.

Apart from the *ratio* of relation, Aquinas also resorts to the notion of 'relative opposition' in order to explain a trinity in God. According to Aquinas, the principles of distinction in the divinity are relations of origin,[17] so that in God only the persons can be really distinct from one another. Aquinas restricted real distinction in the divinity to relative opposition,[18] for he saw it as the only way to safeguard the essential equality of the persons. The terms of a relation of origin are necessarily equal and

[16] Aquinas, I *Sent.*, d. 2, q. 1, a. 3: "Intellectus enim noster non potest una conceptione diversos modos perfectiones accipere ... tum quia hoc quod in Deo est unum et simplex, plurificatur in intellectu nostro .... Unde patet quod pluralitas istarum rationum non tantum est ex parte intellectus nostri, sed etaim ex parte ipsius dei, inquantum sua perfectio superat unamquamque coneptionem nostri intellectus. Et ideo pluralitati istarum rationum respondet aliquid in re quae Deus est: non quidem pluralitas rei, sed plena perfectio, ex qua contingit ut omnes istae conceptiones ei aptentur." Also d. 33, q. 1, a. 1, ad 3: "ipsa ratio quam dicimus aliam et aliam in divinis, non est in re; sed est in re aliquid respondens ei in quo fundatur, sc. veritas illius rei cui talis intentio attribuitur, est enim in Deo; unde possunt rationes diversae ibi convenire."

[17] Relations of origin are also known as "opposite relations." An "opposite relation" is the relation between two terms that stand at opposite ends of one and the same process of production. Thus, active generation (or paternity) is related to passive generation (or filiation) by opposition. They constitute relations of origin because they account for the constitution of the persons in their being: the opposition active generation and passive generation refers to the constitution of the Son, just as active spiration and passive spiration refer to the constitution of the Spirit.

[18] Aquinas, *Sfh* I, q. 36, a. 2: "Non autem possunt esse in divinis aliae relationes [realiter] oppositae nisi relationes originis"; I *Sent.*, d. 13, q. 1, a. 2: "omnis autem distinctio formalis est secundum aliquam oppositionem"; d. 33, q. 1, a. 1, ad 1.

simultaneous, and to posit another type of real distinction was tantamount to introducing an order of priority in the divinity.[19] Furthermore, distinction opposition also avoids a real distinction between the persons and the essence. The Father and the Son are really distinct when referred to each other by origin, but not reference to the divine essence. Thus, it is not contradictory to say that the Father is really identical to the essence in virtue of its being, and at the same time really distinct from the Son in virtue of the relation of paternity.[20] Distinction by relative opposition is, therefore, a distinction according to *supposita.* For insofar as relative opposition can only obtain between the terms of a relation of origin, only the divine *supposita* can be really distinct.[21]

The principle of real distinction by opposition is intrinsically connected to the Thomistic emphasis on the unity of the essence and to the thesis that in the divinity what is not related by opposition is communicated by real identity.[22] According to Aquinas, the productive principle in the divinity (that is, the power that accounts for the processions) signifies primarily the essence, according to some relation. In this view, active generation is the communication of the being of the essence from Father to Son according to paternity. The essence is therefore the *principle* of productivity, whereas relation is the immediate *agent.*[23] And

[19] Aquinas, *ScG* IV, c. 24: "In relationibus vero omnibus super actionem vel passionem fundatis, semper alterum est ut subiectum et inaequale secundum virtutem, nisi solum in relationibus originis, in quibus nulla minoratio designatur, eo quod invenitur aliquid producere sibi simile et aequale secundum naturam et virtutem"; *De Pot.,* q. 2, a. 4; q. 7, a. 9.

[20] Aquinas, I *Sent.,* d. 26, q. 2, a. 3; *De Pot.,* q. 2, a. 5; q. 7, a. 6; *STh* I, q. 39, a. L

[21] Aquinas, I *Sent.,* d. 13, q. 1, a. 2; *STh* I, q. 30, a. 2.

[22] Aquinas and later Thomists are fond of adducing the authority of Saint Anselm and his principle, by then a *locus classicl'.s,* that "Totum est unum in deo, ubi non obviat relationis oppositio." See Anselm, *De processione spiritus sancti,* in F. S. Schmitt, ed., *S. Anselmi Cantuarensis archiepiscopi opera omnia* (Edinburgh: Nelson and Sons, 1946-61), vol. 2 (1946), p. 181, Il. 2-4. Cf. Aquinas, I *Sent.,* d. 13, q. 1, a. 2; *De Pot.,* q. 10, a. 2; *STh* I, q. 31, a. 2. See also C. Luna, "Essenza divina e relazioni ttinitarie nella critica di Egidio Romano a Tommaso d'Aquino," in *Medioevo. Rivista di storia della filosofia medievale* 14 (1988): 3-69.

[23] Aquinas, I *Sent.,* d. 11, q. 1, a. 3: "Potentia spirativa <licit aliquid quasi medium inter essentiam et proprietatem, eo quod <licit essentiam sub ratione proprietatis: sic enim actus notionalis ab essentia egreditur, non sicut ab agente, sed ab eo quo agirur … et ita spirativa

since relation is really identical to the essence, the only reality involved in the processions is the essence. As acts the same nature, the processions are essentially equal. [24]

To sum up, central to Aquinas's Trinitarian teaching is the notion of the essence as principle of production, in virtue of which, Aquinas believes, divine unity and equality are safeguarded in the trinity of persons. This essential communicability Aquinas understands primarily as the power of the essence to transmit its subsistent nature to the persons and to relations. From this main principle Aquinas infers three theses: first, that divine relation assumes the subsistent being of the essence and is thereby identical to the essence; second, in the divinity only what is a substance can be distinct, that is, that distinction is restricted to the *supposita;* and third and finally, the divine persons are equal in divinity and are really distinct from one another only if they are constituted by *subsistent* properties. As I hope to show in what follows, Hervaeus manages to make a successful incorporation of Scotist insights while respecting the essentials of Thomism"

II. JOHN DUNS Scorus AND THE FORMAL DISTINCTION

In attempting to avoid contradictory predicates such as 'communicable' and 'incommunicable' about God, Franciscan scholars conceived a type of distinction in the divinity prior to any operation of the intellect, which nonetheless was not a real distinction as that found between two substances" The main epistemological assumption behind this argument is that

potentia <licit essenriam sub ratione talis proprietaris"" According to Luna, «Essenza divina," 11, Aquinas revises his opinion in *STh* I, q. 41, a. 5, in which he asserts less ambiguously (and in agreement with Peter Lombard and Giles of Rome's view) that the power of production is the divine essence: «Potentia generandi significat divinam essentiam."

[24] Aquinas, I *Sent.,* d. 11, q. 1, a. 3, ad 1: "Natura communicatur per acturn natw:ae, communiter loquendo; sed determinata communicatio debet esse per actum naturae sub aliqua propria ratione acceptae; et ideo communicario quae est per spirationem, est actus divinae naturae, inquantum habet rationem spirationis. Et hoc intendit Anselmus, quod impossibile est dicere, quod processionis, quae terminatur in naturam, non sit aliquo modo natura principium, cum sit ibi quasi communicatio univoca!' For Anselm, see *De processione,* in Schmitt, ed., vol. 1, c. 6, p. 296"

distinction in concepts must mirror a real distinction in things. This greater degree of difference existing *ex natura rei* had its roots in Bonaventure's theology.[25] Although Duns Scotus was no exception to this tradition, he elaborated the notion of a middle distinction into his more comprehensive 'formal distinction'.[26]

The question at hand concerns the compatibility of the simplicity of the divine nature with the plurality of persons. This is a question Scotus treats in all versions of his *Sentences* commentary.[27] On the one hand, he dismisses a distinction of reason (such as that proposed by Aquinas) between essence and relations because that would entail that a mere *ens rationis-a* diminished being-constitutes the divine persons, thus resulting in the Sabellian error whereby the divine persons are not actual beings but mere 'modes' of the divine essence. On the other hand, Scotus rejects a real distinction, which would imply that essence and relation are distinct as two separate things.[28] Instead, he maintains that the distinction between essence and relation is prior to the operation of the intellect and is *secundum quid*, where *secundum quid* refers to the nature of the distinction *(referriad distinctionem)* rather than to the nature of the realities

[25] Bonaventure, I *Sent.*, d. 22, a. un., q. 4, in *Opera Omnia,* vol. 1 (Quaracchi, 1882). See also Friedman, "Relations, Emanations," 142-45.

[26] On the influence of Bonaventure's notion of middle distinction on Scotus's formal distinction, see B. Jansen, "Beitrage zur geschichtlichen Entwicklung der Distinctio formalis," *'Zeitschrift {Ur katholische Theologie* 53 (1929): esp. 317-44. For an excellent study on the notion of formal distinction, see T. B. Noone, "Alnwick on the Origin, Nature, and Function of the Formal Distinction," *Franciscan Studies* 53 (1993): 231-45.

[27] For the chronology of the different recensions of Scotus's commentary, see C. Balic, *Les Commentaires de Jean Duns Scot sur les quatre livres des Sentences: Etude historique et critique* (Louvain, 1927). Scotus began to read the first Book on the Sentences at Oxford circa 1300 *(Lectura),* and produced a second recension in Paris around 1302-1303 *(Reporata).* The *Ordinatio* is a later work undertaken when Scotus was back in Oxford at around 1305, following the intervention of Godfrey of Fontaines in Paris in the year 1302-3. The *Lectura* is also sometimes referred to as *prima lectura;* the *Ordinatio* or *opus oxoniense* is a revision of the Oxford lectures by the author himself; the *Reportata* consists of Scotus's lecture as copied down or "reported" by one of his students, and later examined by Scotus. For the *Lectura* and the *Ordinatio,* I will use *Opera Omnia,* ed. C. Balic (Vatican City, 1950), vols. 2, 4, and 16. For the I *Reportata,* d. 33, I will use my own transcription of Oxford, Balliol College, MS 205.

[28] Scotus, I *Reportata,* d. 33, q. 2, 146v.

distinguished.[29] In this sense, essence and relations are two actual things *(res simpliciter),* but it is their distinction that is *secundum quid.*

Scotus elaborates this idea by contrasting absolute distinction and less than absolute distinction *(distinctio secundum quid).* According to Scotus, an absolute (real) distinction requires four conditions: (1) that those distinguished are actual and not diminished beings; (2) that they have a formal and not just a virtual *esse* (i.e., unlike an effect which is virtually in its cause); (3) that they have a distinct and proper being and not "confused" *(confusum)* or mixed; (4) that they are absolutely nonidentical *(distinctionis perfectae . . . non identitas).*[30] The first three conditions concern the ontological status of the *relata,* whereas the last condition concerns the type of non-identity existing between them. Really distinct things satisfy all four conditions. Essence and relations are fully actual beings, but they fail to satisfy the condition of absolute non-identity. It is on account of their mode of non-identity, therefore, and not on account of a diminished being, that their difference is less than absolute.

Essence and relations are then distinct *secundum quid ex natura rei.* This relative non-identity signals for Scotus a lack of formal identity. Two things are said not to have formal identity when one does not pertain *per se* and primarily to the understanding of the other-that is, when neither is included in the formal *ratio* of the other, though they may be really the same. According to Scotus, *ratio* is the result of first intentional knowledge, as the quiddity of a thing.[31] In this way, a divine person is formally the same as the divine essence and formally the same as its personal property because both are included in its definition according to its reality. But this is not conversely so, because neither the divine essence nor the personal property is

[29] See also Scotus, I *Reportata,* d. 33, q. 3, 149r: "distinctio secundum quid non quod aliquid distinctorum sit res vel ens secundum quid sed quod distinctio eorum sit secundum quid quae attenditur penes non identitatem formalem et non identitatem adequata."

[30] Scotus, I *Reportata,* d. 33, q. 2, 147v.

[31] Scotus, I *Ordinatio,* d. 2, nn. 400-406.

formally the same as the divine person, since the divine person is not included in either of their definitions (were they definable).[32]

This formal non-identity, however, does not entail composition in the divinity, because in virtue of its infinity the essence is capable of containing everything that is not incompatible with it *(continet omnia quae sibi non repugnant).*[33] In other words, when one of the two formal realities involved in the distinction is infinite, they cannot effect composition. Therefore, a plurality of formal objects in God does not render his simple being composite.

Scotus's argument on the compatibility between the unity of essence and the plurality of persons is ultimately founded on the notion of the infinite nature of the essence, a notion to which Scotus repeatedly resorts. On account of its infinity, the essence can include a plurality of *supposita* without entailing a division in its nature. For although the essence is endowed with a perfect being in each *suppositum,* its being is nevertheless not exhausted in the *supposita.* The essence can possess other *modi essendi.*[34] It is this lack of adequacy between the infinity of the essence and the persons' being determined over against each other that allows for a coexistence of simplicity and plurality within God. The infinity of the essence is sufficient to account for the real identity between the plurality of the persons and the unity of the essence. Thus, there is no need to resort to another reality that would be identical to the essence and the persons and according to which the unity of the essence could be reconciled to the plurality of the persons. Rather, the infinity of the essence, of itself, absorbs into one absolute unity the incompatibility between diverse modes of

[32] Scotus, I *Reportata,* d. 33, q. 2, 147v; 148r-v: "distinctio formaliter essentiae et proprietatis .•. est unitas verissime identitatis; et istam distinctionem potest praecedere aliqua rationis sed non necessario praeexigitur ad istarum distinctionem quia nunquam distinctio quae est ex natura rei *vel realis* necessario preexigit distinctionem rationis sicut nee unitas realis unitatem rationis."

