

AGERE SEQUITUR ESSE:
WHAT DOES IT MEAN? A REPLY
TO FATHER AUSTRIACO

• David L. Schindler •

“Austriaco defines being not by what it is,
but by what is its *first* (ontological) *effect*.”



Father Nicanor Austriaco concludes his article, “Are Teratomas Embryos or Non-Embryos? A Criterion for Oocyte-Assisted Reprogramming,”¹ with a strong criticism of “A Response to the Joint Statement, ‘Production of Pluripotent Stem Cells by Oocyte Assisted Reprogramming’”² for reasons similar to those advanced by E. Christian Brugger in the present number of *Communio*. An examination of Austriaco’s criticism will help clarify further the fundamental question raised by ANT-OAR: what properly defines an organism (embryo), and by what criteria do we distinguish an organism from a non-organism? Of crucial significance here is the Aristotelian-Thomistic axiom, *agere sequitur esse*, and indeed the Aristotelian-Thomistic notion of substance (hylomorphism). Austriaco invokes this axiom as the foundation for the central claim of the OAR proposal: “we can *reasonably and with certitude* conclude that an OAR-generated entity that becomes a tumor is ontologically

¹Nicanor Pier Giorgio Austriaco, O.P., “Are Teratomas Embryos or Non-embryos?” *National Catholic Bioethics Quarterly* 5 (Winter 2005): 697–706.

²David L. Schindler, “A Response to the Joint Statement, ‘Production of Pluripotent Stem Cells by Oocyte Assisted Reprogramming,’” *Communio* 32, no. 2 (Summer 2005): 369–380.

different from an embryo, *because its different organization and behavior shows that it has a different nature. Again, agere sequitur esse*" (706; emphasis added). In other words, radical disorganization (absence of coordinated interaction of parts) in an OAR-generated entity leads reasonably and with certitude to the conclusion that this entity is not and was not in its original constitution an embryo, but only a tumor. "This is not an argument derived from a flawed mechanistic philosophy. This is an argument grounded in the Aristotelian-Thomistic axiom, *agere sequitur esse*" (706).

We will evaluate Austriaco's claim of certitude regarding the product generated by ANT-OAR, and his criticism of the "Response to the Joint Statement," relative to his reading of this Thomistic axiom which, by his own express acknowledgment, undergirds both the certitude and the criticism.

I

(1) Fr. Austriaco says that the "Response to the Joint Statement" takes the position "that epigenetics cannot tell us about the ontological status of a cell," citing the following statement: "Epigenetics can determine only the phenotypical manifestation of the cell whose identity is at issue, not its (ontological) identity as such."³ He goes on to say that the argument here is "self-referentially incoherent." That is, the "Response to the Joint Statement" makes many references to the human oocyte, and is able to distinguish an oocyte from a somatic cell. But on what grounds, he asks, is it able to do this? He answers:

Biologists can distinguish oocytes and somatic cells only because they have different biological properties or, in Schindler's terminology, different "phenotypical manifestations." Schindler, however, argues that "phenotypical manifestations" cannot reveal ontological identities. Thus, despite the differences in their "phenotypical manifestations" [i.e., in their behavior and organization], an oocyte and a somatic cell, according to Schindler, may be ontologically identical. If we follow Schindler's logic, any human cell—a skin cell, a liver cell, or a kidney

³Austriaco, "Are Teratomas Embryos or Non-embryos?" 705, quoting Schindler, "Response to the Joint Statement," 371.

cell—regardless of its “phenotypical manifestation,” could be ontologically equivalent to a single-cell embryo. Again, we could never be sure, since “phenotypical manifestations” cannot reveal ontological identities.⁴

This criticism misconstrues the meaning of the statement cited above by Austriaco. The statement means what it says, which is that the epigenetic state of a cell cannot *determine*—that is, cannot fix conclusively—the ontological identity of that cell. Austriaco, however, equates “determine” with “reveal,” such that he then takes the statement to mean that the cell’s epigenetic state cannot tell us anything about ontological identity. He rightly points out that this would be absurd, and that it would entail self-referential incoherence. The problem, however, is that the absurdity and incoherence follow only from the statement *as misread by him*.

