[16] McCormick, Richard, 1973, *Ambiguity in Moral Choice*, Milwaukee:Marquette University Press, p. 94.

[17] See: Hoose, Bernard, 1987, *Proportionalism: The American Debate and its European Roots,* Washington:Georgetown University Press.

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MODERN CONFUSIONS ABOUT THE FINAL CAUSE

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> Τὸ γὰρ μὴ τυχόντως ἀλλ' ἕνεκά τινος ἐν τοῖς τῆς φύσεως ἔργοις ἐστὶ καὶ μάλιστα. οὗ δ' ἕνεκα συνέστηκεν ἢ γέγονε τέλους, τὴν τοῦ καλοῦ χώραν εἴληφεν.
>
> Not chance, but action for the sake of something is in the works of nature, indeed, in the greatest way; the ends of her framings and generations share in the beautiful.
>
> Aristotle, *Parts of Animals*, I.5, 645[a]23-26

DUE to the limited success of reducing biological phenomena to physico-chemical laws, now and again final causality is reintroduced as a way of explaining vital behavior.[1] However, the modern conception of final causality derives in large part from Immanuel Kant, whose view of final causality confuses distinct kinds of causes in nature, and ultimately eliminates what Aristotle means by final cause. Kant's confusion has its precedent in some scholastic successors of St. Thomas, and I will describe its origin there for the sake of showing the root cause of his own errors. A reintroduction of final causality at the very least demands that it be understood as a distinct kind of cause which Kant, following a mistaken notion of the final cause, failed to do.

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In the second part of the *Critique of Judgement*, titled "The Critique of Teleological Judgement," Kant posits as the first maxim of natural science that we should explain natural phenomena through mechanistic causes, the necessary properties of matter in the manner of Newton's *Principia*. In Kant's words: "All production of material things and their forms must be estimated as possible on mere mechanical laws." (§70) However, some natural phenomena are not explainable by mechanical causes. While living organisms have many parts that might be explained through simple mechanical laws, "...the cause that accumulates the appropriate material, modifies and fashions it, and deposits it in its proper place, must always be estimated teleologically." (§66) In other words, one cannot understand the unity and growth of the living body apart from final causes. As he puts it elsewhere:

> [when] the structure of a bird, for instance, the hollow formation of its bones, the position of its wings for producing motion and of its tail for steering, are cited, we are told that all this is in the highest degree contingent if we simply look to the *nexus effectivus* in nature, and do not call in aid a special kind of causality namely that of ends (*nexus finalis*). This means that nature, regarded as a mere mechanism, could have fashioned in a thousand different ways without lighting on the unity based on a principle like this...(§61)

Therefore, while we are directed to pursue the agency of mechanical causes as far as we can, in the case of some phenomena "we may, in our reflection upon them, follow the trail of principle which is radically different from explanation by the mechanism of nature, namely the principle of final causes." (§70) Putting the distinction this way makes final causality a competing account with material agents; we invoke it only to explain what the mechanism of nature leaves unexplained. If we could

explain all natural phenomena through mechanical laws, we should.[2]

Further, description according to final causes does not posit any further principle in the natural thing. It is "an open question, whether, in the unknown inner basis of nature itself, the physico-mechanical and the final nexus might cohere in a single principle; it being only our reason that is not in a position to unite them in such a principle.." (§70) Final causality is, then, by this understanding a method of description, a "regulative principle of investigation," and not a real cause in the thing.

Two features then, show themselves as distinctive of Kant's understanding of final causality: 1) it is an alternative to explaining natural things by mechanical causes, and 2) it posits no principle in natural things, since any union or disjunction between mechanism and finality surpasses our understanding. Kant seemed to sense a permanent limitation in explanation by mechanical causes, as he shows no indication of believing that the whole of nature could be explained by mechanical laws. Because of the limitation of our minds, Kant makes final causality a permanent feature of scientific inquiry.

Aristotle's account of final causality differs fundamentally from Kant's; it differs precisely in two ways. For Aristotle, the four causes are not in competition with each other, because they each answer different questions about change. The material cause answers the question, "Out of what did the thing come to be?" The formal cause answers the question "Into what did the thing come to be?" The agent cause answers the question "From whom or what did the coming-to-be begin?" The final cause answers the question "For the sake of what did the coming-to-be happen?"