[33] Scotus, I *Reportata,* d. 33, q. 1, 146r; 147v: "Infinitum autem est cuilibet sibi composibili idem, cui repugnat etiam aliquo alio perfici vel actuari, quia sic esset composibile cum illo addito et per consequens non esset simpliciter infinitum."

[34] Scotus, I *Lectura,* n. 256: "essentia autem divina haec, licet habeat perfectum esse in uno supposito, non tamen habet in hoc supposito omnem modum essendi quern potest habere." I *Ordinatio,* n. 387.

being. The type of identity that infinity creates is one in which one term 'virtually includes' the other term. [35]

A recent study has suggested [36] that underlying Scotus's depiction of the essence as an infinite nature is a conception of the divine essence as a special kind of universal. According to this type of universal, "numerically one object is really predicable of-that is, really repeated in-each of its instances, such that the object is somehow a real component of each of its instances." [37] Whereas ordinary common natures are numerically divided into their instances so that the instances are said to be subjective parts of that common nature, the divine nature is really repeated *by identity* in each of its instances (i.e., the divine persons) without thereby jeopardizing its numerical unity. The essence is really repeated in the persons while remaining numerically one and the same. Thus, when it comes to the divinity, Scotus makes a fundamental distinction between the divisibility of a common nature into many parts and the predicability of numerically one nature of its different instances. [38] Scotus's main point is not that other common natures are not really communicable, but that their communicability is strictly related to their divisibility, while the divine nature is communicable *without division.* He is thus making a distinction between communicability with divisibility as found in ordinary universals, and communicability without division, only possible in an infinite nature such as the divine essence. [39] Scorns's main thesis, therefore, is that the communicability of the essence obtains between numerically singular terms.

[35] Scotus, I *Ordinatio,* d. 8, n. 22L

[36] I refer to Richard Cross, "Divisibility, Communicability, and in Duns Scotus's Theories of the Common Nature," in *Medieval Philosophy and Theology* 10 (2001), forthcoming; and its sequel, "Duns Scotus on Divine Substance and the Trinity," in *Medieval Philosophy and Theology 11* (2002), forthcoming. In what follows I shall be drawing mainly from Cross's article.

[37] Cross takes this definition from Scotus, *In Metaph.,* VII, 18, nn. 17-20, where Scotus in his turn refers to Bacon's *Communia Naturalium,* 2.10. Cross calls this special kind of universal a "Baconian universal."

[38] For Scotus, see H *Ord.,* d. 3, p.1, q. 1, nn. 37 and 39.

[39] For Scotus, I *Ord.,* d. 2, p. 2, qq. 1--4, n. 381.

In what follows, we shall see how, already in his *Sentences* commentary, Hervaeus Natalis's elaboration of Thomistic ideas is fundamentally compatible with the Scotist standpoint. Hervaeus derives from Scotus the notion of formal distinction and the idea of the essence as an infinite nature that can be predicated of the persons without division.

III. HERVAEUS'S *SENTENCES* COMMENTARY

Hervaeus's *Sentences* commentary (1302)[40] is an interesting work in its doctrinal eclecticism. On the one hand, the treatment of some of the questions assumes the character of a commentary on Aquinas's teaching, indicative of the breadth of Hervaeus's knowledge of the Thomistic *corpus.* On the other hand, underlying Hervaeus's main responses is an intelligent development of Thomistic theses which, not altogether deviating from Aquinas, prepares the ground for a more frank elaboration along Scotist lines.

In examining the type of identity between essence and relation,[41] Hervaeus mainly deals with the opinion, presumably that of Bonaventure, that essence and relation are not really identical but differ according to a real mode of being *(secundum modum essendi realem).* Hervaeus believes that this opinion is deficient on two counts. First, in the divinity that which "has" *(habens),* namely, the *suppositum,* and that which "is had" *(habitum*), namely, the essence, are essentially and really the

[40] Hervaeus Natalis, *In quattuor libros Sententiarum Commentaria* (Paris, 1647; reprinted by New Jersey: The Gregg Press, 1966). F. Stegmiiller, *Repertorium in Sententias Petri Lombardi* (Wiirzburg: Schoning, 1947), 164, believes Hervaeus read the *Sentences* between 1302 and 1303. According to R. L. Friedman, "The *Sentences* Commentary, 1250-1320: General Trends, the Impact of the Religious Orders, and the Test Case of Presdestination," in G. R. Evans, ed., *Medieval Commentaries on Peter Lombard* (Leiden: Brill, 2002), 69, Hervaeus worked the *Sentences* into its present form as an *ordinatio* in 1309 or later.

[41] Hervaeus, I *Sent.,* d. 31, q. 1, esp. aa. 3 and 4, 130aff. Worthy of remark is that nowhere in his commentary does Hervaeus explicitly deal with the issue of relation and its foundation in the creatures.

same-except when the *suppositum* involvesrelative opposition. [42] That is to say, in the divinity essence and relation are not really distinct as two distinct natures, but only in respect to another term. [43] Thus, "the essence is the Father" and "the Father is paternity" are both true because the essence is really and essentially the Father just as the Father is really and essentially paternity. Yet, neither does the essence include paternity in its definition, nor does paternity include the essence in its definition. To that extent, the essence and the Father are really identical but distinct only according to paternity, insofar as paternity is in the Father, and not the essence.[44] Second, two really distinct things cannot form a unity except by composition. Since divine unity does not allow composition, essence and relation must be really identical. Hervaeus believes that real distinction is equivalent to numerical plurality, so that if a mode of being connotes a different reality from the essence, then the composition between that mode and the essence is unavoidable. [45]

According to Hervaeus, therefore, the transitivity between identical things does not necessarily hold when one of them involves a relative term. [46] That is, he denies that "if the essence is identical to the Father, and the Father is identical to paternity, then the essence is identical to paternity." The conclusion is false because the Father includes a relative term (i.e.:-paternity) which the essence does not include. However, instead of inferring a real

[42] The terminology of "habitum" to denote something abstract, or a common nature, and "habens" to denote something concrete, or a particular property, was standard for distinguishing between nature and *suppositum.* Thus, for example, it was common usage to define Christ's human nature as that which "is had" or assumed by the *suppositum,* and the (divine) *suppositum* as that which possesses personal properties and is capable of "having" or assuming a nature.

[43] Hervaeus, I *Sent.,* d. 31, q. 1, a. 3, 132a: "ilia quorum unum est essentialiter alterum inter se non habent differentiam realem." This is, in essence, Anselm's message in his principle that "Totum est unum in deo, ubi non obviat relationis oppositio" (see note 22, above).

[44] Hervaeus, I *Sent.,* d. 31, q. 1, a. 3, 132a.

[45] Ibid. .

[46] Transitivity is a property of real identity in the creatures. It states that "for all x, y, and z, if xis identical toy, and y is identical to z, then xis identical to z." See M McCord Adams, "Ockham on Identity and Distinction," in *Franciscan Studies* 36 (1976): 5-12.

distinction, Hervaeus holds that essence and paternity have a type of non-identity or, as he calls it, a "'non-convertible identity." By this Hervaeus means that whereas both essence and paternity are predicated of the Father, neither is the essence predicated of paternity nor is paternity predicated of the essence.[47]

Note, however, that this is not yet Scotus's formal distinction. At this early stage, Hervaeus still presupposes Aquinas's notion that the *ratio* of a thing is the result of second intentional knowledge, whereas the Scotist formal distinction presupposes a notion of 'formality' as discerned in first intentional knowledge. The formal distinction is therefore not equivalent to but stronger than the Thomistic distinction of reason. Following Aquinas, Hervaeus holds that this term (viz., paternity), which only the Father includes, does not entail a real distinction but only a distinction according to reason. This is because the relative term of a relation is part of its *ratio* and does not signify another thing.[48] By focusing on the non-identity of essence and relation rather than on their ontological value, however, Hervaeus was potentially allowing a development into the Scotist formal distinction. As we shall see, Hervaeus makes this step in his *Quodlibets* by introducing the notion of *ex natura rei*, the notion underlying the Scotist 'formality'.

According to Hervaeus, that relation only signifies a *ratio* when compared to its foundation is not to be understood in the sense that relation *becomes* a being of reason, but in the sense that relation differs from its foundation only according to reason.[49] Hervaeus does not subscribe to the idea that relation has to be understood as a diminished entity in order to qualify the distinction between essence and relation as less than absolute. Again, this makes Hervaeus's position more akin to Scotus's own,[50] whereby even though essence and relation may be fully actual beings, this does not necessarily entail that their distinction

[47] Hervaeus, I *Sent.*, d. 31, q. 1, a. 3, 132a: "essentia et proprietas non habent differentiam realem inter se, sed in habitudine ad tertium."

[48] Ibid.

[49] Hervaeus, I *Sent.*, d. 31, q. 1, a. 4, 132b-133a.

[50] See Scotus, I *Reportata*, d. 33, qq. 2-3 (1305),

or identity has to be equally absolute. It is a constant feature of Hervaeus's position that real things can relate as such without thereby entailing real distinction or real identity. In this sense, the formal distinction, as Aquinas's distinction of reason, is compatible, and indeed presupposes, a real identity. Hervaeus's principle of non-convertible identity requires this idea that a real thing does not necessarily entail a real distinction. Paternity is a *real* relation in the divinity, and yet is distinct from the essence only according to its *ratio,* that is, insofar as it introduces another term (viz., filiation).[51]

Hervaeus believes, with Scotus, that the possibility of a plurality of relations in the unity of the essence ultimately lies in the infinity of the essence.[52] Finite beings, by contrast, are metaphysically incapable of induding a plurality without thereby effecting composition. Only an infinite being can preserve its real and numerical identity with things that between themselves are distinct.[53] In this respect, Hervaeus will also say that there is a lack of adequacy between essence and relations, whereby the essence surpasses relations in its perfection as an infinite being. Thus, the essence and, say, the relation of paternity, are "non-adequately identical" because, even though they are really identical, the essence in its perfection can indude all relations without division, whereas the relation of paternity cannot indude, but is rather opposed to, the relation of filiation.

We can see how Hervaeus's position thus far already contains Scotist elements without necessarily deviating from the essential parameters of Thomistic theology. Hervaeus's kinship with the Scotist outlook has been made evident by two factors. First, Hervaeus a non-convertible identity between essence and relation, like Scotus's formal distinction, presupposes a real identity and is based on a comparison to a third (i.e,, the term of the relation). Second, Hervaeus like Scotus appeals to the

[51] HeTVaeus,I *Sent.,* d. 31, q. 1, a. 4, 133b.

[51] See Scorns, I *Lectura,* d. 2, p. 2, qq. 1-4, n. 256.

[53] Henraeus, I *Sent.,* d. 31, q. 1, a. 4, 133b. Cf. d. 32, q. 1, 135a-b.

infinity of the essence in order to reconcile its simplicity with a plurality of relations.

Hervaeus's affinity with the Scotist standpoint is also evident in his Trinitarian account, otherwise distinctly Thomistic. In attempting to establish the possibility of a plurality of processions in the divine unity, Hervaeus makes a distinction between 'thing' *(res)* and 'real' *(realis).* Even though active generation and active spiration constitute only one reality *(res)* in the Father, Hervaeus maintains, they are nevertheless really *(realiter)* in the Father as two real relations.[54] In this respect, Hervaeus argues that for two real things, 'real' can signify either the things *(res)* that are two, or the duality itself.[55] Thus, "essence and relation are *really* in the divinity" is very different from "essence and relation are a plurality of things in the divinity."

According to Hervaeus, that active generation and active spiration end at different terms (Son and Spirit respectively), is not sufficient for a real distinction. For insofar as active generation and active spiration coincide in their subject, they constitute one reality which is not divided by its differences *(non dividuntur differentiis eius)-that* is to say, the difference of relative terms does not make active generation and active spiration numerically two. Hervaeus, therefore, subscribes to the Thomistic view of the essence as the principle of production in the divinity. Underlying this thesis is also the Anselmian principle whereby what is not opposed is communicated by real identity. Thus, although active generation and active spiration are real relations in the Father (for they are founded on a real foundation and have real correlative terms), they do not constitute a real plurality because they do not imply opposition.[56]

Hervaeus will eventually develop the implications of this seminal distinction between the reality of a thing and its numerical identity along the lines of the Scotist notion of formal distinction. For if *res* can refer to the numerical identity of a thing

[54] Hervaeus, I *Sent.,* d. 27, q. 1 ("U. patemitas et spiratio activa sint duae res"), 120b, C-D.
[55] Hervaeus, I *Sent.,* d. 27, q. 1, 121a, C-D.
[56] Hervaeus, I *Sent.,* d. 27, q. 1, 121b, B-D; 122a, B.

apart from its ontological status, then the reality of relation does not necessarily entail its numerical distinction from the essence. In other words, essence and relation can be really identical and yet formally distinct. The 'middle distinction' which makes essence and relations neither really distinct nor absolutely identical is grounded on this idea that the ontological status of a thing does not need to determine its numerical identity. The distinction according to 'modes of being' (which Scotus eventually criticized in Bonaventure, and Hervaeus in Durandus of St as an alternative middle distinction becomes unnecessary and, indeed, problematic. For in Hervaeus's outlook, such modes, far from explaining the Trinity, can only multiply the realities in God.[57]

Hervaeus's commentary offers valuable material in two respects. First, it already contains the theological insights that allow him to draw upon Scotist conceptions in the elaboration of his Trinitarian account. That Hervaeus's theology was initially akin to Scotist ideas must not be underestimated, since it compels us to recognize that the "Thomism" of this generation was not a simple repeating of received knowledge from Aquinas's works, but rather consisted in an *expositio reverenter* which did not exclude an intelligent use of alien sources. Second, Hervaeus's commentary nonetheless displays an attitude common among Dominicans of treating Aquinas as an authoritative source meant to be expounded rather than criticized. Indicative of this is that, even though Hervaeus's treatment of the Trinity according to Scotist insights ultimately led to conclusions potentially alien to Thomism, it was always motivated by an interpretation of Aquinas's main theses.

