

Review of Ric Machuga, *In Defense of the Soul*

by Benjamin Wiker

As this review is largely for the Intelligent Design community, I will begin with the end of Ric Machuga's *In Defense of the Soul*, in the appendix entitled "Assessing 'Intelligent Design'." Machuga directs his arguments against William Dembski, specifically, against Dembski's book *Intelligent Design*, and these criticisms are offered from the Aristotelian-Thomistic perspective (as it is understood by Machuga).

Against Dembski's claim that specified complexity is well-defined and empirically testable, Machuga argues that "Thomists reject such a conclusion. Though we believe that design (final causation) is observable in nature, it is only observable for those equipped with *nous* (intellect), and since the intellect is immaterial, no wholly scientific instrument will ever detect design" (p. 162).

Readers may find this criticism somewhat obscure, or perhaps, simply off the point. Certainly Dembski does not mean that the design filter (or "explanatory filter") is an actual *machine*, so that it could just be turned on and directed at objects, nor that any machine, in the absence of an intelligent agent interpreting the data, could detect design.

As it turns out, Machuga's real worry is not that Dembski is offering an ID-detecting machine, but that Dembski's mode of detecting design is based entirely on probability analysis in which natural things are treated as entirely *quantifiable*. Against this perceived defect, Machuga asserts that "it is not possible to quantify something's form or essence, i.e., *what it is*" (162), and the detection of design ultimately entails grasping a thing's form, which in turn allow us to understand its design as its final cause. According to Machuga, the fundamental error that Dembski (and apparently the entire ID community) makes, is the confusion of the quantifiable aspects of things with the essence or form of natural things, what he calls the "confusion of shape with form." Against this "mistake," Machuga asserts (as a kind of battle cry, uttered in several variations throughout the text) that design "is not *in* biological life the way dirt is *in* rugs. Rather, design is in biological life the way meaning is *in* words" (166).

We recall, however, that the title is not *What is Wrong with the Intelligent Design Movement*, but *In Defense of the Soul* (subtitled, *What It Means to be Human*). Machuga is defending the soul against the attacks and confusions of modern philosophy, which he asserts is fundamentally materialistic or at best dualistic. According to Machuga, *the* source of the problem is the confusion of form and shape, the very error that he charges Dembski with committing. This error leads to a denial of the soul (by materialism) or a distortion of our understanding of the soul (dualism).

In order to rescue the soul from denial or distortion, Machuga asserts that we must recover a proper understanding of the soul, and that will entail a recovery of the distinction between form and shape. Since the error he attributes to ID is the same that he believes results in a denial or distortion of the soul, we may focus on this distinction as illuminating both Machuga's main thesis regarding the soul and his sub-thesis concerning ID.

According to Machuga, the proper understanding of this distinction is found in the Aristotelian-Thomistic philosophy. In his words, the distinction is as follows:

All things are composed of both form and shape. "Form" is that which makes something *what* it is. "Shape," as we are using the term, refers to the totality of a thing's physically quantifiable properties, i.e., its physical shape and size, height, weight, chemical composition, etc., *in its most complete description* (27).

Just to fill out what "etc." means, we are informed that "a thing's shape includes even esoteric properties like electrical conductivity and gravitational fields" (28).

But here we encounter a difficulty immediately. The problem with Machuga's distinction between form and shape is that those who are *not* familiar with Aristotle or St. Thomas will have a difficult time trying to understand the distinction at all (and hence how it helps us recover the soul), and those who *are* familiar with Aristotle and St. Thomas will immediately recognize that Machuga is either being inaccurate or he is so drastically modifying the actual Aristotelian-Thomistic account that it is nearly

unrecognizable. Since so much in the book hangs on this distinction, that is a rather serious criticism.