For example, a builder builds a house. "From what did the thing come to be?" From wood, nails, sheet-rock, tiles, etc. "Into what did these things change?" A ranch style house. "From what did this change begin?" A crew of construction workers. "For the sake of what did the motion happen?" For the sake of that house. The different causes answer different ques-

tions about the motion of house-building. Hence, explaining the properties of the house which are a consequence of its materials ("cool in the summer, warm in the winter") does not make superfluous explaining for what end it was built or what kind of house it is.

Another example from human agency will help to clarify this latter point: Man A shoots Man B with a shotgun. The agency of the man's muscles in their raising of the gun and pulling of the trigger will not answer the question, "Why did Man A shoot Man B?" We would not be satisfied, and thankfully, neither would a criminal investigation, if we were merely told "It happened as the necessity result of Man A's muscles and the loaded gun." We require a motive, some end the agent was seeking; "Man A shot Man B because he caught him cheating at cards."

I am aware that both of these cases involve conscious agents, and I do not mean to imply at present that non-rational agents act in the same way; rather, I wish to make clear that the answer provided by agent causality is a *different kind of answer* from that provided by final causality. If you ask someone the distance to Timbuktu, and he tells you "twenty miles" when it is really two thousand, he has given you the wrong answer. But if you ask the distance to Timbuktu and he tells you "Wednesday," he has given you the wrong *kind* of answer. To say that agent causality and final causality are the same kind of answer is an equivalent confusion.

In fact, what would correspond in Aristotle's account to the distinction that Kant draws between "mechanical causes" and "final causes" are actually two kinds of agent causality. The matter of a thing exercises the first kind of agency. So, when Kant says "mechanical causes," he means material bodies insofar as by their movements cause motions in other material bodies. The second kind of agency, which corresponds to Kant's "final causality" is *formal* causality. I am aware how confusing it sounds to speak of a *form* acting as an *agent*, but an example will help clarify what I mean. Recall Kant's example of the organic body that grows to maturity, and seems to show some principle that

directs its growth and movements: "..the cause that accumulates the appropriate material, modifies and fashions it, and deposits it in its proper place, must always be estimated teleologically." (§66) Aristotle in treating the same phenomena, asks:

> Of natural bodies some have life in them, others not; by life we mean self-nutrition and growth... But since it is also a body of such and such a kind, e.g. having life, the body cannot be soul; the body is the subject or matter, not what is attributed to it. Hence the soul must be a substance in the sense of the form of a natural body...[3]

Aristotle asks whether "body" as such adequately explains living beings. Clearly not, for if it did, then any body just because it is a body, would be alive. A dead animal (before it corrupts) may have the same exact parts as a living animal, yet it is not alive. The soul not only belongs to a certain kind of body i.e. an organic one, but also is its very act, making the body to be this kind of body, namely a living one. The soul makes the potentially living body actual, and hence is the very act of the living body as the first principle of life. It stands after the manner of an agent cause to the various powers and organs the living body possesses.[4]

Thus, the cause of the living body's organization, according to Aristotle, is the formal cause, not the final cause. While it is true that the mature animal is the end of the organism's growth, this growth presupposes some principle directing that growth to maturity. This is the form. By saying that the final cause "accumulates the appropriate material, modifies and fashions it, and deposits it in its proper place," Kant collapses formal causality into final causality. Then, since the soul or form acts in the mode of an agent in causing the vital powers, he equates final causality with agent causality. At the end, final causality becomes a kind of agent cause, and hence a competing account with the agency of mechanical causes.

If, however, Aristotle's account of the causes is right, namely that the causes answer the question of "why is this thing the way it is" in different ways, then the agent cause cannot replace the final cause. One can understand much about an animal through understanding the properties in it that are caused by the instrumental agency of its parts, e.g. by its flesh, bones, blood etc. When one asks, "by which principle do these heterogeneous parts act as one?" the answer to that question is equivalent to asking "what is the formal cause?" and the questioner is answered by seeing that it is in the soul. When one asks "For what good do all these things work together in the way they do?" that question is answered by final causality, e.g. "for the health and well-being of the animal."