Thus, for example, Hervaeus's account of a non-convertible identity between essence and relation was initially inspired by a reinterpretation of Aquinas's distinction of reason according to the *ratio* of relation, potentially akin to the Scotist formal distinction. Like Aquinas, Hervaeus believes that essence and relation are distinct only according to the opposite term of

[57] See Hervaeus, I *Sent.*, d. 32, q. 1, 135a.

relation; but whereas in Hervaeus's commentary this meant a distinction of reason, in his *Quodlibets* it will develop into a type of non-identity more explicitly linked the Scotist notion of *ex natura rei.* Nevertheless, the attitude of reverence towards the Thomistic *corpus* will remain a constant in Hervaeus's work, evident mainly in Hervaeus's attempt to reconcile rather than critically evaluate Aquinas's basic tenets.

IV. HERVAEUS'S QUODUBETAL QUESTIONS

In his *Quodlibets,*[58] Hervaeus again subscribes to the main Thomistic theses: relation and its foundation constitute the same reality and differ only according to the *ratio* of relation, and distinction in the divinity is explained by relative opposition. Hervaeus believes that if we call relation a thing (res) distinct from its foundation, substance and relation in the divinity become two distinct categories, with the result of composition in God.[59] As in Aquinas, presupposed in this view is a traditional account of the categories according to which they mirror an ontological division between substances and accidents, whereby any real distinction between essence and relation is tantamount to a classification of the divinity into categorical realities, thereby introducing accidentality into God.

Hervaeus's IV *Quodlibet* (1310) is of particular interest in that it tackles the compatibility of unity and distinction in God from an expliddy Scotist standpoint. As Hervaeus presents it, there are in the divinity diverse modes of identity, on account of which seemingly contradictory statements can be predicated of the same

[58] For the complete edition of Hervaeus's *Quolibets,* see *Subtilissima 1-Iervei Natalis Britonis theologi acutissimi quolibeta undecim cum octo ipsius profundissimis tractatibus,* ed. M.A. Zimara (Venice, 1513). For the dates of Hervaeus's *Quodlibets,* the main sources seem to agree in general lines. J. Koch, *Durandus de S. Pmrciano* O.P. *Forschungen zum Streit um Thoinas von Aquin zu Begin des 14. Jahrhunderts,* Beitrage zur Geschichte der Philosophie des Mittehlters 36 (Milnster: Aschendorff, 1927); Stegrniiller, *Reportatio;* and Glorieux, *La litterature quodlibetique de 1260 a 1320* (Kain, 1925) assign the following dates: I *Quodl.:* 1307; H *Quodl.:* 1308; m and IV *Quodl.:* between 1309 and 1318 (Stegmiiller suggests ca. 1308-12 for IV *Quodl.),* during Hervaeus's time as provincial of France.

[59] Hervaeus, H *Quodl.,* q. 7, a. 2, 47ra. Cf. Aquinas, *Sfh* I, q. 28, a. 2, sc.

thing. The question is, therefore, how to explain identity in the divinity, if communicability and incommunicability are both found in God *ex natura rei*,[60] that is, according to his reality.

Hervaeus understands communicability according to predication, in the sense that numerically one essence is predicable of the three persons.[61] That is to say, whereas the essence and the persons are really identical, the essence and not the Father is predicated of the Son. This is not to say, however, that the essence and the Father are distinct *from each other*, but that they are distinct only in their comparison to a third (the Son), Hervaeus believes that it is not necessary to affirm a real distinction between the essence and the Father, but only a non-converse identity.[62] The difference between 'communicability' and 'incommunicability' in the divinity ought not be explained by different modes of being, but according to the different ways in which the essence and the persons are *predicable* of a third.

Two things are non-conversely identical when what is formaHy identical to one is not formally identical to the other. this way, the essence and the Father are non-conversely identical because paternity is formally identical to the Father, but paternity is not formally identical to the essence. Non-converse identity is also a mode of predicating the lack of adequacy between the essence (which comprehends all the persons) and the persons (which obviously do not).[63] On account of its infinity, the essence is predicated without divisibility a greater plurality than a person can indude. Convertibility and adequacy, then, a certain

[60] Hervaeus, IV *Quodl.*, q. 7, 95rb. This is the first time, to my knowledge, that Hervaeus uses the term *ex natura rei* in a strict Scorist sense.

[61] For a similar argument on the predicability of the divine essence, see Scorns, I *Ord.*, d. 2, p. 2, qq. 1-4, esp. nn. 388-415; d. 4, p. 2, q. un.; VU: *Metaph.*, 18.

[62] Hervaeus, IV *Quodl.*, q. 7, a. 2, 96ra-rb. By resorting to the notion of non-converse identity, Hervaeus claims, he avoids a violation of Aristotle's principle of non-contradiction, whereby "affirmation and negation cannot be predicated at one and the same time of the same subject." See also Hervaeus, IV *Quodl.*, q. 7, a. 3, 99rb.

[63] As we saw, Scotus also understood non-adequate identity and non-converse identity as two ways of expressing the same type of non-identity. See I *Reportata*, d. 33, q. 2, 148r. Both Scotus and Hervaeus establish a metaphysical link between the infinite perfection of the essence and the possibility of its being predicated by without entailing

comparison, so that we cannot say of the same thing that it is conversely or adequately identical to itself. Thus, Hervaeus, in a Scotist elaboration of Aquinas's rational distinction, explains the connection between essence and relation in terms of a type of identity, disregarding whether or not essence and relation signify fully actual beings. The fact that relation signifies another formality does not necessarily entail that it signifies a distinct reality.

For Hervaeus the communicability of the essence is *ex natura rei* in that it is said of a real unity. By contrast, the communicability we find in things of the same genus or species is according to reason, since it is founded on a conceptual unity. The common nature 'humanity' is thus numerically divided in the plurality of its individual instances, so that there is not a community of identity strictly speaking, but only according to the intellect.[64] By contrast, the essence is really communicable as a unity when, as numerically one thing, it is repeated in its individual instances by identity. To be communicable without divisibility is then to be communicable by identity.[65]

Hervaeus's affinity to Scotus is remarkable. Both theologians believe that the divine essence, as a singular being, is predicated by identity of the three persons without thereby incurring division. In this respect, Hervaeus explains the distinction between essence and relations as a non-converse identity, which, like the Scotist formal distinction, is based on a fundamental distinction between the reality and the formality of a thing. The

[64] Hervaeus, IV *Qoodl.*, q. 7, a. 1, 95va-vb: "unitas communis dicitur esse realis quando sc. ilia unitas convenit illi communi in esse reali circunscripto tali esse obiectivo: sicut si ego dicerem quod unum et idem subiectum est commune pluribus formis adinvicem succedentibus, unitas enim talis subiecti non convenit sibi secundum esse obiective [sic] in intellectu tantum, sed secundum esse reale est enim unum subiectum numero plurium formarum succedentium subinvicem."

[65] Hervaeus, IV *Quodl.*, q. 7, a. 2, 96ra-rb: "potest praedicabile commune accipi quod unum et idem numero ens convenit pluribus: sicut in divinis una et eadem essentia numero est plures personae. Et istud est in divinis singule.... In creaturis .•. commune non est idem realiter in pluribus partibus subiectivis. ..• In divinis vero eadem numero essentia est quod est plures personae." Again, the Scotist resonances are evident: I *Ord.*, d. 2, p. 2, qq. 1-4, nn. 367, 381; Il *Ord.*, d. 3, p. 1, q. 1, nn. 37, 39; *VIIMetaph.*, 18, nn. 17-20.

main insight is that non-identity is explained in terms of a qualified distinction *(referatur ad distinctionem)* rather than in terms of a qualified reality *(referatur ad realitatem).* [66] Thus, both theologians find their *media via* by focusing on the relation of identity between two things, rather than on their corresponding ontological status.

Although on the surface deviating from Aquinas's view on the matter, Hervaeus was still respectful of the fundamentals of Thomism. Hervaeus inherited a Thomistic distinction between the *ratio* and the *esse* of an accident, which made it comparatively easier to adopt a parallel distinction between the formality of a thing and its reality, the core of the Scotist notion of formal distinction. Moreover, the Scotist formal distinction, like Aquinas's distinction of reason, always presupposes a real identity. Likewise, the notion of the essence as an infinite common nature ultimately abided by the principle, dear to Thomists, of communicability by identity. In this way, Hervaeus's successful adoption of Scotist insights had the curious result of making them a Thomistic yardstick. [67]

[66] See Scotus, I *Reportata,* d. 33, q. 2, 147r-v.

[67] This is particularly evident in the conflict between Durandus and St Poun;ain and the Dominican order, a conflict that yielded two censure lists against Durandus, both led by Hervaeus. As an examination of the censorship reveals, the criteria used by Dominican authorities are based on Hervaeus's Scotist elaboration of the Thomistic theses. It is this accepted interpretation of Aquinas, rather than a *verbatim* repetition of Aquinas's writings, against which Durandus had to reckon. For an edition of the censure lists, see J. Koch, ed., "Articuli nonaginta tres extracti ex Durando S.-Porciano O,P. primo scripto super Sententias et examinati per magistros et baccalarios Ordinis," and "Articuli in quibus magister Durandus deviat a doctrina venerabilis doctoris fratris Thomae," in *Kleine Schriften* 2 (Rome, 1973).

BOOK REVIEWS

Introduction to Moral Theology. By ROMANUS CESSARIO, O.P. Catholic Moral Thought Series 1. Washington, D.C.: The Catholic University of America Press, 2001. Pp. 288. $44.95 (cloth), $24.95 (paper). ISBN 0-8132-1069-0 (cloth), 0-8132-1070-4 (paper).

Romanus Cessario's new book, *Introduction to Moral Theology* (the first in a series of publications from CUA Press on the topic of Catholic moral thought) is a splendid book. It is lucid, accessible to the beginner, firmly rooted in patristic and medieval sources, particularly Aquinas, and it nicely incorporates official Church teaching on ethics since Vatican II. The publication of this book and others like it signals an end to the tired and sterile debates that afflicted and paralyzed Catholic moral thought throughout much of the twentieth century.

In some ways, Cessario's book is most profitably read by beginning with the appendix, "Flight from Virtue: The Outlook of the Casuist Systems." The practice of moral casuistry, a term which arises from the penchant for examining specific moral situations or cases *(casus),* has always had a role in Catholic ethics. But it takes on a new shape and gains a kind of ascendancy in moral theology during the modern period, especially from Trent to Vatican II. In his appendix, Cessario offers a concise description of the casuist systems of the modern period and of their severe deficiencies. Following the work of his fellow Dominican, Servais Pinckaers, Cessario traces the roots of casuistry to the late medieval repudiation of teleology and of freedom as ensconced within the natural orientation of the human person toward happiness, understood as the true good of human nature. Thus a liberty of indifference replaces a liberty for perfection. The dominant terms of the moral life become law and liberty, with conscience as mediator. In a misunderstanding of *the* scriptural contrast between law and liberty, the casuists depict the two in a "dramatic conflict, rather than as complementary expressions of God's saving providence" (231). Given this opposition, the key pastoral problem concerns private morality, the individual's ability through conscience to resolve individual cases of moral doubt. The pastoral response oscillates between, on the one hand, a "rigorism" that eliminates personal initiative and makes obedience the sole virtue and, on the other hand, a "probabilism" that allows quite a bit of leeway for individual initiative so long as one can establish some sort of likely consensus of authorities in support of a course of action. Whether one adopts a lax or rigorous tone, the modern approach involves serious distortions of the patristic and medieval conception of moral theology. The casuists place undue emphasis upon private

morality, upon abstract laws in relation to isolated, specific acts, and upon the language of guilt and permissibility.

As Cessario aptly points out, the very structure of moral theology alters in the transition from Aquinas to the casuists. Law, liberty, and conscience replace the foundational investigations of man as *imago Dei* and of beatitude as the *telos* or goal of human life. No longer is moral theology organized around the virtues, acquired and infused, and the gifts of the Holy Spirit: "Acting in order to respect a law replaces acting for a purpose, for an end." Since "no end draws the human soul, obedience to law becomes the key virtue." Without a "prudential movement through the *ea quae sunt ad finem* toward an ultimate and specifying good end, there is not hierarchy of divine things that provides structure for or gives context to the moral life" (237). The natural law is viewed as a law extrinsic to the individual, separate from and in tension with human freedom.