To be all too quick, one familiar with Aristotle and St. Thomas (A-T, for brevity's sake), would expect Machuga to have said that all things are composed of form and *matter*, not shape. Matter for A-T is not “the totality of a thing’s physically quantifiable properties.” Rather, each physical substance is a unity of form and matter, and both form and matter are necessary to make something quantifiable precisely because it is form that gives to matter its definite nature.¹

Hence, quantity is not united to form, but is the first “accident” that follows upon substance (the unity of form and matter). Although this may sound rather obscure, it is not altogether difficult to grasp by example. In order to count 3 apples we must first have apples (substance). The unity that we refer to when we count “1 apple” is inferred *from* the apple. Likewise, the sphericity of the orange follows upon the being, the substance, of the orange. Oneness does not cause the apple, nor does sphericity cause the orange. Neither numbers nor geometrical figures or shapes have independent existence; rather they are abstractions that ‘leave behind’ substance and other accidents. Thus, to use an example, a mathematician, in abstracting sphericity and considering it by itself, would not consider either the orange, or its color, smell, or taste.

And so, in stating that “it is not possible to quantify something’s form or essence, i.e., *what* it is,” Machuga is correctly following A-T. For A-T, mathematics is abstracted from substance, leaving behind consideration of *what* it is. The mathematical notion of sphericity could just as well have been abstracted from the moon or from a coconut. Since sphericity is not causal, but is itself the result, as a shape, of being a certain kind of substance, mathematical knowledge of the sphere will only give indirect knowledge of the substance. What an orange is, or the moon is, or a coconut is, can only be known through a consideration of each thing’s distinct form as united to its appropriate matter.

It follows from this, that for both Aristotle and St. Thomas, that the study of natural things (physics, in the original sense) can never be fundamentally mathematical because it studies the nature or essence of the thing, and the essence, as such, is not quantifiable. When mathematics is used in some branch of the study of nature, it is considered to be what St. Thomas calls an intermediate science (*scientia media*). To use

the example of astronomy, in the study of the heavens the principles of mathematics are being applied to the measurement of the motions of the stars and planets without consideration of their essences, i.e., what they are.²

It would also follow that since for A-T the form of a human being is the soul, and that essence of human being is to be a substance that is a unity of rational soul and the appropriate matter, that the knowledge of what a human being is, is not quantifiable knowledge. Or, to take it from the other direction, since our quantifiable aspects are accidental, then if we do consider human beings only in terms of our quantifiable aspects, we would cut ourselves off from knowledge of the soul.

Machuga has all this in mind in his defense of the soul and his criticism of ID, but in muddying some of the actual distinctions upon which this criticism is based, he often confuses those who are not conversant with A-T, and sometimes maddens those who are. To provide another, very closely related example of such confusion, in trying to clarify further how form is distinct from shape, Machuga asserts that “Form determines *what* something is; shape (including *all* other physical properties) determines *how* something acts and reacts in a material worlds” (30). Someone outside the tradition of A-T will rightly wonder how one could distinguish between what something is and how it acts, for it would seem quite obvious that how it acts depends on what it is. Someone within the tradition of A-T will immediately reply that this statement is nonsense because form *is* the principle of act (not shape or matter), and that this is obvious even to someone outside the tradition since (to repeat) how a thing acts depends on what it is.

Because of such confusions, in order to understand in more depth the kind of criticisms Machuga is making of ID, as well as the general argument of his book, we are forced to provide clarifying background. All too often he does not provide enough background from the A-T intellectual tradition to which he claims adherence or he simply confuses aspects of that tradition. Perhaps the best way to provide such clarifying background is to step back and look at the way that, by and large, ID approaches the subject of Intelligent Design vs. the way that A-T do. In doing this, I will be filling in many of the gaps left open in Machuga’s analysis as well as cleaning up some of the

confusions. (I add that I will try to approach the analysis of the differences between ID and A-T from Machuga's perspective in order to make the most sense of his arguments.)