The point that the statement cited and the “Response to the Joint Statement” in its entirety are making, in other words, is that the ontological identity of a cell is not exhaustively or conclusively fixed by the manifestation of different biological properties or morphological markers or behavior. This does not at all mean—nor does anything in the “Response to the Joint Statement” assert—that how the entity appears or manifests itself does not play an indispensable *role* in determining, or indeed in constituting, its ontological identity. What it means—and what the “Response to the Joint Statement” does assert—is that *this indispensable role of empirical observation is not, and cannot be, the sole or indeed most basic criterion for ascertaining the ontological identity*. On the contrary, the ascertainment requires, coincident with observation of the behavior of an entity, a philosophical judgment that presupposes but does not reduce to a merely empirical criterion. Thus the text states:

The claim by its proponents that OAR avoids bringing an embryo into existence does not derive from the empirical evidence *per se*. On the contrary, it is essentially mediated by a criterion for interpreting the empirical evidence, and this criterion is a philosophical one. (371)

“Does not derive from the empirical evidence *per se*”: that is, does not derive from the empirical evidence alone, or exclusively. On the

⁴Austriaco, “Are Teratomas Embryos or Non-embryos?” 705–706.

contrary, empirical observation will be “essentially mediated”—*not replaced*—by a philosophical criterion, which, as such, is trans-empirical.⁵ This is the ground for the assertion that “the *mere act of modifying the epigenetic profile* of the OAR product *cannot be sufficient* to prevent that product from being, or having been, an incipient human organism” (371; emphasis added).

Austriaco’s charge of self-referential incoherence, in short, follows from his confusion of the claim that the nature of a biological entity is *not determined* by its epigenetic state (what the “Response to the Joint Statement actually proposes) with the claim that the nature of a biological entity is *in no way revealed* by its epigenetic state (what Austriaco misinterprets the “Response to the Joint Statement” to mean).⁶

⁵Trans-empirical: that is, intrinsically related to but going beyond, and thus not reducible to, the empirical. As the “Response to the Joint Statement” states, “Apprehending life in its most subtle beginning involves a cognitional act that is not only empirical but also (at least implicitly) metaphysical in nature. . . .”

To insist on a cognitional act that goes beyond the empirical to the metaphysical is not at all to suggest that one can or should stop looking at the physical. On the contrary, it is to look at the physical more comprehensively” (375).

⁶E. Christian Brugger likewise misses the meaning of the “Response to the Joint Statement” when he insists that, “according to Schindler’s logic, we can *never* know through empirical observation—which I take him to mean by the term ‘positivistic fact’—that a human cell is or is not a human embryo. This is absurd” (E. Christian Brugger, “ANT-OAR: A Morally Acceptable Means for Deriving Stem Cells. A Reply to Criticisms,” *Communio* 32, no. 4 [Winter 2005]: 764; emphasis original). As pointed out in connection with Austriaco, however, the absurdity of which Brugger accuses the “Response” follows only from his misreading of it. (Brugger also misreads “positivistic fact,” by which is meant, not merely an appeal to the empirical facts, but an appeal to the empirical facts taken to be sufficient of itself and without philosophical mediation.) Brugger’s misreading of the response is repeated in characterizations such as the following: if the response sets forth that “the embryo *cannot manifest itself bodily in any observable way*, then [it would imply that] the embryo is something other than its body This is dualism” (765; emphasis added); or again, the “governing assumption [is] that the *fusion of an oocyte and a somatic cell nucleus, irrespective of the epigenetic character of the so-called ‘fused’ entity, gives rise to a human embryo*” (762; bold emphasis added). As the emphasized phrases indicate, Brugger makes the same basic mistake as Austriaco: nowhere does the “Response to the Joint Statement” assert or imply that observation and epigenetic character are irrelevant. Rather, the question raised is that of the nature of that relevance. All of Brugger’s criticisms (in his response printed in the present number of *Communio*) follow from his failure to come to terms with this distinction between being relevant in principle and the nature of this relevance, despite his