By contrast, in Aquinas's teleological view, natural law is a participation of the rational creature in the eternal, the imprint of the creator on and in the creature, constituting, rather than opposing, the freedom of the human person. And the New Law, the Law of Christ, is poured out through the Spirit and constitutes the indwelling of the Spirit in the hearts of believers. Law is always seen as pointing, indeed inclining, the human person toward beatitude, which is ultimately realized in union with God and proximately realized through the practice of the virtues. The blessed life is also thoroughly communal, involving a participation in the interpersonal life of the Trinity and in the body of Christ. Thus, the core of moral theology, as of the moral life itself, is ecclesial, liturgical, and sacramental.

Cessario's task is to recover a moral realism anchored in a "highly refined teleology," which "explains and evaluates human behavior on the basis of whether or not a given human action properly and opportunely attains a good which conduces to the complete perfection of the agent" (44). The first and ultimate theological teaching is that, as Thomas puts it, "God alone satisfies." In the context of such a teleology, freedom is not an aloof indifference, but is ordered to excellence, happiness, and joy. For Cessario, Pinckaers says it best: "The natural root of freedom develops in us principally through a sense of the true and the good, of uprightness and love, and through a desire for knowledge and happiness" (123). Moral education engages the natural, human inclination to the good in order, as the *Catechism* puts it, to foster the "right disposition toward goodness," a disposition that enables us to "grasp the beauty and attraction" of the good. By contrast to the post-Scotistic conception of prudence as "merely intellectual" and not as presupposing and contributing to "the formation of the powers of the soul," prudence for Aquinas is the central virtue of the moral life. Judging in light of the ends decreed by the natural law or, to put it in a complementary way, in light of ends of the virtues, prudence commands what must be done in a particular case. Presupposing the ends of human life woven into our natural inclinations and the right formation of the appetites through the moral virtues, prudence involves much more than what is captured in the manualist conception of conscience as a merely cognitive skill of reasoning.

Cessario shows how Thomas avoids in advance the two great modern temptations with regard to prudence. First, he avoids the deontological or Kantian temptation to reduce prudence to, at best, a skill of applying rules to circumstances, or, at worst, a sort of cleverness in calculating one's self-interest. Second, he rejects the utilitarian or consequentialist or proportionalist temptation to see prudence as the capacity of weighing goods and evils and selecting which means will maximize value and minimize disvalue. *As* Thomas puts it, one can "never justify a bad act by a good intention" (175).

Among the many strengths of Cessario's book is the balance it strikes in the discussion of the natural law. On the one hand, he stresses that the availability of basic moral precepts to all human beings is a presupposition of the Church's evangelization, since what it teaches is not "foreign to human beings." Moreover, theology needs a "philosophically sound way of identifying the goods of the moral life," goods that are initially apprehended in terms of the natural law and the natural virtues. Following *Gaudium et spes,* Cessario holds that the natural law supplies "objective criteria" for morality, rooted in the "nature of the person and of human acts" (170). On the other hand, Cessario never loses sight of the distinctively theological root of the very notion of a natural law, which Thomas defines as a participation in the eternal law and whose precepts Cessario describes as "concrete revelation of divine providence."

The last description renders impossible any attempt to construct a self-contained natural-law ethic. *As* a participation in the eternal law, natural law is but one portion of, one moment in, the providential orchestration of the order of created things (58-59). Moral theology situates natural law within the full scope of divine pedagogy, whose centerpiece is the incarnation of the "Word, breathing love." *As Gaudium et spes* puts it, "only in the mystery of the incarnate Word does the mystery of man take on light" (30). Indeed, natural law itself is "not a complete collection of innate jurisprudence" (91). Instead, Thomas identifies the precepts of the natural law with natural inclinations, whose "fruition and fulfillment occurs through the moral virtues" (95).

Although Cessario's book certainly stands on its merits as a splendid introduction to moral theology, it is hard not to think of it as part of a new and vibrant movement in Catholic moral theology, one that may finally fulfill the calling of Vatican II. One thinks of course of the recently translated works of Pinckaers, *The Sources of Christian Ethics* (also from CUA Press) and *Morality: The Catholic View* (from St. Augustine's Press). One also thinks of the work of promising young scholars like Michael Dauphinais and Matthew Levering, whose co-authored introduction to the theology of Aquinas, *Knowing the Love of Christ,* will soon be published by Notre Dame Press. These texts are blazing a new path in moral theology, even as they show us how eccentric, fruitless, and boring were the debates between proportionalists and absolutists.

One final observation. By placing moral theology within the full scope of theological discourse and practice, Cessario helps to revive the Trinitarian, ecclesial, and sacramental foundations of Aquinas's ethics. In so doing, he underscores the Eastern sources of Thomas's moral teaching. The numerous references (in both Aquinas and Cessario) to Damascene, Gregory of Nyssa, and

Maximus provide suggestions for how we might begin to rethink the relationship of Thomas's moral theology to the thought and practice of Eastern Orthodoxy. Cessario (who goes so far as to speak of divinization) has implicitly opened up a line of research and dialogue with Eastern Orthodoxy that is likely to prove much more fertile thm the internecine battles that have plagued Catholic moral theology in the recent past.

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Truth in Aquinas. By JOHN MILBANK and CATHERINE PICKSTOCK. New York: Routledge, 2001. Pp. xiv+ 144. $55.00 (doth), $15.95 (paper). ISBN 0-415-23334-8 (doth), 0-415-23335-6 (paper).

Despite its tide, this book deals only briefly with the concept of truth in Aquinas-that is, with Thomas's notion of the adequation or correspondence of mind and reality. Save for one chapter it consists of previously published papers on Aquinas by its two authors, in which a great many matters come up for consideration: knowledge (especially the importance of intuition), the soul's nature, the senses (especially touch), being, participation, creation, theology and philosophy, the Trinity, the incarnation's motive and its metaphysics, the Eucharist, and much else besides. The authors occasionally suggest a connection between these other issues and the notion of truth. But in brief compass they evidently intend to give a sweeping account of what, as they see it, Aquinas is up to, and what lessons contemporary theology and philosophy ought to learn from him.

The opening chapter is the one most dearly concerned with the concept of truth. Catherine Pickstock argues that for Aquinas truth is chiefly conformity to God. Creatures are true by their conformity to God's own k."lowledge of them, and we apprehend the truth, or truths, by grasping this correspondence of creatures to God. To apprehend the truth is thus to grasp the participation of creatures in the divine, and thereby for us as knowers also to participate in the divine. "Since the tree only transmits treeness ... as imitating the divine, what we receive in truth is a participation in the divine. To put it another way, in knowing a tree, we are catching it on its way back to God" (12). Modern philosophers erroneously suppose that we can "grasp phenomena as they are in themselves," whereas Aquinas rightly realizes that we can only grasp them "as they are insofar as they imitate God" (18).

This naturally leads one to wonder how one can teH when what we have apprehended is the truth-how we know when the tree we've caught is on its way back to God, and not bound for wherever false trees go. We can, after all,

be mistaken, so the question of how we can tell when we have truth and when we don't presumably merits an answer. Pickstock (rightly) eschews any thought of comparing what is in our minds with the way things are, and shows no interest in the idea that relations among beliefs, for example, might have a role in helping us figure out when our minds are true. In fact "truth is not 'tested' in any way, but sounds itself or shines outwards in beauty" (9); the *proportio* in which truth consists "is assumed and experienced, but cannot be observed or empirically confirmed" (17). Perhaps understandably, not everyone concerned about how we succeed in telling true from false will find this entirely reassuring.

In any case the position the authors attribute to Aquinas seems to rest on some elisions that he declines to make. Aquinas indeed holds that things are "true" by their conformity to God's own mind, while our minds are "true" by their conformity to things. But he doesn't infer from this that to know a tree just is to grasp it as imitating God. The connatural object of our intellect, Aquinas supposes, is the quiddity or nature of the material thing, not the material thing's imitation of, or participation in, God. On this seems to depend the possibility that people who don't know God-in particular, who don't know God as the Trinity, in whom all creation participates in at least a vestigial way-can nonetheless know the truth about the created world. Aquinas clearly thinks they can. Those without the distinctive grace of Christian faith are able to know all manner of truths (cf. *STh* 1-11, q. 109, a. 1). Pickstock and Milbank seem to think otherwise. To know anything at all, it appears, one has to know its divine source and goal; failing that, one forces things themselves to "dissemble" (18). Aquinas, though, is at some pains to keep straight issues about being and about knowing. Created things exist only by participation in their eternal exemplars, lodged in the divine Word, and we can know them only by the participation of our own intellect, through the creator Spirit's gift, in the uncreated light. But we don't have to know *about* the exemplars and the light, the Word and the Spirit, in order to have this knowledge of creatures. The eternal *rationes* of created things, as Aquinas puts a cognate point, are an indispensable cause *(principium)* of our knowledge, but they are not *what* we know (cf. *STh* I, q. 84, a. 5).

Subsequent chapters consider faith and reason, the incarnation, and the Eucharist. In the second chapter John Milbank argues that Aquinas sees no clear boundaries between faith and reason, theology and philosophy (21), or nature and grace (38), and seeks to show how Aquinas's thought subverts these distinctions even where it seems to rely on them. By his descent into our flesh, the authors argue in chapter 3, God brings about "the instruction of our intellect in divine matters by the senses" (64). For Aquinas, they propose, this not only reverses the intellect's sinful attachment to sense, but brings about an "ontological revision" (71) in which touch, not sight, becomes the highest sense. The ontological consequences of the incarnation extend, the authors stress, far beyond the remediation of sin, and indeed these consequences rate so highly that we have to regard God as "aesthetically compelled" to become incarnate (63), notwithstanding Aquinas's teaching that God could have redeemed us in other ways. In the final chapter, Pickstock presents Aquinas on the Eucharist as deliverance-indeed the only hope of deliverance-from the nihilism of Derrida.

If for Derrida the inescapability of language dooms us to the endless absence of being and truth, Thomas's teaching on transubstantiation sees infinite divine presence precisely at the linguistic moment of greatest absence-"This is my body," spoken of a piece of bread (97). In ways like these, the authors regularly suggest, contemporary philosophy and theology (not least that of many Thomists) need to be instructed by Aquinas.

A recurrent interpretive pattern emerges in these chapters. One or another passage in Aquinas is taken to show that his real view on the matter at hand is not to be found in any statement he actually makes, or is actually the opposite of the position he explicitly holds. So, to take one example, Milbank suggests that Thomas doesn't really see the Trinity as beyond the reach of speculative reason. "Despite his explicit disavowal of the possibility of natural reason discerning the Trinity, he in fact argues for the Trinity in much the same way that he argues for the divine attributes," namely, by reasoning from created to creative perfection (52). Thus we can say that Aquinas has "speculatively established" the Trinity, by carrying the intellectual and volitional emanations that go with personal existence to their highest pitch (53).

Aquinas surely holds that our concept of God's unity is no less analogical than our concepts of the *propria* of the divine persons. But he declines to infer from this that the unity and the triunity of God are on the same epistemic footing. In order to be "the source of all beings," God needs to be one, but he doesn't need to be the Trinity. So we can't infer from whatever grasp we have of "all beings," including intelligent beings, that God is triune (STh I, q. 32, a. 1, corpus and ad 2). To suppose otherwise isn't just wrong, it's laughable, though not amusing-it invites the *irrisio infidelium,* the mockery of unbelievers, who may be led by our speculative struggles *to* suppose that we believe the highest truths of the faith for such unconvincing reasons. The arguments about emanations that remain within the subject are designed to establish the intelligibility, not the truth, of belief in the Trinity-they "suffice to show that what the faith teaches is not impossible" (STh I, q. 32, a. 1).

These authors have labeled their writings "Radical Orthodoxy," and have put this forward as a new school of theology under their guidance (cf. *Radical Orthodoxy: A New Theology* [Routledge, 1999]). They are quite open about their intention to enlist Thomas in support of their own project (see 21). Of course, there is nothing wrong with trying to recruit Thomas for current theological and philosophical purposes. Thomists do it all the time; I have done it myself. There is also nothing wrong with the suggestion that Thomas's real view on one point or another differs, perhaps dramatically, from what seems to be his official view, or from the position conventionally attributed to him. Thomists have been making this sort of argument, often against one another, since the fourteenth century. But if one is going to claim that Thomas's real view supports one's current project, one must engage in the kind of close textual work that is the daily bread of Thomistic scholarship: analyzing passages from across the corpus of his writings that may bear on the matter at hand, showing, if possible, how texts which seem to conflict with one's interpretation of Thomas can be consistent with it, and so forth. Milbank and Pickstock do very little of

this. Indeed they dismiss such work as mere "exegesis," while they are engaged in the loftier and more difficult project of "interpretation" ("exegesis is easy; it is interpretation that is difficult" [20]). What Thomas actually says turns out to be little more than an occasion for their own speculation-a prominent peg on which to hang Radical Orthodoxy's hat.