Niels Bohr made this point in a discussion with Werner Heisenberg:

> There are well-known biological relations that we do not describe causally, but rather finalistically, that is, with respect of their ends. We have only to think of the healing process in an injured organism. The finalistic interpretation has a characteristically complementary relationship to the one based on physico-chemical or atomic laws; that is, in the one case we ask whether the process leads to the desired end, the restoration of the normal conditions in the organism; in the other case we ask about the causal chain determining the molecular process. The two descriptions are mutually exclusive, but not necessarily contradictory.[5]

Aristotle gives health as an example of final cause. "Health is a cause of walking about. Why does he walk about? We say "in order to be healthy," and saying that we think we have given the cause."[6] He continues the explanation of the "end cause" through other practices ordered to health. Not only are practices

such as walking for the sake of health, but "inasmuch as other intermediates are set in motion happen for the sake of an end, as dieting, purging, drugs and medical tools are for health." All these activities and tools are comprehensible only if they are understood to have some purpose, some good they accomplish beyond themselves. When he concludes his arguments about purpose in nature, he offers as the clearest likeness to the way in which "that for the sake of which" acts in nature is the doctor when he doctors himself. "Nature," he says "is like that."[7]

From this, it seems that health most clearly shows what is meant by the "final cause" or the "that for the sake of which." The body aims at health quite apart from any deliberation. As any physician knows, the body must be cooperating with the treatment, or the medicines and techniques will be useless.[8] The body acts for ends on its own, quite apart from what the person himself decides. Although a man may walk precisely for his health, the walking would be good for him regardless of whether he walks for his health or not, as Aristotle shows in his discussion on laws concerning pregnant women:

> Pregnant women must take care of their bodies, neither being idle nor taking a meagre diet. This is easy for the lawmaker to do by ordering that they walk everyday to worship the gods who preside over birth.[9]

If we were to ask one of these young women why she walks to the temple of Demeter, she might well answer "To worship the goddess" or "To obey the law." Neither of these however would give the final cause of what walking accomplishes for the body, quite apart from whatever end the young woman intended. Hence, while we may have the same intentions as our own bodies, the body has "intentions" distinguishable from our own. The various ways it works to maintain health *in spite* of our habits shows this.

Since final cause and agent cause answer two different ques-

tions, "health" must be understood both with respect to the necessary attributes of the body, and as an end sought by the body through its parts. The doctor's knowledge of *how* the organs and tissues effect health in the body perfects his knowledge of health as a good which those parts intend. One will not, merely from knowing the body's inclination to health, know how its parts bring it about, nor will one see, merely from the material attributes of bodily organs and tissues, what good is brought about by them for the whole body. These are two different questions one asks about the animal body, namely "what good do these organs serve?" and "by what means does the animal stay alive?" As Aristotle points out, "The same thing may exist for an end and be necessitated as well."[10] He gives a good example of this in the *Parts of Animals*:

> We ought to explain for example, how respiration is for the sake of something, and also happens from necessity because of other things...For the alternate discharge and re-entrance of heat and the inflow of air are necessary if we are to live. ...But the alternation of heat and refrigeration produces of necessity an alternate admission and discharge of the outer air...[11]

Why did Kant confuse these distinct causes in the way he did? Since an error can sometimes be more manifest when it is first made, it would be useful to consider the historic precedent to Kant's distinctions, namely the natural philosophy of William of Ockham. Ockham is a useful thinker for resolving this problem, for not only does he make an error that prefigures Kant's confusions in the *Critique of Judgement*, but he does so when commenting on Aristotle's *Physics*, with the distinctions Aristotle makes before him as he comments.

Ockham makes a threefold distinction in the way natural things act for the sake of a "final cause:"[12] first, in things in which final causality is most manifest, namely human beings

who act by intention and self direction (*a proposito et sponte*); second, animals, who, while lacking the power of choice, do have desires which direct their action and urge them to seek what they do not possess; and finally, inanimate beings, which are not directed by any kind of knowing or desire, yet have natural movements as if foreknown or desired (*ac si esset praescitum vel desideratum*) by an agent. These latter, Ockham tells us, do not not really act according to final cause. Since they lack knowledge and desires, their actions are explainable wholly by the necessity of nature (*ex necessitate naturae*).

Thus, he distinguishes two ways of taking the term "end" or *finis*, one *proprie*, the other according to the common course of nature (*communem cursum natura*). In the first, the "end" signifies agent acts." In the second, the "end" signifies that toward which something tends following the same way as if it were known beforehand or desired (*ac si esset praescitum vel desideratum*) by an agent. Hence, men and animals are said to exhibit final causality properly, while inanimate things do so improperly or metaphorically. This is why, Ockham claims, Aristotle says in the chapter on final causality in the *Physics* that nature acts for an end, because in this way nature acts "as if made from art" (*sicut si fieret ab arte*).