(2) This same confusion informs, albeit now from an opposite direction, the positive content of the argument that Austriaco thinks inoculates him from the criticism of the “Response to the Joint Statement.” Austriaco suggests that, once we see—as do “all reasonable individuals”—that an appeal to the empirically accessible epigenetic state of a biological entity cannot be avoided in rendering judgment regarding the nature of that entity, we will understand that it must be the epigenetic state that accounts for the nature. Indeed, such a claim, he says, is not mechanistic; on the contrary, it expresses and is founded upon “the Aristotelian-Thomistic axiom, *agere sequitur esse*, act follows from being” (706).

In response, we note first of all that the “Response to the Joint Statement” terms “mechanistic” what it claims is the OAR defenders’ premise that “the *nature* of the unicellular zygote *as such* depends on its epigenetic state” (373; emphasis added). The *as such* is just the point: consistent with what was stated in (1), the “Response to the Joint Statement” criticizes the OAR defenders, not because they recognize some intrinsic relation, and just so far unity, between the substantial identity of a biological entity and the latter’s epigenetic state,⁷ but because they do so while failing to answer adequately what remains the decisive question: does this intrinsic relation between the substantial identity of an organism and its epigenetic state entail that substantial identity can be known simply on the basis of and is *nothing more than* the epigenetic state?⁸ On the

professed intentions to the contrary (see footnote 8). Rather, like Austriaco, he leaves the distinction in a confused state. I thus take the criticism of Austriaco developed in the present article to apply on all major points also to the response of Brugger.

⁷Again, the “Response to the Joint Statement” itself affirms this intrinsic unity, but in a way that involves a distinction within the unity. Furthermore, as should be evident from the above, the “Response” affirms that material conditions are integral to an entity’s substantial identity, but insists that these conditions are already realized upon the transfer of the somatic cell nucleus into the enucleated oocyte. For further arguments relative to these two points, see the argument to follow, especially Section III.

⁸Sighting the problem discussed here, Brugger says that the signatories of the “Joint Statement” in defense of OAR would reject “the proposition that ‘substantial identity is essentially a matter of epigenetics’” (as charged by the “Response to the Joint Statement”) (758). “To say a cell’s identity *depends* on its epigenetic state is not to say a cell’s substantial identity is ‘no more than’ its epigenetic state. Schindler [the “Response”] has misinterpreted the joint proposal

basis of what criteria do we render a reasonable response to this question?

In the face of these questions posed by the “Response to the Joint Statement,” Austriaco’s present criticism merely repeats the earlier argument of the OAR defenders that cells “*are different ontologically because they are organized and behave differently*” (706; emphasis added), while now adding the charge of self-referential incoherence against those who would question the philosophical assumptions governing his sense of this argument. Since, according to Austriaco, in judging regarding the nature of an entity, we rely *necessarily* (in some intrinsic way) on its manifest organization and behavior, it follows that the latter *suffice* to account for that nature: to deny this sufficiency is for him, *eo ipso*, to miss the implication of the necessity affirmed in the premise—and indeed to miss the implication of the axiom that acting follows being (“*agere sequitur esse*”).

The point of the “Response to the Joint Statement,” however, was that, in principle, an organism (embryo) might behave in a disorganized fashion (like a tumor), not because it is a non-