Of course that Thomas didn't say it, or indeed that he denied it, doesn't make it wrong. The authors make some suggestions that are striking, whatever their merits as interpretations of Thomas. There is surely something stirring about a statement like, "Outside the Eucharist, it is true, as postmodern theory holds, that there is no stable signification, no anchoring reference, no fixable meaning, and so no 'truth'" (109). But it is a bit hard to know what to make of it, or why one would think it true, especially if one doesn't think that the decisive issues in the philosophy of language have been posed most effectively by Derrida. Does it mean that a world without a Eucharist in it would be a world in which no statement was true? What about the statement "There's no Eucharist in this world"? Or does it mean that people who don't believe in the real presence, or perhaps just don't know about it, are doomed to be nihilists or skeptics? But this looks plainly counterfactual. What of the many people who hold lots of true beliefs, and cheerfully grant that they do-who are neither nihilists nor skeptics-but who don't count belief in the real presence among them? The authors don't provide many dues about how to answer such questions. It does not help that the book is composed in a style thick with affectations of profundity, by turns excruciating ("a superessential reach to the other as goal is superadded even to the superessential superaddition of operation to substance" [54]) and simply curious (the Eucharistic entrance rites are "a liturgical liturgy" [100]).

In spite of its shortcomings as an interpretation of Aquinas, this book may attract readers of Thomas. Those especially who like Thomas, but aren't drawn to any of the established Thomistic interpretations of the master, may find it impressive for what it tries to do, even if it doesn't entirely succeed.

One feature of the book that some Thomists-not least quite traditional ones-may find appealing is the authors' sweeping repudiation of analytic philosophy. Lonergan, Burrell, Geach, and I all draw fire for supposing that analytic philosophy has anything useful to contribute to the interpretation and evaluation of Aquinas's views, and Tarski, Davidson, Dennett, and Searle for supposing that analytic philosophy has anything true to say about matters of philosophical interest in the first place. But Milbank and Pickstock are quite confused about the views and arguments of the analytic thinkers they discuss, so much so that it is difficult to tell what targets, real or imagined, they may be aiming at, let alone whether they manage to hit them. Thus Davidson, for example, actually rejects the thought that "disquotationalism" has anything to do with the concept of truth, denies that we could hope, or should want, to "get rid of" the concept of truth (see 2-3; perhaps they have him confused with F. P. Ramsey), and grants no epistemic privilege to statements in natural science (perhaps they have him confused with A. J. Ayer). As for me, I do not argue that there are two concepts of truth, one for "the secular realm" and one for "the

theological realm," but that there can only be one concept of truth for all statements-a theological one (see 4). Milbank and Pickstock seem to think that in general analytic philosophers are committed, whether they like it or not, to some sort of reductive scientific materialism, and that simply mentioning such a hideous bogeyman is enough to drive any Thomist off analytic philosophy altogether.

Analytic interpretation and assessment of Aquinas is, however, considerably on the rise, now often at the hands of people deeply knowledgeable about the text of Aquinas and the history of its interpretation. This is one result of the explosive growth in analytic philosophy of religion and philosophical theology since (to give a rough *terminus a quo)* Allvin Plantinga published *God and Other Minds* in 1967. Non-analytic Thomists thus find themselves faced with an increasingly large body of sophisticated interpretation of Thomas which they lack adequate means to evaluate. This may tempt them simply to look, in the manner of our authors, for the quickest way to repudiate it. For Thomists, at least, this would be an odd reaction. To many of Thomas's contemporaries Aristode seemed pretty much like a reductive scientific materialist, and they thought it better to keep their distance from such a threatening presence. Thomas was not deterred, and we who want to be his heirs shouldn't be either.

Another feature that may attract Thomists is the authors' conviction that Aquinas is the unambiguous hero of medieval philosophy and theology-perhaps, indeed, of the Western intellectual tradition between Augustine and the present. The medieval scholastic tradition before Aquinas, to the extent that the authors discuss it, is mainly a series of blind alleys. After him it is mainly the story of various failures to appreciate his insights, especially on the part of Duns Scorns, who singlehandedly initiates the decline of the West (on Milbank and Pickstock's misapprehensions about Scorns, see Richard Cross, '"Where Angels Fear to Tread': Duns Scotus and Radical Orthodoxy," *Antonianum* 76 [2001]: 7-41). Here the authors do not attempt to tell much of this story themselves. But they apparently take for granted a narrative of the medieval tradition of the kind that became standard in the mid-twentieth century, perhaps above aH in the version proposed by Etienne Gilson. Naturally Thomists have not been reluctant to endorse narratives of this sort.

Subsequent scholarship on medieval philosophy and theology has widely concluded that this narrative, for all the learning with which a scholar like Gilson works it out, is implausible. The period from about 1100 to 1400 sees too many issues under debate, and too many original and sophisticated positions defended, for us even to make much sense of the claim that there is a single high point to medieval philosophy and theology, let alone the same high point on every important issue. In particular the growth of scholarship on the fourteenth century has shown how unconvincing is the suggestion that Aquinas was followed by one long downhill slide into various forms of skepticism, irrationalism, and ontotheological domestication of the divine. Those of us whose first instinct is to defend Aquinas will have to do so without relying on the assumption that Thomism is the only alternative to such undesirable results.

Much of the appeal of sweeping historical narratives lies in the promise of intelligibility: we will understand the part by understanding its place in the whole. Having largely dropped the idea of a single high point to the intellectual history of the Middle Ages, medievalists now find it more difficult to write a grand narrative of the period than they once did. That doesn't make such a narrative less desirable. Among others John Marenbon, David Luscombe, and Alain de Libera have made preliminary attempts to tell the story of medieval philosophy in new ways. An account that also includes a wide range of theological developments is yet more difficult, though Marcia Colish has provided one overview that deals with both. But it may be left to a subsequent generation of medievalists to write a new narrative that combines Gilson's grand scope with his attention to detail. It is the latter, of course, that slows things down. But it considerably increases the likelihood that the narrative will be true.

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The Metaphysics of the Incarnation: Thomas Aquinas to Duns Scotus, By RICHARD CROSS. Oxford: Oxford University Press, 2002. Pp. 358. $90.00. (doth). ISBN 0-19-924436-7.

Richard Cross's book *The Metaphysics of the Incarnation: Thomas Aquinas to Duns Scotus*, is, on one level, true to its tide. It is an historical study of the way in which various medieval theologians from Aquinas to Scotus conceived the metaphysical make-up of the Incarnation. However, this historical study is predominantly the arrangement within which Cross weaves his own Christological agenda, one that he believes holds contemporary relevance. Thus Cross, in surveying assorted metaphysical. issues addressed by the various medieval theologians, not only critiques them, but also, in so doing, advances his own metaphysical understanding of the Incarnation. This is by no means improper, and in actual fact Cross's own Christo!ogical programme is the most fascinating and challenging aspect of the entire book. His skills pertaining to the logic and metaphysics of the Incarnation are considerable. However, in this particular case this format causes the book to lack a coherent presentation. Theologians, theological and philosophical issues, and Cross's own agenda do not always fit together smoothly.

On the one hand, Cross is compelled, since this is fundamentally an historical survey, to treat a large number of theologians: Aquinas, Matthew of Aquasparta, William of Ware, Godfrey of Fontaines, Bonaventure, Giles of Rome, Henry of Ghent, Duns Scorns, and so on. This he does with enviable knowledge and admirable flair. Yet, on the other what is important in this book is not the

narrating of what a myriad of theologians had to say on certain topics relevant to the Incarnation, but the critical themes that Cross wishes to address so as to further his own Christological thinking. Thus the treatment of many of these various (and "lesser"} theologians merely clutters up and adds little to the advancement of what is central to this book. This book would have been much better served, and would have been immensely more interesting (and .more clearly and logically written}, if Cross had simply allowed his own agenda to dictate its structure. Then he could have simply employed the most relevant theologians (primarily Aquinas and Scotus} for the benefit of his overall concerns. In this review I wish to focus solely on a few issues that Cross addresses from within the context of his historical survey that bear upon his own understanding of the Incarnation.

Cross first maintains that the medievals argued that the human nature of Christ, in order for it to be real, must be a concrete individual substance (see chap. 1). However, if Christ's human nature is a concrete, individual substance, why is it not a person in itself and how is it united to the person of the Son? Here Cross believes all of the medievals, and particularly Aquinas, are faced with a dilemma. Aquinas argued that, while the human nature is a real substance, it is not a person "because it does not exist separately in itself, but rather in some more perfect thing-viz. the person of the Word" *(STh* III, q. 2, a. 2, ad 3). Nonetheless, Cross contends that Aquinas, in not allowing the human nature its own existence, ultimately sacrificed the substantial reality of that nature and so unwittingly espoused Monophysitism.

This leads Cross into a lengthy and often very complex analytical discussion on how the various medieval theologians conceived the union between the divinity and the humanity in Christ. Cross holds that Aquinas employed a 'whole-part' model for the union, that is, that the humanity (the part: human nature) is united to the divine Son of God (the whole: divine person and nature). Most other theologians, including Scotus, employed the notion of a 'substance/accident' union, that is, as an accident inheres within a substance so the humanity inheres within the divinity.

Aquinas argued against the substance/accident model for he wished to uphold the idea that the Son of God was not accidentally man as a man is accidentally white. Rather, Aquinas wanted to ensure that the Son of God was substantially man, that is, that the Son of God actually did exist as a true man. However, while Cross on a number of occasions insists that Aquinas did not actually conceive the Incarnation on a 'whole-part' model, yet he consistently speaks of Aquinas' understanding of the Incarnation as if in actual fact he did employ it (see for example p. 55 n. 17; 59; 197). This not only causes confusion on whether or not Aquinas actually did nor did not use this model, but it also misrepresents Aquinas. Cross argues that Aquinas in employing something like the 'whole-part' model held that Christ's humanity only existed because, as a part, it was grafted into and embedded within the whole divinity of the Son. But this, Cross rightly states, is not possible. "The human nature cannot be an essential part of the divine *suppositum,* as Aquinas was well aware. Such a

Christological claim would amount to some version of the monophysite heresy" (57; see also 60).

Enmeshed within this discussion is the issue of whether or not Aquinas held that there were one or two *esses* in Christ, that is, one divine and one human. There is much scholarly debate on what Aquinas did hold on this issue, but Cross maintains that Aquinas's preferred and final understanding is that Christ had one, divine, *esse* for Christ is the one divine person of the Son (see 55). As Aquinas wrote:

> Since the human nature is united to the Son of God hypostatically or personally ... and not accidentally, it follows that no new personal *esse* comes to him in virtue of the human nature, but only a relation of the preexisting personal *esse* to the human nature, such that the person can now be said to subsist not only according to the divine nature, but also according to the human. (*STh* III, q. 17, a. 2).

Because Aquinas does not uphold a created human *esse*, and therefore seemingly the existence of a real humanity, Cross again concludes that Aquinas's conception of the Incarnation is monophysite. At this point I want briefly to critique Cross's treatment of Aquinas not merely by way of defending him, but also that such a defense might set the context for my further critique of Cross's own position.

Cross's analysis fails to grasp a number of important elements of Aquinas's conception of the Incarnation. First, Aquinas dearly did not hold a 'whole-part' model for the Incarnation, as if the humanity were an individual, discrete 'part' that came to exist as part of and within the larger whole, the divinity. This indeed would be Monophysitism. Second, what Aquinas did want to uphold was three truths simultaneously: (1) that it is *truly the Son of God* who is man, (2) that it is *truly man* that the Son of God is, and (3) that the Son of God *truly is* man. Third, for Aquinas these truths are upheld when one conceives that the humanity simultaneously both comes to exist and is hypostatically, and so ontologically, united to the person of the Son such that the Son actually comes to exist as man. The terminus of the incarnational becoming must be that the Son *is* man. Thus, as Aquinas stated, the Son does not come to be a new person, "no new personal *esse* comes to him." The Son remains unchangeably the Son. What is new is that an authentic humanity does actually come to exist, but it does so only as it is united to the person of the Son, thus allowing the person of the Son to exist newly as man. The incarnational act by which the humanity is united hypostaticaHy to the Son is the very same act that guarantees that the Son is actually man. Fourth, contrary to Cross, I would argue that Aquinas does allow for a twofold *esse* in Christ. For Aquinas, Christ is one being, *ens*, by the *esse personale* of the Son, but he is one *ens* by the *esse personale* only because the created relational *esse*, that is, the real relational effect in the humanity, is that it comes to be and is united to the Son in such a manner that the Son actually subsists as man. Aquinas then did not jeopardize the reality of Christ's humanity. What he ensured is precisely that the reality of that humanity is so united to the Son that the Son does actually exist as a genuine man.

To proceed, Cross maintains that most theologians after Aquinas adopted the 'substance-accident' analogy by way of explicating the relationship between the divinity and humanity in Christ. This not only allowed them to demonstrate the manner in which the humanity inheres within the divinity, but also, especially in Scotus's understanding, to account for a distinctive human *esse* apart from the divine *esse*. It is argued that accidents possess their own distinct mode of being *(esse)-as,* for example, being white-apart from the substantial mode of being *(esse)-as,* for example, being man. Because this incarnational view permits the humanity to possess its own *esse* and so more confidently assures, it would appear, its reality, Cross finds it more to his liking.

Nonetheless, while Christ's humanity may now possess its own human *esse,* it is united to the divinity as an accident to a substance. This being the case Christ cannot possess contradi-.i:ory attributes/accidents. As a substance, such as a man, cannot be white and black at the same time in the same manner, so Christ cannot possess contrary attributes at the same time in the same manner. Cross thus argues that the medievals, including Scotus, refused, because of their false philosophical understanding of God, to acknowledge the logic of the communication of idioms. Christ cannot be immutable and impassible as God and mutable and passible as man. "The correct strategy ... is to jettison one or other in any contradictory pair of divine and human attributes. It is this strategy-or so it seems to me-which allows the doctrine of the Incarnation to be coherent" (205). For Cross then, Christ's human suffering must be appropriated by his divinity and so be experienced within the divine nature.