Since Ockham equates "final causality" with conscious desire, he must deny against Aristotle, any purpose in the inanimate. This equation of "that for the sake of which" and "desire" creates no end of confusion. Since "desire" can only be said of the inanimate improperly and thus metaphorically, then the inanimate can be said to act for the sake of end only improperly and metaphorically.[13] Further, this division makes the necessity of nature *opposed* to acting for an end, since a thing does not really act for an end unless it has desire, and better yet, will.

Why is it that Ockham equates final causality with conscious desire as opposed to some general inclination for the good? One reason, certainly, is that our first sense of final causality is our deliberate choice of ends, and the determinate means to achieve those ends. Secondly, Ockham seems to think that if a natural

thing inclines always in one way, instead of being able to move to this or that, one has said all that needs to be said by calling it necessary. It does what it does because it cannot do otherwise. There is, as it were, nothing to explain:

> ...the question 'on account of what' has no place in natural actions, since it is said that there is no question of seeking 'on account of what' fire comes to be; it only has place in voluntary actions. And therefore it is well asked on account of what do these men fight, since voluntarily they fight so that they may rule.[14]

Because of the very necessity in which natural agents act, their possible "ends" are inscrutable to us. We may see that fire generates more fire, but we cannot discover any more than that. For Ockham, finality demands some kind of desire, and preferably one that can be articulated. Why does the man fight? "So that he may rule." A thing cannot act for an end unless it acts voluntarily.

So where has Ockham gone wrong? The two examples he uses are illustrative of the problems in his position. While "fire generating fire" happens as a natural consequence, it nevertheless serves an end. Having an inclination to produce its own kind is beneficial to its own self-preservation. Indeed, the natural movements of the elements is ordered to keeping them among their own kinds, fire with fire, water with water, etc. Elements change by being around other elements different in kind.[15] Certainly it is good that the elements act to preserve themselves, and do so by inclining toward a place that has their own specific kinds, and less of the other kinds. Hence, Aristotle remarks: "..to ask why fire moves upward and earth downward is the same as to ask why the healable, when moved and changed as healable, attains health..."[16] One has not explained all that can be explained by simply saying its motion toward its natural place is "from natural necessity."

Second, Ockham's example of final causality, namely "the man who fights in order to rule" differs greatly from Aristotle's own example of "health." Health is a natural good to which the body inclines on its own apart from the will, while the desire to rule is not, as such, a natural desire. Ockham's example shows how greatly he has blurred the distinction between "acting for an end" and "acting for a desired end." A man may or may not *choose* to eat in a healthy way, but this for Aristotle does not affect what eating is *for*. A diet of doughnuts, even if freely chosen, frustrates the end of eating, namely "nourishment." Since all creatures have a list of basic goods such as health, nourishment, offspring and so on, these goods allow one to discern what Aristotle considers the "final cause."

How could Ockham overlook the compatabilities of natural necessity and the inclination toward some good, especially since his own remarks occur in commentaries on Aristotle's text? Following his teacher Duns Scotus, he believes that the only way the freedom of the human will can be preserved is if it is wholly beyond natural necessity. If the human will were determined to some good by nature, it could not be free.[17]

When we as Catholics say that the will is free, we do not mean that it is wholly free. First among those things we desire is the good, taken generally.[18] Even if the thing desired is only apparently good, it must be good in some way to be desirable.[19] Second, all men by nature incline toward some very basic goods as animals, such as self-preservation and the preservation of the species. Further, the rational soul inclines them toward goods consequent upon that power, such as friendship and knowledge.[20] A man may choose to live by himself in a cave, but as St. Augustine points out, he at least desires the peace of his body.[21] While man is free to choose his proximate ends and the means to his ultimate end of happiness, he is not free to choose happiness itself. All men pursue happiness as their end, even if they choose the wrong means. The will is free, yet not wholly free.

In distinguishing "final cause" from "natural necessity," Ockham fails to grasp how all natural things are moved toward the

good.[22] Ockham's distinction, which Kant repeats, creates a false dichotomy between the voluntary and the necessary; as if voluntary and merely natural actions were not both necessary (in some way) and for some good. The final cause answers the question "for the sake of what?" some natural motion takes place, without implying a projection of human desires into non-intelligent or inanimate natures. Therefore, in considering natural phenomena, we should not think that the final cause explains things only when the necessity of mechanical causes "runs out." The final cause does not purport to answer the question "by what agency does this natural thing do what it does?"