as putting forward epigenetic disposition as a *sufficient* condition for the actualization of embryonic life, when in fact its authors intended it only as a *necessary* condition” (758). Again, Brugger asks: “Is a liver cell no more than its epigenetic state? No. But to be what it is depends necessarily (among other things) on that state” (759). As pointed out already in relation to Austriaco, this criticism misses the point of the “Response to the Joint Statement.” But, further, note that, having accused the “Response” of falsely charging the signatories with conflating the sufficient and the necessary conditions for the actualization of embryonic life (with simply reducing the cell’s identity to its epigenetic state), Brugger goes on only to spell out more extensively the whys and wherefores of these necessary conditions—explaining, for example, why “a zygote’s organic bodily material is necessary for its identity as human” (759). That is, he insists over and over again that certain apt material conditions are necessary for the realization of an embryo, even as this obvious point was already assumed—and explicitly stated—to be true in the “Response to the Joint Statement.” At the same time, he fails to respond adequately to what was the burden of the article: what precisely is it that needs to be considered along with epigenetic state as we establish the sufficient conditions for the realization of an embryo? To be sure, Brugger points to the defining role (for Aristotle) of substantial form in finally establishing the identity of an embryo. He does so, however, in the way that Austriaco does: namely, by emphasizing the notion of “active potency.” The argument that follows with respect to Austriaco contains our criticism of the adequacy of such a notion, that is, precisely from an Aristotelian perspective.

organism, but because on the contrary it is, or was in its original constitution, a radically defective organism. If, in other words, a non-embryo and a radically defective embryo both unfold in a radically disorganized way, and indeed (possibly) begin to do so from the first moment of their original constitution, it follows that organization and behavior do not suffice, of themselves and without further qualification, to account for the nature of the entity in question. It follows, in other words, that a *distinction* (not a separation) must be made between the manifest organization/behavior and the substantial identity of a biological entity. The “Response to the Joint Statement” criticizes the OAR defenders for their failure to clarify sufficiently the nature of the distinction and its importance. This is why (and the sense in which) the text says that the OAR defenders confuse “phenotype ([self-expression] based on epigenetics) with substantial identity” (372).

The summary point, then, relative to Austriaco’s criticism of the “Response to the Joint Statement,” is that his criticism continues to presuppose his own definite reading of the distinction between the necessary and the sufficient, a reading mediated by his own account of the relationship between being and acting. But it is just this reading of his that the argument of the “Response to the Joint Statement” puts into question. It follows that Austriaco’s criticism, relative to the response, amounts to a *petitio principii*. His charge of self-referential incoherence, in short, is question-begging.

II

Our concern here, however, bears not only or even primarily on the question-begging nature of Austriaco’s criticism, but on the substance of his appeal to the Thomistic axiom, *agere sequitur esse*, which he invokes in his dismissal of the “Response to the Joint Statement” and which he says grounds the reasonableness and certitude that the OAR-generated product is a tumor and not an embryo. Let us therefore examine in greater detail how he understands this principle.

Austriaco insists that the axiom *agere sequitur esse* establishes his argument as Thomistic (and just so far as reasonable and certain), in contrast to mechanistic (and—presumably—just so far as not reasonable and not certain). Our question thus is whether his reading of this axiom is faithfully Thomist, or whether, on the contrary, it

does not indicate a confusion of Thomism with a form—subtle to be sure—of mechanism.

Austriaco states that

to all reasonable individuals, it is obvious that there is an ontological difference between a skin cell and a liver cell cultured in a petri dish, even between genetically identical skin and liver cells taken from the same person. They are different kinds of cells. We know this because they manifest different biological properties and morphological markers. This is not an argument derived from a flawed mechanistic philosophy. This is an argument grounded in the Aristotelian-Thomistic axiom, *agere sequitur esse*, act follows from being. To put it another way, the skin cell and the liver cell are different ontologically because they are organized and behave differently. Thus, contrary to Schindler's argument, we can reasonably and with certitude conclude that an OAR-generated entity that becomes a tumor is ontologically different from an embryo, because its different organization and behavior shows that it has a different nature. Again, *agere sequitur esse*.⁹

Note the following three core assertions of Austriaco's statement: first, he states that “we know [that skin cells differ from liver cells] because they manifest different biological properties”—empirically accessible ones—that account for *our knowledge* of the respective ontological identities of skin cells and liver cells.