Cross further agrees with Scotus that there is not something positive, such as Aquinas's act of existence, that accounts for a human being's subsistence. Rather subsistence is merely accounted for by something (a human nature) not being assumed by the Son of God. This is designated the "negation theory of subsistence." All human natures possess the passive potency of being assumed, but only Christ's actually was. It is only because the others were not assumed that they exist as who they are. If I understand Cross correctly, and it all does get rather confusing and complex, such a stance allows the human nature of Christ to be independent and concrete in that it can exist apart from the Son of God, and yet is now assumed by the Son of God and so is his humanity. How then does Cross conceive the incarnational union?

In the conclusion of his book Cross not only summarizes his previous arguments, he also develops their implications so as to offer his own metaphysical understanding of the Incarnation. He emphasizes again that Christ's human nature must be understood to be an individualized substance or nature, and thus Christ must have a human center of consciousness. This allows us to account for the Gospel's portrayal of Christ's ignorance and mistaken knowledge. "We need a subject for this lack of knowledge. It cannot be the second person of the Trinity on pain of contradiction. So it must be the assumed nature" (325). For Cross ignorance and error are not essential to being human, and thus not necessary for the Son's incarnational experience. If they were essential to being human, it would mean that it would be impossible for God to become man (see 316). Cross proceeds to argue then that Christ must have a

human consciousness some of whose experiences are communicable to the divinity and some of which are not, depending on whether or not they are in keeping with his divinity. Since change and time, unlike ignorance and error, are defining properties of created reality and human life, then God, if he is to become man, must be changeable and temporal (see 317). Equally, God must have passive liabilities and so suffer (see 317-18).

For Cross then, following Scotus, the human nature has causal control over its actions and so has "a degree of psychological and causal autonomy" (319).

> The Incarnation, on this account, consists of two overlapping individuals, the Word and his individual human nature; the union between these two individuals is explained by the fact that one of them is a property of the other. On this view, the Word is the subject of (most) human properties, whereas the human nature is not the subject of any divine properties. (319-20)

Since there are two centers of consciousness, what is directly experienced within the human consciousness that is compatible with the divine nature can be attributed, as "a second-order experience" (that is, as an experience once removed), to the divine consciousness.

> Pain is caused in the Word as much as it is in the human nature. But this is because the human nature *directly* possesses the relevant passive powers or liabilities; the Word possesses them *indirectly.* The only sort of case where this transitivity fails is when the human nature has a property that is incompatible with an essential divine property. (121)

Cross further argues that, since the human center of consciousness possesses ontological autonomy, it is possible that "this human nature could be assumed and fail to know this fact" (322). Cross concludes by stating that all that he wishes to uphold is best done from, again, within Scotus' negative theory of subsistence.

> [Negation theories] allow a human nature to have a natural inclination to subsistence. Equally, on a negation theory, the assumed nature lacks nothing had by a non-assumed nature. So on the face of it the assumed nature looks in this theory to be a powerful candidate for being a centre of consciousness or experiencing subject in its own right. (323)

A full critique of Cross obviously cannot be given here. Nonetheless, I would like to make a few observations in the light of Chalcedon and Aquinas.

Cross wishes to uphold Chalcedon and believes that his understanding of the Incarnation does so. He is fearful that his Christology, as was Scotus's, might be thought Nestorian. I believe his fears are not misplaced for, despite his honest best efforts to wrap himself in a Chalcedonian cloak, in the end it but conceals

a Nestorian heart. The reason is that Cross does not grasp, as did Aquinas, the true nature of the incarnational "is"; that the Son of God actually *is* man.

This can be seen first when Cross speaks of the Son and the human nature as two "individuals" and his insistence that the human nature is itself a psychological and causal autonomous subject. He describes the incarnational union as "two overlapping individuals." It would seem that within this portrayal of the Incarnation the Son of God *is not* actually man. While this may sound Nestorian, some may argue, as Cross does, that it actually is not. However, when this understanding of the Incarnation is interpreted from within the context of Cross's rendering of the communication of idioms, its Nestorian pedigree becomes evident.

Cross is critical of the patristic and medieval tradition which allows the Son to suffer only as man but not as God. While what the Son of God is and is not allowed to experience seems a little arbitrary within Cross's view, the real issue is that Cross's own understanding does not allow the Son to be the actual principal subject of the human attributes. For Cross the Son only experiences "indirectly" what is primarily experienced by the "autonomous" conscious human nature. For the Son of God, according to Cross, such an experience is a "second order" experience, that is, one that is not primarily his own. The reason for this is that on the one hand Cross wants the human suffering to be experienced within the divinity of the Son, but on the other hand he does not want human ignorance and error to be experienced within the divinity of the Son. In order to maintain both the Son takes to himself those human experiences that are compatible with his divinity and stands aloof from those that are not. But the reason the Son can do this within Cross's Christology is precisely because the Son *is not* actually man. Within Cross's Christology there are actually two "whos", two "subjects"-that of the Son and that of the autonomous conscious human nature-which merely overlap. There is testimony to this not only in his understanding of the communication of idioms, but also when he says that it was possible for the human nature not to know that it has been assumed by the Son. But who is the "who" who does not know? Human natures as such do not "know" and "not know." Only persons possess knowledge and ignorance. For Cross, whether he likes it or not, there is a human "he," a "person" (a "who") hidden within that "human nature," and therefore his Christology possesses all the marks of Nestorianism.

It should be noted for the sake of completion that within the true Chalcedonian tradition the Son could not only actually suffer as man, he could also be genuinely be ignorant and commit errors as man, since the Son of God was indeed a man. The fact that the Son did not suffer and become ignorant as God in no way made the Incarnation inauthentic. What the Incarnation authenticates is not that the Son of God experienced human life in a divine manner, but that he experienced human life in a human manner. The Incarnation authenticates that the Son did actually become man and so all that he did and experienced as man was truly human.

One final point concerning the "negation theory of subsistence." The reason I am who I am is not that I was not assumed by the Son, but that God created me

to be who I am. What Scotus and Cross forget is that there existentially or ontologically exists no such thing as a "non-assumed" human nature or a human nature that can or cannot be assumed. Only human beings/persons, who are who they are, exist, and therefore they could not possibly be assumed and so become somebody else. The Son could not assume me because before I came to be there was no "me" to assume. Once I came to be, I am me, and once I am me I cannot be assumed. The Son of God assumed a humanity that was uniquely his own (conceived in the womb of Mary by the power of the Holy Spirit), making him Jesus, and it only came to be at the moment of its assumption.

While I have been critical of Cross's book, I would nonetheless stress that it should not be ignored. The issues that Cross raises are at the heart of the Incarnation and the answers that he proposes must be taken seriously and given their proper due.

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Creatura intellecta: Die Ideen und Possibilienlehre bei Duns Scotus mit Ausblick auf Franz von Mayronnes, Ponciusund Mastrius. By TOBIAS HOFFMANN. Beitrage zur Geschichte der Philosophie und Theologie des Mittelalters, Neue Folge 60. Munster: AschendorffVerlag, 2002. 46.00 EUR. Pp. 356 (paper). ISBN 3-402-04011-5.

Tobias Hoffmann's *Creatura intellecta* is at present the definitive exposition and interpretation of Duns Scotus's metaphysics of divine ideas and the possibles in their relation to God. While the author frames his own questions to Scotus in terms of recent discussion of the Franciscan doctor's place in the history of metaphysics, his interpretations are well supported by the texts he cites not only from the *Ordinatio* Sentence commentary but also from the earlier *Lectura* and the later *Reportatio* IA. (Specialistshave not been in full agreement regarding the complete authenticity of this latter, a student report, but Hoffmann fully accepts its authenticity and relies on it extensively.) In accord with his subtitle, Hoffmann also traces the fundamental divergence within the Scotist school on divine knowledge and the possibles in the centuries after the Subtle Doctor's death.

After an introduction that situates Scotus historically and summarizes his originality, the first part of the work devotes five chapters to the issues of divine knowledge in general, practical and theoretical knowledge in God and the contingency of creation, the debate between Scotus and Henry of Ghent on divine ideas, the distant but vital role played by the divine ideas in human knowing (Scotus's minimalist appropriation of Augustine), and the divine

intellect's production of the ideas as possible quiddities or "understood creatures." For Scotus, there is a sense in which one can say that a divine idea is an eternally understood creature, possible only, or possible and to-be-freely-created (hence the tide of the book).

For Thomas Aquinas and Henry of Ghent, the problematic of the divine ideas, inherited from St. Augustine, served to explain how the one and simple God in knowing himself could know a plurality of potential creatures other than himself. Saint Thomas in the *Summa* first deduced that God knows things other than himself before going on to treat of the divine ideas as that whereby he knows the things he can create. The divine ideas are so many relations of imitability of the divine essence by things other than God and which he can create. God's knowing *himself as* imitable in different ways is God's knowing what can imitate him.

For Duns Scotus, God's knowing that his essence is imitable in different ways, that is, his knowing of a relation, *presupposes* knowledge of both terms, the divine essence and the possible essences of creatures. Thus for Scows, the starting point for the discussion should be the gaze of the divine intellect on finite essences in their intrinsic non-repugnance to being (their possibility). This does not imply for Scotus that existence-less but somehow independently subsisting essences or Platonic ideas actualize the divine intellect as objects of its act. Rather, the divine intellect, which primarily views the divine essence, "produces" and contemplates as secondary objects the possible essences it gazes on as ideas.

It is at this point that questions, objections, and misinterpretations of the Subtle Doctor's position have abounded, from the fourteenth century to the twenty-first. If the divine intellect "produces" possible essences, are their mutual relations of compatibility or contradictoriness (possibility or impossibility), among themselves and to "being," entirely beholden to God? (For comparison, Descartes held the truths of mathematics would be different if God so willed.) If this is to be rejected, are we to conclude that possible essences somehow are what they are in themselves independently of God, and that God's "producing" them as ideas means only that a state of being-known is added to their essential being by God's knowing them?

Hoffmann's control of the texts allows him convincingly to offer the answers that Scotus's work taken as a whole contains, and he refutes the widely disseminated interpretations by Simo Knuuttila and others who find in Scotus's metaphysics a realm of ontological possibilities independent from God. Let us survey the high points.

From distinctions 35, 36, and 43 of the first book of the *Ordinatio,* and a few other passages, it emerges, first, that the divine ideas and the possibles are identically the finite essences, *qua* eternally known to God and *qua* non-repugnant to actual being. Second-and this is the key text for Knuuttila-Scotus famously writes in *Ordinatio* I, d. 43 that even if God did not exist, a quiddity o.r essence would be non-repugnant to being, that is, possible in a fundamental sense. This is a consequence of the quiddities having their possibility *formaliter ex se.* But Hoffmann demonstrates that none of this implies

a transcendental domain of quiddities independent of God's producing them as objects of his knowing. For Scotus also says the quiddities have their possibility *principiative* from God; although it is from itself that black, for example, cannot be white and stone can be, nevertheless, the quiddities had to be produced as simple objects for them to be the subject of possibility and impossibilities. Thus when Scotus writes that they would be possible even if God did not exist, he is not denying that quiddity X owes itself to a divine intellectual production. Rather, focusing on possibility itself as a compatibility *of* a quiddity X *with* being, and keeping the quiddity itself in mind while not adverting to its intellectual production by God, Scotus simply answers an implied question, "What would 'happen to' X's *possibility (non-repugance between* X *and being)* if God were not around?" Since non-repugnance to being is essential to the essence, and not added to it by divine power (the position Scotus is refuting), the answer is that nothing would happen to its *possibility* per se if God were not around. But Scotus does not mean that the quiddity or essence itself is independent of God. To repeat, Scotus says that the quiddity has its possibility *formaliter* from itself, but also *principiative* from God, and he says elsewhere that the divine intellect gives the quiddity the very formal *ratio* that it is. Clearly the quiddity itself-stone, equinity, rose, humanity etc.-is produced as an immediately understood object by God's intellect.

One can thus summarize Scotus's utterly radical thought of origin as follows: God is the source of all beings, not only of their actual existence if he freely creates them, but also of their essences as intelligible and possible. God's primordially known, intensively infinite essence is the source and "measure" of the very content of finite essences as the essences they are, eternally manifest to the divine intellect contemplating them. The Scotistic schema of "instants of nature" is crucial here: at the first instant of nature God knows God, and at a further instant of nature he produces and knows the finite essences as sheer objects of noetic viewing. "First and second instants of nature" here means not a temporal order, but an essential order in which God would not be knowing finite essences as non-repugnant to being were he not knowing necessarily existing *deitas,* infinite being, by blessed intuition. Divine *intellectual production* of the possibles means, first, that the divine *intellect* produces them all as its secondary objects having, as objects of intellect, only being-known and not real being in themselves (the divine *will,* which can only act toward known objects, contingently wills known-as-possible creatures at the next instant of nature); second, the divine-intellect-intuiting-divinity is a kind of artistic imagination of the simple essential contents as such, the roseness of rose, the stoneness of stone, the humanity of humanity, etc., and not merely their possible combinations. There is thus no transcendental domain of possible essences independent of God in the metaphysics of Scotus.