ID generally approaches nature mechanistically, and argues that when merely natural causes and laws are insufficient to account for how the complexly integrated natural mechanisms could have arisen, it is proper to invoke design as a cause. Its paradigm of design (following Michael Polanyi) is a machine. To quote Polanyi, "Machines seem obviously irreducible, since they have comprehensive features that are not due to a spontaneous integration of physical and chemical forces. They do not come into being by physical-chemical equilibration, but are shaped by man."³ That is, the machine is "shaped" by its designer, therefore design is evident in its form and function and intelligent causation must be invoked as its cause.

Interestingly enough, there are connections to the A-T approach in ID, although to my knowledge the contemporary ID movement does not trace its pedigree, even remotely, either to Aristotle or St. Thomas. If we may use the language of A-T, design is both the formal and final cause of a machine, either biological or human-made. That is, the complex, integrated design of a machine (for example a watch or a bacterial flagellum) is defined by its purpose (to keep accurate time; to move through a liquid medium in search of food or away from danger). In regard to these two causes, formal and final, there might seem to be at least some agreement between ID proponents and A-T. The radical disagreement comes, oddly enough, in regard to matter, and the way that the formal cause is united to matter (and this brings about another disagreement in regard to the appropriateness of invoking the machine as a paradigm for design in nature).

As just stated, ID generally understands design in nature to enter as a cause in the same way that design enters as a cause in human artifacts. To return to Polanyi's example of the machine, the physical parts are incapable of assembling themselves into a definite integrative, functioning form. Therefore, an *external* cause of the form must be invoked; that is, a designer must impose the form upon the various parts, bringing them together into an integrated whole. (The designer thus acts as the *efficient* cause of the integration.) Yet, once this form has been imposed (that is the parts have been put together), the machine's continued existence *as* an integrated, functioning whole *is*

explicable in terms of the disposition of the physical parts, and the physical and chemical laws that govern its function.

For A-T, this is an accurate account of human artifacts like machines, buildings, and statues, but cannot be applied directly to natural things because in natural things the formal cause is not imposed upon the material or physical parts from outside; rather, form and matter are *essentially* united, so that the form is *in* the natural thing acting as an ongoing cause of its integrated functioning.

To understand this, we must grasp the rather difficult concept that for A-T, matter is not actual “stuff.” It does not exist independently of form, but is a dual cause with form of all physical things. The form is the cause of a thing’s definite organization and hence its ability to function or act, as that kind of a thing. The matter is the cause of that thing’s *potentiality*; that is, its ability to undergo change of a particular kind as defined by the form.

This account of matter as potentiality is not easy to understand, to say the least. It is far easier for us to grasp matter as already existing physical stuff upon which a form is imposed, as a sculptor imposes a form upon an already existing piece of marble. While it may be easier to understand, for A-T it results in a fundamental confusion of human-made things and natural things. In human-made things, the form is indeed imposed on already existing matter, but that means that the form is related to the material only accidentally. There is no necessary relationship in the statue of Socrates between the form of Socrates, and the marble itself. The same marble could have been made into any number of shapes or likenesses.

In natural things, however, the form is related to the matter essentially, not accidentally. To make this clear, Aristotle uses the example of a wooden bed. The making of a bed out of wood is the imposition of a form upon wood, but a sign that the form and the matter are not essentially united is that (assuming it was very quickly made from very fresh wood!), if one would take a piece of the wood from the bed and plant it, it would grow according to its original, essential form as a tree not a bed. The unity of bed and oak is accidental; the unity of matter and form in an oak tree is essential.

For A-T, this analysis applies directly to the distinction between machines and natural things (and explains why proponents of A-T are often disinclined to accept ID

insofar as it accepts a mechanistic foundation). In machines, the form is accidentally related to the material used in the design. The form does not actually continue to exist in the machine as an active cause keeping the machine together and functioning; rather, the form was imposed insofar as the designer related the parts of the machine according to the design. Again, once the machine is up and running, the parts themselves and the physical and chemical laws that govern them are the cause of its continued integration and activity. The designer does not have to continually apply the form as cause to keep the machine intact. Further, if (for example) a watch “dies,” the parts do not spontaneously dis-integrate. In natural, living things, by contrast, the form is *in* the thing, essentially united to matter as the ongoing cause of that living thing’s integrated complexity and activity. When a living thing dies, since the form in a living thing is the cause of its integrated, living complexity, the organization dis-integrates because the form is no longer there as the cause of its complex unity.