Secondly, Austriaco says that this argument is not mechanistic but on the contrary is “grounded in,” and is thus dependent upon, “the Aristotelian-Thomistic axiom, *agere sequitur esse*, act follows from being.” And, thirdly, he then equates the meaning of this axiom with the claim that “the skin cell and the liver cell are different ontologically because they are organized and behave differently.” That is, it is the empirically accessible epigenetic state (acting) that accounts for the *respective ontological identities* (being) of these different cells.

Thus we have the *cognitional* claim that our knowledge of the substantial identity of an entity follows (and depends upon) the epigenetic state; we have simultaneously the *ontological* claim that an entity's substantial identity itself follows (and depends upon) the epigenetic state—and the assumption thereby that these two claims

⁹Austriaco, “Are Teratomas Embryos or Non-embryos?” 706.

are equivalent in meaning; and, finally, we have the assertion that these two claims in their (putative) equivalence are grounded in, indeed are but alternative ways of expressing, the Thomistic axiom that acting follows being.

Prima facie, however, this series of claims by Austriaco indicates serious confusion. First of all, it conflates the cognitional order with the ontological order, and in so doing exactly reverses the causal sequence characteristic of the relation between being and acting as it obtains in the ontological order. Secondly, and at the same time, it reduces knowledge (the cognitional order), as it pertains to the present case involving OAR, to what can be grasped empirically (manifest biological properties, etc.). How so?

Austriaco holds that, *because* the two cells are organized and behave differently, it *follows that* their ontological identity is different, and he takes this logical-causal sequence to be identical with that contained in the axiom that *agere sequitur esse*. This axiom, however, states literally that “acting follows being.” Its plain ontological meaning, in other words, is that the epigenetic state of an entity follows the being or nature of that entity: it is an entity’s *being* that causally—first and most basically in the ontological order—accounts for the entity’s *self-manifestation*, in this case, the epigenetic state.

Further, then, if acting *follows* being, it is in principle *distinct from* and not identical to being (this distinction is not a separation, however, for it is the acting *of* the being, after all). If acting follows being, then acting is ontologically consequent upon being—by which is meant, not that being is temporally prior to its acting, but only that being is always causally anterior to acting.¹⁰ Furthermore, being, in its very unity with acting, is always something more than acting: the substance of being appears in its acting, and acting is just so far the appearance of substance, but the substance of being is not (thereby) ever reducible to its appearance in acting.¹¹ It follows that

¹⁰This does not imply that there is not a mutual causal relation between being and acting, only that that mutuality is not symmetrical. The distinction here will be clarified in Section III below.

¹¹The qualifiers here indicate the crucial differences between St. Thomas and Kant. St. Thomas understands the distinction between being and appearance always to presuppose an anterior unity between the two, and thus this distinction, properly understood, is never a separation. Kant, in contrast, understands the distinction in a way that precisely denies this anterior unity. Kant’s way of distinguishing between being and appearance, in other words, is exactly a (dualistic)

knowledge of being, though it occurs necessarily in and through being's appearance, requires criteria for *both* knowledge *and* being that do not reduce to being's *appearance*, that is, here, to what is manifest empirically or knowable in exhaustively empirical terms.

Now, Austriaco says that we can tell what something is by how it acts. If an entity acts (is organized, manifests biological properties, behaves) like an embryo, it is an embryo; if it does not, it is a non-embryo (tumor). This may seem innocent enough. But notice that Austriaco confuses the otherwise rightful claim that we know something (being) in its "consequences" (by what it *does*: acting) with the claim that that something is (therefore) *properly defined* by those "consequences."¹² Because we know substance through its *appearance*, he thinks, substance is therefore *essentially constituted* by its appearance. But this implies misconstrual of the plain meaning of the Thomistic axiom, which is that *agere sequitur esse*: acting follows—is thus (ontologically) *consequent upon*, and just so far *distinct* (not separate) *from*—being. On a proper reading of the Thomistic axiom, in other words, being is the *cause* of acting (even as being appears *in its acting*); and acting is the *effect* of being (even as it is *being* that acting manifests).¹³ But if this is true, it follows that Austriaco's conflation of the (cognitional) claim that we know being in its appearance with the (ontological) claim that being is properly defined *in terms of* appearance implies a (question-begging) definition of being *by its consequences*. Austriaco defines being not by what it is, but by what is its *first* (ontological) *effect*. His argument, in a word, amounts to a species of ontological *consequentialism*.