Further, we should not confuse the formal and final cause, as Kant does, as if the final cause was the principle that explained by what intrinsic principle a natural thing, especially a living thing, is one and acts as one. While the form gives rise to the inclinations a natural thing has to certain goods as opposed to others (e.g. elements to place, animals to food, plants to sunlight), those inclinations are distinct from the form that gives rise to them.

Finally, we should not conflate final causality with desire and will, as if final causality demanded competing goods among which the natural thing "selects." All natural things, in their natural movements, are moved toward goods which are perfective of them in some way. To be sure, desire and will are better known to us in understanding our own action for an end. Nonetheless, we must always bear in mind the example of our own bodies, which incline toward health without our thinking about it. Deliberation is not an essential part of acting for an end. We will not understand natural things *as natural* unless we grasp that they incline to certain goods from within themselves.

NOTES

1 See the discussion of "teleology" in *The Anthropic Cosmological Principle*. John Barrow and Frank Tippler. Oxford University Press. Clarendon:1986. pp. 123-142.

2 Kant tells us: "...there is a reason, and indeed merit, in pursuing the mechanism in nature for the purpose of explaining natural products so far as this can be done with probable success, and in fact never abandoning this attempt on the ground that it is *intrinsically* impossible to encounter the finality of nature along this road, but only on the ground that it is impossible *for us* as men. For in order to get home along this line of investigation we should require an intuition different from our sensuous intuition and a determinate knowledge of the intelligible substrate of nature, a substrate from which we could show the reason of the very mechanism of phenomena in their particular laws. But this wholly surpasses our capacity." (§80).

3 *De Anima*, II 1, $412^{a}13$-21.

4 St. Thomas: "...quia essentia animae comparatur ad potentias et sicut *principium activum* et finale, et sicut principium susceptivum, vel seorsum per se vel simul cum corpore; agens autem et finis est perfectius, susceptivum autem principium, inquantum huiusmodi, est minus perfectum: consequens est quod potentiae animae quae sunt priores secundum ordinem perfectionis naturae, sint principia aliarum per modum finis et *activi principii*." (emphasis mine) *Ia* 77.7.

5 Werner Heisenberg. *Physics and Beyond: Encounters and Conversations*. Harper and Row. New York:1971. p. 92.

6 *Physics*, II.3, $194^{b}33$.

7 Ibid., $199^{b}30$.

8 cf. Hippocrates. *Ancient Medicine* c.i.

9 *Politics*, VII.16, $1335^{b}13$-16.

10 *Posterior Analytics*, II.11, $94^{b}27$.

11 I.1, $642^{a}31$-$^{b}3$. I have modified the Ogle translation.

12 *Summula Philosophiae Naturalis* II.c.6. ln. 51-60. (*Opera Philosophiae* VI, pp. 227-230).

13 While I am aware that St. Thomas will speak of "natural appetite," in which even non-living beings share (*Ia* 5.4, *Iallae* 26.1), the word "desire" in conventional English denotes an emotion and

hence is said properly of animals and men. Hereafter, I use the word in this conventional sense.

14 "...quaestio 'propter quid' non habet locum in actionibus naturalibus, quia diceret quod nulla est quaestion quaerere propter quid ignis generatur; solum habet locum in actionibus voluntariis. Et ideo bene quaeritur propter quid isti pugnant, quia voluntarie pugnant ut dominentur." *Quodlibetum* IV, q.1. ln,139-145. (*Opera Theologiae* IX, pp. 293-309).

15 See *Generation and Corruption*, II.4.

16 *De Caelo*, IV.3, $310^{b}17$.

17 Bernardine M. Bonansea puts Scotus' postion this way: "...Scotus says that since the will is free in directing the intellect toward the final end, or happiness in general, it is also free in its tendency toward happiness as such." "Duns Scotus' Voluntarism," in *John Duns Scotus: 1265-1965. Studies in Philosophy and the History of Philosophy*, vol.3. Catholic University of America Press. Washington, D.C.:1965. p. 91. See also pp. 86-88, 90-92.

18 *IaIIae*, 8.1, 10.2, 94.2.

19 *Nicomachean Ethics*, III.5, $1114^{a}32$; *Physics*, II.3, $195^{a}26$.

20 *IaIIae*, 94.2.

21 *City of God*, XIX.12.

22 *Summa Contra Gentiles*, III.2 and esp. 3.

Quodlibeta