All of this makes for a much different approach by followers of A-T to the question of design in nature. If we use the example of DNA, we might better understand the difference between the two approaches. In regard to ID, the focus is on DNA itself. Since (to refer to Polanyi again) no physical or chemical laws govern the order of nucleic bases “all alternative sequences [are] equally probable” and hence each nucleic base has “the same mathematical chance of appearing at any point of the series,”⁴ the order of the bases cannot be reduced to physical or chemical causes. Since DNA acts as a material “code” which ultimately determines the organized form of the organism (including its complex parts), and no physical or chemical cause of a particular order can be invoked, therefore the order of the bases must be caused by a designer.

By contrast, an A-T approach would focus immediately on the organism as such, that is, on the unified whole, where the cause of the complex order of the organism is its form as united to its particular matter. The focus is not on DNA because it is the unified complex order of the living cell that allows DNA to be an efficient cause of generation and maintenance. Signs of this would be that (1) DNA by itself is inert and only functions as information bearing within the living cell, and (2) DNA itself disintegrates once the living unity is destroyed rather than remaining intact as if it were a non-running

machine. For A-T, then, design is evident in the living activity of the cell, but the cause of this living activity is the form.

Given this larger view as background, we may now return to Machuga's argument. We may return to his statement that design "is not *in* biological life the way dirt is *in* rugs. Rather, design is in biological life the way meaning is *in* words" (166). By this, Machuga *seems to mean* that the design of a thing is grasped by knowing what it is (the form) and what its goal or end is (final cause), and that both are in living things as actual, constitutive causes of their organized complexity and activity. Design is not in things accidentally, as the design of a bed is related to oak. (I am forced to say "seems to mean" because his two examples are inappropriate. ID proponents do not assume that design is in biological life as dirt is in rugs, as one material thing sitting in another, but that design is evident as an effect in material organization that must have been caused by an immaterial intelligence. Further, A-T do not assume that design is in biological things the way that meaning is in words because meaning is in words only accidentally; that is, the particular articulate sound [in Aristotle, the *phōnē*] and the particular form of the written word are *conventional* signs, peculiar to particular languages, even though they point to universal passions or ideas in the soul.)

I gather that this is Machuga's meaning in the dirt-in-rugs and meaning-in-words assertion from a variation of this statement: "The intellect [i.e., rational soul] is not, however, *in* us as a captain is in a ship or as sap is in a tree. Rather, the nonmaterial [rational soul] is *in* us the way meaning is in words. Humans are essentially a unity of body and soul" (18). In saying this, Machuga is pointing to a serious problem that besets any mechanistic account of nature that wants to retain the immaterial soul—the soul is only accidentally related to the body, like a captain who steers a ship, rather than essentially united, as in the unity of form and matter.

But does this criticism apply to ID, as Machuga implies? Perhaps. If the design of the human body is considered mechanistically, then like the bacterial flagellum or the DNA sequence, its design, or organized complexity, is imposed upon it from the outside. Once the material parts are placed in their proper order, then like a machine, physical and chemical laws are sufficient to explain its continued existence and activity. If we add a soul, in what way is it related to an already organized and functioning body?

For A-T, Machuga argues, the problem of the relationship of the soul to the body does not arise because the body, as an organized complexity, cannot exist independently of the cause of that complexity, the soul. Or in Aristotle's words, the soul is the form of the body, the cause of its organized, living unity. The focus is on *unity*, however, not as such on the complexity. For this reason, Machuga argues that the Darwinian –ID debate (as he understands it) is misconstrued because both sides, in focusing on the probability of some organism or functional part, are casting in the question of life in terms of mathematical complexity, and “Mathematical complexity is neither a necessary nor sufficient condition for life” (38).