separation. Thus, while both Aquinas and Kant avoid a reduction of being to appearance, Aquinas does so in a way entailing that appearances necessarily (as a matter of principle) *reveal* being, Kant in a way entailing that appearances *hide* being ("in itself") and thus leave being ("in itself") unknown.

¹²Here is the logic of the inference he draws: if in the normal case we can tell whether X is a human organism simply because it does typically human things, it follows that, if it fails to do typically human things, it is automatically not a human organism. The point, however, is that, if *agere* really *follows esse*, then such an inference is not possible, as Section III of this article will show. Austriaco thinks it is possible only because he is conceiving the terms in such a way that *esse sequitur agere* could be equally true.

¹³In a simultaneous *but subordinate* sense, acting is also a cause of being and being an effect of acting, as already implied in footnote 10 above. But this will be clarified in Section III.

Furthermore, when Austriaco claims that we know the OAR-generated product by how it acts, his statement indicates that he understands the how of that acting (the how of being's appearance) in terms simply of what can be accessed empirically—because for him being's manifest organization, biological properties, morphological markers, and/or behavior *suffice* to determine the substantial identity of the OAR product. Austriaco's consequentialism is thus, further, a species of *empiricism*. More precisely, it is an empiricism in either one of two senses: his argument holds either that *being* is exhaustively expressed in its empirical effects or manifestations—in which case it implies a reductionist empiricism; or it means only that the *knowledge* of being is realized exhaustively in terms of being's empirical effects—in which case it implies a dualist (Kantian) empiricism. Either way—and Austriaco's text in fact equivocates between the two interpretations—the point is that he grants no knowledge of being “in itself,” that is, as distinct from and just so far more than its empirical effects, in accord with what is required by the axiom that *agere sequitur esse*. But, again, let it be clear: this axiom, rightly-Thomistically understood, does not imply that being (“in itself”) is knowable *apart from* its empirical effects, only that the being (“in itself”) that is known *in* its empirical effects is not thereby reducible *to* those effects, either cognitively or ontologically.

Thus we may recall again the burden of the argument of the “Response to the Joint Statement” relative to the OAR proposal: that the defenders of the proposal (represented here by Austriaco), in determining the nature of the OAR-generated product, appeal to a Thomistic philosophical criterion (*agere sequitur esse*) to which they, however unintentionally, give a consequentialist-empiricist reading. Austriaco's present criticism of the “Response to the Joint Statement” continues to defend the OAR proposal in these consequentialist-empiricist terms, and his criticism thus, again, is guilty of a *petitio principii*.

But the more important point we are now highlighting derives from the fact that Austriaco himself insists that the above Thomistic axiom grounds the reasonableness and certitude of the claim that the OAR-generated product is a non-embryo. Therefore, if it is true that his reading of that axiom is consequentialist and empiricist in the ways we have indicated, it follows that the main assertion of the OAR proposal—namely, that the product generated

by OAR is not an embryo but a non-embryo—is neither reasonable nor certain; in any case it cannot claim the authority of Thomism.

III

The present criticism of Austriaco thus presupposes its own account of what suffices as an adequate reading of *agere sequitur esse*, and indeed further of being (substantial identity or nature) in its relation to acting (epigenetic state). Several of the articles in the present and in past numbers of *Communio* (by Colombo, Walker, Granados, and myself) develop key elements of this alternative account. To clarify further the positive content of the Aristotelian-Thomistic philosophy informing the “Response to the Joint Statement,” and thereby also (what I take to be) the key terms of the differences between the “Response to the Joint Statement” and the arguments defending the OAR proposal, I will undertake in this third section an outline of the positive content ofhylomorphism as it is especially pertinent to the arguments exemplified in Austriaco.