Necessarily existing and self-known infinite being, *deitas,* is *naturally* productive of the finite possibles as sheer objects to be created or not by the divine will; since the philosopher does not have quidditative knowledge of *deitas,* it is pointless for him to ask why *deitas* eternally produces known finite

quiddities, or whether other quiddities could have been produced. As the great historian Paul Vignaux pointed out, *-productivitas* is a quasi-attribute of God in the thought of Duns Scotus, not able to be deduced a priori from our conceptual knowledge of God which consists in combinations of "being," "infinite," and the transcendentals. And divinely inspired Scripture alone reveals a production more primordial than that of the ideas in *esse intelligibili*: the productions of the Word and the Spirit in *esse reali*.

The second part of Hoffmann's book details the full-blown essentialism (cf. Gilson) of Scotus's pupil Francis of Mayronnes, and the sharp debate between two seventeenth-century Scotists, the Irishman John Poncius (Punch) and the northern Italian Bartholomew Mastrius, regarding the status of the possibles in themselves and as divinely known. Mayronnes, rightly known as the *Magister abstractionum*, pushes a hyper-Platonic dialectic of abstraction to the point of saying that since being-produced is a relational mode, it *-presupposes* an absolute foundation, the quiddity itself, so that quiddity as such cannot be produced. Thus it is not surprising that Mayronnes denies that the formal contents of possible essences are produced by the divine essence, even though this denial puts him openly at odds with his venerated teacher Duns Scotus. It is not perfectly clear whether Mayronnes attributes independence to finite quiddities as such, for he does obscurely say that (1) divine intellection "precedes" finite essences (though not *qua* intellection of those essences), and (2) the finite essences are contained *supereminenter* in the divine essence, by which he may mean that "there are" finite essences as knowable possibles only because there is infinite essence.

If Mayronnes falls just short of attributing independence to quiddities as such, John Poncius approximates Knuuttila's interpretation of Scotus by attributing an *esse diminutum* to the finite quiddity independently of God, an *esse* that is neither real existence nor the quiddity's being-known-to-God. Poncius is sharply rebuked by his fellow Franciscan Bartholomew Mastrius for whom God is not truly God if a finite essence does not owe everything to a divine production, not only its eventual contingent existence, but also its very formal content. Poncius thinks he does justice to belief in creation by reaffirming that the possibles cannot exist actually except in dependence on God's contingent will; Mastrius however is integrally theistic: his understanding of being does not allow a finite quiddity to "glory" (sic) in the fact of not owing its whatness to something outside itself. Whereas for Scotus and Mastrius finite quiddities are only "there" eternally as what they are and as objects to God because God knows his essence, for Poncius a domain of knowable finite essences stretches out before God's gaze independently of God.

Hoffmann's conclusion emphasizes the original shift in Duns Scotus's philosophy of divine ideas, a shift to ideas as themselves objects and as possibles, and Scotus's deeper reflection on these notions. At the same time, *Creatura intellecta* makes it clear that the early modern view of being as an independent transcendental domain of essences cannot appeal to the texts themselves of Duns Scotus. In fact, this metaphysics is sometimes clearly opposed to the Subtle

Doctor. It was more within the pluralistic Franciscan school considered as "Scotist" that key aspects of early modern metaphysics were first sketched out.

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Christian Life and Christian Hope: Raids on the Inarticulate. By ROWAN A. GREER. New York: Crossroad, 2001. Pp. 288. $24.95 (paper). ISBN 0-8245-1916-7.

Theological reflection on Christian hope, or eschatology, has proven an abidingly fascinating topic, at once consoling and enigmatic. The desire to know what ultimately awaits the Christian and the problem of how to discern this vision in a fallen world capable of providing only glimpses of the age to come has preoccupied theologians since the time of St. Paul. Accounts of Christian hope, while varying in detail, all must reckon somehow with complex notions of anthropology, Christology, soteriology, grace, nature, free will, and original sin. The spiritual dimension of eschatology, furthermore, inevitably yields a practical consideration, namely, how that future vision compels Christians to live in the present.

Rowan Greer has tackled this topic in a most intriguing, thoughtful way in his study entitled *Christian Life and Christian Hope: Raids on the Inarticulate.* He begins, as one might expect, with biblical understandings of Christian hope in the Gospels and Paul and moves on to the patristic period with Gregory of Nyssa and Augustine, but then he leaps forward to discuss the two seventeenth-century Anglican writers John Donne and Jeremy Taylor. At first glance this combination might seem rather odd, even if one is aware that Greer is an Episcopal priest as well as a patristics and Anglican-studies scholar. However, the grouping makes sense given Greer's predominant aim, which is to establish lines of continuity between these three historical periods and today and thus offer models to inform our contemporary thinking. As such, Greer's work builds on the superb 1991 study by Brian Daley, S.J., *The Hope of the Early Church: A Handbook of Patristic Eschatology,* which carefully traces the roots and development of Christian eschatology through the entire patristic period.

Greer begins by repudiating what he regards as the misguided lament of Jiirgen Moltmann that Christianity has long banished the future hope in favor of a turn inward, a move Moltmann traces all the way back to the post-Constantinian period (see his 1967 *Theology of Hope).* Nevertheless, Greer concedes to Moltmann that many philosophical and theological claims of Western modernity (especially German idealism and its heirs) internalize hope

so that it becomes a construct of individual consciousness and thus serves merely to make sense of one's present reality. Likewise, culture has contributed immensely to an emphasis of Christianity on the present. While Greer disputes Moltmann's fundamental claim, he is attracted to the identification by Moltmann and others of the character of Christian hope as simultaneously continuous and discontinuous with the present. Here lies the essence of hope. By definition, "Christian hope in its fullest sense cannot exist apart from its object," which is other-worldly, and "equally, Christian hope cannot be hope unless it informs our understanding of life as we experience it" (3), which is this-worldly. An entirely other-worldly view renders hope meaningless, because detached from our present reality, while a totally this-worldly perspective reduces Christianity at best to morality, at worst to moral relativism, and locates salvation solely in the world of our experience.

Against Moltmann's assertion, then, Greer wants to argue that Christianity has indeed maintained understandings of the Christian hope that combine these two perspectives in some way, an integration of what he terms the "here and now" with the "there and then." Christian hope becomes paired with Christian life as Gregory, Augustine, Donne, and Taylor demonstrate how only appealing to the there and then can make sense of the here and now. One might suppose that Greer could better support his argument had he treated at least one figure dated later than the seventeenth century, but he explains his choices as partly based on familiarity and partly "because their thought remains uncluttered by critical preoccupations with historicity and with how to affirm religious claims in the context of purely empirical worldviews" (7). In this way, he proposes, they serve as more helpful, traditional models for us today in a "postcritical phase of Christian theology" (ibid.).

As the subtitle of Greer's study suggests (in a line borrowed from "East Coker," the second of T. S. Eliot's *Four Quartets),* by its very nature the Christian hope remains impossible to articulate fully in this life. In still one of the most important and succinct scriptural statements on eschatology, Paul captures this sense with his famous visual metaphor, "For now we see in a mirror dimly, but then face to face" (1Cor13:12). None of the four writers Greer deals with ever produced anything approaching a systematic discussion of the Christian hope, so he is forced to synthesize elements from their respective bodies of work, expressed variously in poetry and prose, exegesis and meditation, sermon and biography. Greer navigates through this sea of ideas with evident agility, which allows him to treat the material in a manageable form, reducing it to an accessible though not overly simplistic presentation.

Greer begins with a brief review of the New Testament perspectives on Christian hope and Christian life, which also provides a basis for the ensuing discussions. Jesus' proclamation of the kingdom of God builds on the future-oriented Jewish traditions of prophecy and apocalyptic, yet Jesus radically emphasizes the hopeful aspect of the kingdom, one to be grasped in the present. In other words, the there and then is also a here and now. Jesus' miracles, parables, and teachings, as well as His followers and the Christian community itself, all offer present insights into the future glory of the kingdom. The promise

of the gift of the kingdom, moreover, demands a response of repentance, reliance on God, and appropriate behavior. While the four gospels and Paul each treat eschatology in varied ways (Paul stresses the "then," John the "there"), they are unified by their emphasis on Jesus' death and resurrection. This unifying theme indicates the crux of eschatology. Jesus' death belongs to this world, but His resurrection is beyond history. Therefore, taken together, Jesus' death and resurrection represent a passage from the here and now to the there and then, and thus they provide a perspective by which to assess the character of Christian life, which so concerns Paul in particular.

The emphasis on practical concerns involved with first the imminent and then the delayed eschatology found in the New Testament shifts to the more spiritual/theological discussions of the patristic period. Gregory of Nyssa does not develop an eschatological doctrine as such but rather, according to Greer, establishes diverse paths to lead to a truth not fully accessible in this world. Greer distinguishes three, all of which offer visions of the future and implications for life in the present. The inherent difficulties of the topic emerge in this discussion as Greer points out that these paths at times conflict with each other, and yet Gregory is able to maintain them all. They include the vision of a transfigured and divinized new creation (the physical dimension of salvation), the notion of "epectasy" or perpetual progress in the knowledge of God (the spiritual dimension), and the corporate nature of humanity. All of these represent ideas drawn from Gregory's work in Christology and Trinitarian theology, and common to them is Gregory's sense that while hope is located in the age to come, we can participate in that hope in the present. Indeed, the monastic life best represents these ideals at work. Gregory, then, is optimistic about the here and now as it instantiates the there and then.

Augustine expresses a less positive vision of the present and its relation to the future. Greer begins with Augustine's persistent theme of restlessness, of seeking, of longing for God. This seeking is couched in negative terms, for Augustine finds no peace in this life, only anticipation (not participation). The development of Augustine's views throughout his career are complicated, though ably explained by Greer, and correlate to the evolution of his doctrines of grace, free will, original sin, the soul, and redemption, in addition to his contemplation of time, knowledge, and memory. His early position, essentially Christian Platonism, held that only an elite few could hope for the possibility of contemplating God in this life following a period of moral purification. This position is transformed with Augustine's later radical thinking on original sin and operative grace. He comes to believe that the vision of God is not possible in this life, but only in the life to come for those few who have been freed by God from original sin. This later view reflects the fundamental breach in Augustine's eschatology between the here and now and the there and then, which can only be bridged partially through seeking and a life lived in hope, faith, and love.

To demonstrate some continuity, Greer next outlines the influence of Augustine on the thought of John Donne as well as Donne's distinctiveness. Donne was best known in his own time for his sermons rather than for what is now described as his metaphysical poetry. Greer works with both genres, but due

to the absence of formal theological treatises by Donne, he cites the writings of Richard Hooker as an expression of the views behind Donne's thinking (at times this recourse to Hooker seems unnecessary). Donne's main concern is holy living, and so he is more practical than speculative in his approach to Christian hope. While grace is first offered gratuitously by God in the forgiveness of original sin and is rooted in the atonement effected by Christ's death (justification by faith), what really matters is the proper use of that grace, which is a continual process of repentance and faith based on God's mercy (sanctification), as preparation for the completion of election in the age to come. Christian life becomes a graced yet restless journey through life's afflictions moving toward God in the beyond. Like Augustine, then, Donne locates hope in the future, and Christian life in the present anticipates rather than participates in that hope.

Finally, Greer discussesthe devotional writings of Jeremy Taylor, with a focus on how they implicitly reflect the influence of patristic theology. Taylor, once a chaplain to Charles I and later a bishop in Ireland, does not outwardly acknowledge any debt to the Church fathers, perhaps due to the civil war and ecclesiastical politics in which he became embroiled to the point of being imprisoned several times for suspected Roman Catholic sympathies. Still, Greer argues that Taylor seemingly repudiates Augustine's view of original sin and operative grace in favor of an earlier view, not unlike that of Gregory of Nyssa, which stresses two main elements: the potential for universal atonement and the human capacity for good combined with the need for God's grace. The Christian life consists of a reciprocity, the union of God and the believer in the present, or a gift of love that elicits our response. In this way, Taylor, like Gregory, describes a positive view of hope in the present as well as the future, based on a gradual process of turning from earth to heaven.

Throughout his analysis, Greer specifies resemblances between these two pairs, the spatial perspective of Gregory of Nyssa and Jeremy Taylor, and the more temporal perspective of Augustine and John Donne. It is a helpful reminder to the reader of Greer's intent to discern lines of continuity not only to make sense of tradition but also to provide models for the present. Greer more subtly suggests common threads between all four. In addition to shared theological themes and concepts, they are linked by similar circumstances, namely, that their early inclinations toward the spiritual life or clerical aspirations were disrupted by civil, political, and ecclesiastical forces. Moreover, by relating each perspective to the writer's own experiences, Greer indicates how one's eschatological vision is historically shaped. For example, Gregory of Nyssa's view is determined partly by the reluctant role he played in the Trinitarian controversies and ecumenical councils and partly by the monastic/spiritual life he preferred. Greer does not overtly deal with this idea, although other authors have (e.g., Moltmann in his concern with the sociopolitical aspects of the theology of hope in order to effect social transformation).