According to Machuga, a sign of this error is that many non-living things could be far more complex (the exact positions of all the molecules in Mt. Everest) than living things (a single-celled organism), therefore mathematical complexity as such is not part of the essential definition of living things (39). Of course, Machuga does not take into account, in this criticism, the difference between unspecified and specified complexity. But with that having been said, his main point is that specified complexity does not distinguish between non-living and living systems or things. For Machuga, the difficulty seems to be ID's ultimate reliance on what is quantifiable, rather than on the living unity as known through the form.

The problem with Machuga's criticisms, however, is that he himself duplicates the very problem he identifies. One would expect him to offer an account of science which (following A-T) would focus on the form of living things as essential, and would give an account of how one can use mathematics in the sciences yet still recognize their subordinate status. Instead of offering some way that A-T come to the intellectual rescue, he simply splits reality into two spheres, one known by the quantifiable, scientific world (which relies on mechanism and accepts Darwinism), and one known by philosophy, which focuses on the forms, essences, final causes, beauty, and meaning (Ch. 4).

The problem with this solution is that it merely duplicates the failed forms of Thomism of the 20th century which tried to split philosophy (especially metaphysics) from the study of nature (physics), retaining all the categories of Thomism in the former, and allowing the entire edifice of modern materialist science in the latter. This splitting of philosophy from science is (1) alien to A-T, for both considered the study of nature to

be an essential part of philosophy, and (2) self-destructive, since modern science is almost entirely constructing *against* Aristotelianism.

In regard to the central focus of the text, Machuga does not provide a very strong argument for the soul, but relies on a rather cursory presentation of the argument that since intellectual concepts are universal, and hence embody no particular thing or image, then it must be that the rational soul is immaterial (Ch. 9). Implicit in this argument, is that design is evident in the form of a thing as manifested in its final cause (the perfection of its form), and not in its quantifiable aspects. Since the form, as such, is immaterial, then the detection of design can only be done by an immaterial intellect. Thus, to return to his original criticism of ID, “design...is observable in nature, [but] it is only observable for those equipped with *nous* (intellect).” While this may very well be true, much more rigorous argument would be necessary to establish it.

In conclusion—and I say this as one heavily indebted to, conversant with, and hopeful for the Aristotelian-Thomistic approach *and* a proponent of ID as well—Machuga has simply not done his homework sufficiently, either in regard to ID or the A-T tradition. A much deeper analysis of the differences and similarities would be very helpful, and in regard to the A-T tradition itself, much more would need to be done to make it a strong, viable contributor to debates about science in general, and Darwinism and design in particular.

¹ We add that it is especially confusing to use the term “shape” because “shape” is normally used to translate the Greek word *schēma*, which often refers a geometric shape like a circle or triangle. The Greek word *morphē* is also often translated as “shape,” being a kind of synonym of *schēma*. The problem is that *morphē* is often used by Aristotle as a synonym for form (*eidos*), thereby undermining Machuga’s whole distinction between form and shape. Apparently Machuga thinks that “shape” can act as a kind of catch-all term for everything Aristotle includes in the category of quantity, but Aristotle himself divides quantity into discrete and continuous quantities. In discrete quantity we find number, and in continuous quantity we find line, surface and body. “Shape” applies roughly to the latter—although he actually speaks of shape under the category of quality, not quantity—but certainly not to the former.

² The clearest exposition of the A-T account of mathematics occurs in—of all places—St. Thomas’ commentary on Boethius’ *De Trinitate*. It has been excerpted as a book in its own right by Armand Maurer under the title *The Division and Methods of the Sciences*.

³ Michael Polanyi, “Life Transcending Physics and Chemistry,” *Chemical and Engineering News*, Vol 45, August 1967:54-66, p. 57. See also pp. 65-66.

⁴ *Ibid*, p. 62. Given, of course, that once we have adenine (A), it must bind to thymine (T), etc.