In many ways, *ChristianLife and ChristianHope* represents an integration of Greer's impressive scholarship to date on biblical exegesis, patristics, and Anglicanism. His work in these areas provides both a rich context and a helpful

methodology to the present volume. Greer is especially adept at showing how Gregory, Augustine, Donne, and Taylor interpreted key biblical texts to contribute to their eschatological perspectives, as well as explicating their own writings. He also offers just enough historical context in each case to provide the reader with adequate background.

The breadth of material that Greer covers in a relatively brief work results in a richness that can also be a bit vexing. In several places he entices the reader with an idea mentioned in the course of a larger point. For example, in his discussion of time and eternity in Augustine's thought, Greer makes the piquant observation that "time has become a moral problem for him" (136)-given Augustine's notion that one's perception of the passage of time relates to one's desires-and leaves the reader to chew on this thought further. Perhaps this happy frustration is part of Greer's intention, though, to entice us with a limited amoqnt of material from these great thinkers in order to spur us on to more thought, especially in a contemporary perspective. In this way we are drawn into the engaging if ultimately ineffable endeavor of eschatology. Or to borrow another line from Eliot, "For us, there is only the trying. The rest is not our business."

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Metaplrysics and Its Task: The Search for the Categorial Foundation of Knowledge. By JORGE J. E. GRACIA. Albany: The State University of New York Press, 1999. Pp. xix + 247. $18.95 {paper). ISBN 0-7914-4214-4.

Anyone familiar with the work of Jorge Gracia will come to this book expecting it to be well-organized, clearly written, and judicious. They will also expect it to canvass a wide range of views held by ancient, medieval, modern, analytic, and continental philosophers and to propose a novel approach. They will, finally, expect not to be given any cheap thrills, because they know that Gracia never goes for the exciting assertion when a true one is available. In none of this will they be disappointed.

In *Metaplrysics and Its Task,* Gracia's main theme is the nature of metaphysics, and his secondary theme is its resilience, that is, its ability to withstand the many attacks that philosophers have made on it. Chapter 1 sets out those two themes and the proper way of addressing them. Chapter 2 begins to address the first one (i.e., the question of the nature of metaphysics) by offering a definition of philosophy and making the point that the genus of metaphysics is "philosophy." Then Gracia turns to the really hard part, namely, completing the definition by explaining the *differentia* of metaphysics. In chapters 3-6, he discusses various

proposals that have been offered, grouping them according to whether they consider the distinctive thing about metaphysics to be its object, its method, its aim, or the types of propositions it deals with. Here Gracia's goal is to clarify and reject false views of metaphysics; within these four main types I count twenty-three subtypes of rejected theory, but since many of these have subtypes of their own it turns out that Gracia is characterizing and rejecting no less than fifty theories of what metaphysics is. Chapters 7-9 set out his own view. In chapter 7, he states his theory, namely, that metaphysics is the study that attempts "(a) to identify the most general categories; (b) to define the most general categories if at all possible and if not, at least to describe them in ways which allow us to identify them; (c) to determine the relationships among the most general categories; (d) to fit less general categories into the most general ones; and (e) to determine how less general categories are related to aU the most general categories, including the ones in which they do not fit" (140). In this chapter he also explains his view of what a category is. In chapter 8, he discusses reductionism, which he takes to be at the root of many false conceptions of metaphysics, and in chapter 9 he expands on his understanding of categories with the goal of arriving at a non-reductionistic understanding of metaphysics: metaphysics deals with categories of things, categories of concepts, and categories of words without reducing any of these to any of the others. In the final, brief chapter, Gracia summarizes what has gone before and then offers an explanation of why metaphysics can never be destroyed: as the study of the most general categories and the relationships of less general categories to the most general ones, it is logically prior to any other study and therefore cannot be done away with: "All our knowledge depends on metaphysical views whether we are aware of it or not, and aH our thinking involves metaphysical thinking .... Metaphysics is inescapable" (221).

It should be dear that this book covers a lot of territory. Here l will discuss just two points, one of them having to do with a certain aspect of Gracia's definition of metaphysics, and one of them having to do with his overall approach. First, as we have seen, Gracia formulates his definition of metaphysics in terms of more general and less general categories: metaphysics is, in a nutshell, the study of the most general categories and of the relationships of less general categories to them. But consider his explanation of what a category is: "whatever is expressed by a term or expression, simple or complex, which can be predicated of some other term or expression" (134). Together these imply that "thinkable by Jorge Gracia" is not only a category but also-since pretty much anything is thinkable by Jorge Gracia-one of the categories that the metaphysician explains and to which he relates other categories. This cannot be right. One way to avoid it would be to revise the definition of metaphysics to say that metaphysics is concerned with the most *basic* or *fundamental* categories and with the relations of less basic categories to these; however general it might be, "thinkable by Jorge Gracia" is dearly not a fundamental category. But Gracia holds (154) that the study of what is fundamental is merely one instance of the study of general categories, which makes it seem unlikely that he would agree to substitute "basic" or "fundamental" for "general" in his definition of

metaphysics. Perhaps the best strategy from his perspective would be to modify the definition to make it say that metaphysics studies not *all* general categories but only some of them. The idea here would be to find a way of explaining why "thinkable by Jorge Gracia" is not the right kind of category (as, indeed, it clearly is not). But since Gracia is, as we have seen, anxious to avoid "reductionistic" views of metaphysics according to which metaphysics is concerned only with some categories and not with others, it is unclear how his definition could be modified in a way that he would accept. Presumably there is a way; the book would be stronger if it explained what it was.

Now for a remark on the book's overall approach. Gracia is aiming at a definition of metaphysics that is broad enough to encompass all or at any rate most of the metaphysical thinking that has been done throughout the history of philosophy. "[A] satisfactory conception of metaphysics should do justice to those aspects of our experience of the discipline and of generally accepted practice" (137-38); "I hope I have made a convincing case that my conception of metaphysics accommodates most of the studies in which metaphysicians have engaged throughout the history of the discipline" (158). His conclusion is that what metaphysicians have been doing all these years is studying categories in the way he describes. But how does he know who the real metaphysicians are, and which of their thoughts are really metaphysical? He proceeds as if we already have an adequate grasp of the extension of "metaphysics"; for him, the only difficulty is coming up with a good analysis of its intension. But in truth the extension of metaphysics is itself a matter of controversy. Serious philosophers point to inquiries that other serious philosophers consider metaphysical and say, "That's not metaphysics!"

Of course Gracia knows this. He regards such assertions as forms of unwarranted reductionism, and his own strategy is to cast the net as widely as possible, including within the extension of "metaphysics" everything that has gone by that name and more as well. But one might wonder about the justification for this strategy. Gracia holds that Aristotle and Kant, for example, were both metaphysicians and that a definition of metaphysics that includes what Aristotle did but not what Kant did is *ipso facto* mistaken. But why not hold instead, for example, that what Aristotle did is really metaphysics and that what Kant did is not, or else that what Kant did is metaphysics but only insofar as it is similar to what Aristotle did? (Indeed, one could hold such views even while agreeing that Aristotle's work and Kant's work are both instances of the Gracian science of categories). Gracia rejects such narrower definitions on the grounds that they leave out inquiries that we know to be metaphysical, but this claim would be stronger if he made it clear how we know which inquiries count as instances of metaphysics.

To be sure, the most common use of the word "metaphysics" in contemporary philosophical writing is at least as broad as Gracia's, and Thomists or other traditional metaphysicians who want to talk to their less traditionally minded colleagues have to be aware of this fact. At the same time, however, there is something to be said for keeping in mind the word's older senses. This is so not only for historical reasons but also out of a worry that philosophers might

neglect the more focused enquiries that the word used to stand for. For example, metaphysics in Gracia's broad sense is alive and well in analytic philosophy, but the study of being *qua* being is much less widely practiced. Acting as if it is just a reductionistic mistake to think that metaphysics is the study of being *qua* being increases the chances that that inquiry will be forgotten. If that were to happen, we would have fallen prey to another kind of reductionism.

There is much more that could be said about this book. Its wealth of detail and breadth of learning, as well as the model of clarity and organization that it provides, make it a valuable contribution. Practitioners of current styles of metaphysics will find it widening, and practitioners of traditional metaphysics will find it helpful in seeing what current discussions have to do with traditional ones. It would also make useful reading for graduate students or advanced undergraduates.

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Renewing Christianity: A History of Church Reform from Day One to Vatican II. By CHRISTOPHERM. BELLITTO. Mahwah, N.J.: Paulist Press, 2001. Pp. 256. $18.95 (paper). ISBN 0-8091-4028-4.

"Reform" is a loaded word. It implies "improvement," and not merely "change." C. S. Lewis warned that one cannot have progress without a fixed point toward which one is heading. He might have added that one cannot have reform without a fixed point to which one is returning. G. K. Chesterton ridiculed the "Reformation" in his *Autobiography:* "I remember when rJohnston Stephen] was asked whether the Church was not corrupt and crying out for the Reformation, he answered with disconcerting warmth, 'Who can doubt it? How horrible must have been the corruption which could have tolerated for so long three Catholic priests like John Knox and John Calvin and Martin Luther.'"

Christopher Bellino wades into these dangerous waters by trying to describe the reforms of the Christian Church in one readable volume. He has attempted to show that the reforms of Vatican II come in a long line of Church reforms, generated through the centuries both from above (through the hierarchy) and from below (through the Church's rank and file). The result is, I believe, commendable but unsatisfactory.

The book is divided into five main chapters: the Patristic Period and the Carolingian Renaissance, the High Middle Ages, the period from Avignon to Trent, the modern age, and Vatican II. Such a division betrays the author's obvious enthusiasm for Vatican II, but he does not let this enthusiasm get the best of him. The book is also a reflection of the author's debt to his mentor (once

removed), Gerhart Ladner, whose definition of reform guides the author through the ages. Ladner held that reform was "the idea of free, intentional and ever perfectible, multiple, prolonged and ever repeated efforts by man to reassert and augment values pre-existent in the spiritual-material compound of the world." The author tries to put this definition into English and apply it to the Church.

He does this in two ways. First, he situates reform in the context of general reforming movements, much as Herbert Grundmann did in his groundbreaking work, *Religi.ousMovements in the Middle Ages,* a book that Bellino curiously does not cite. This has the advantage of seeing an entire age as a whole, then seeing the details (be they heretical or orthodox movements) as expressions of the whole. Bellino puts this technique to good use in the chapters on the High Middle Ages and on the Reformation.

Second, Bellino sees reform as personal and spiritual, with all of the reforms attempting to return to the original sources: Christ, the Scriptures, and the Fathers. He does not pass judgment on these reform movements, but is satisfied to describe them dispassionately, and he does this in a balanced way (except when generalizing about the Modernists), using the very latest sources. By design this method tends to place all "reform" movements-regardless of their merits and demerits--on the same level. Waldenses, friars, mystics, Protestants, Puritans, High-Church Tractarians, and Modernists are all presented as if they are pieces of the same pie. Authentic reform is not distinguished from inauthentic reform. Ladner had not included those values in his definition of reform.

In achieving these ends, Bellino continually highlights the difference between reform *in membris* and reform *in capite,* with a clear preference for the former. The rank-and-file of the Church are ever looking forward, searching for reform, occasionally slipping into error only because of their honest enthusiasm, while the hierarchy looks backward, suspicious of change, controls excessively,slowing the process, but occasionally stumbling into genuine reform. It is a dichotomy that does not take sufficient note of the interaction between head and members, and certainly not of the proper role of the hierarchy within the Church. The Gregorian Reform began with monastic reform at the bottom, affected the papacy (monks were suddenly everywhere), and filtered back down again to the parish level.

The strict division of *in capite* from *in membris* also does not take into account the vital role played by the official Church in discerning authentic reforms from other movements, in directing nascent reform movements to good ends, or even in risking the continuation of dubious reform movements. Pope Innocent III far-sightedly allowed Francis and Clare to continue, with a minimum of regulation, despite the strong hesitance of the curia.

As a result of this emphasis on reform from the bottom up, theology as a reforming feature of Christianity is also given short shrift. The Christological councils of the fourth and fifth centuries-and the clarifying role they played-are not mentioned, nor are Scholastic theologians singled out, even though the revolutionary use of Aristotle by St. Thomas Aquinas had a profound affect on the average Christian's view of life, the world, and good and evil.

Bonaventure's theology laid the groundwork for what would become mysticism and eventually the movement known as *devotio moderna.*

Finally, several "reform" movements are omitted from the book-especially movements that fell within the purview of the Fathers: Montanism, Donatism, Pelagianism, and Manicheanism (and its later cousin, Albigensianism). These "reforms" are clearly in line with the theme of the book, so it is puzzling that they do not appear. One suspects that their condemnation by the Fathers raises a dilemma for the historian of reform who is trying to show that reform movements were returns to the *fontes.* Even in the early Church, reform movements were condemned because of their theological errors and their subsequent danger to the faithful. To *claim* to return to the sources of Christ, the Scriptures, and the Fathers is not enough for reform movements. They actually have to do it.

Bellitto makes a few unfortunate remarks, one citing Newman's use of "men" in an essay as a possible exclusion of laywomen (189), and one repeating the misunderstood phrase in the *Syllabus of Errors* condemning "progress" (190), a phrase that Bishop Dupanloup explained satisfactorily 150 years ago.

Overall, there is a lot of useful information in this book for the interested layperson, but as a guide to genuine reform movements in the Church it is lacking.

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