(1) An organism is defined first by its substantial form, not by its manifest organization, which on the contrary is the first (ontological, not temporal) consequence of form.¹⁴ Form is *causally anterior* to

¹⁴Cf., for example, the statement by OAR signatories: “The defining feature of an organism is *organization*: the various parts of an entity are organized to cooperatively interact for the welfare of the entity as a whole. Organisms can exist at various levels, from microscopic single cells to sperm whales weighing many tons, yet they are all characterized by the integrated function of parts for the sake of the whole” (Maureen Condic and Samuel Condic, “Defining Organisms by Organization,” *National Catholic Bioethics Quarterly* (=NCBQ) 5 [Summer 2005]: 331–353, at 336). And further: “Manifestation of an organizational principle is central to what an organism is; it is the very feature that distinguishes an organism from mere human tissue . . . ” (341). But in light of these statements, it is interesting to note also the following: “Defective human organisms are known to be different from non-organismal entities because of the observed difference in their respective developmental trajectories. Non-organismal entities lack a single substantial form and are in fact a collection of independent substances (i.e., an aggregate of substances). We come to know this because of differences in observed behavior between organisms and non-organisms, but the observed behavior is not the cause of difference, it is the effect” (339). Thus the Condicts say (rightly) here that what distinguishes a non-organismal entity from an organism is the presence or absence of a single substantial form, and indeed that the observed behavior through which we know that presence or absence is not the cause but the effect.

organization, which is the *effect* of form.¹⁵ It is form that first establishes an organism as an *unum per se*, and it is this character as an *unum per se* and thus as a substantial unity that essentially distinguishes an organism from a mere collection or aggregate of entities. It is of course true that what properly exists is always already a soul-body unity, and the soul, as the form of the body, is not joined to the body properly as a “motor.” It is nonetheless crucial to insist that, for Aristotle/Aquinas, the soul, precisely in its character as the *form* of the body, transcends the body—such that, in its distinctness (not separation) from the body, the soul exercises agency with respect to all the “parts” of the body. The soul, in accounting first for the unity of the organism, (thereby) exercises a “downward” causality through the entire organism, in whole and in all of its “parts.” Which is to say, this “downward” causality operates in the organism from an organism’s instantaneous, all-at-once beginning until its death.

(2) The *substantial unity* characteristic of an organism is thus not synonymous with the unity constituted by the coordination of parts, as in: “the various parts of an entity are organized to cooperatively interact for the welfare of the entity as a whole.” Rather, these various parts *are organized* because the substantial form of the organism first *organizes* them.¹⁶

Thus a systems biology perspective as conventionally conceived, which views an organism as an interacting system, cannot as such be claimed as an expression of authentic Aristotelianism. On the contrary, the unity indicated by the (total) system of an organ-

The problem, however, is that, as indicated in the first two statements, they have already defined the organism in terms of manifest organization, hence in terms of observed behavior. How is it that one can say that manifest organization/observed behavior is the defining feature that distinguishes an organism from a non-organism, even as one insists that observed behavior is the effect and not the cause of that distinction?

¹⁵We must be careful not to read this in terms of the modern understanding of “effect,” which presupposes a primarily successive, hence just so far external, relation between an effect and its cause, which would then imply here that organization does not and cannot truly manifest form *while remaining distinct from form*—would imply, in other words, a Kantian dualism.

¹⁶The sense of “first” will be addressed in (4) below. Suffice it to say that the sense of priority here does not imply that the substantial form does not itself presuppose the “matter” that is apt for being substantially formed. On the contrary, substantial form somehow presupposes the very aptness for organization of “matter” that form itself first actualizes. But more on this “somehow” below.

ism's interactive parts always presupposes for an Aristotelian the presence of the substantial form; and this (total) system of parts thus signifies the immediate and simultaneous but always *ontologically subordinate effect of the unifying presence of form*.¹⁷ To confuse these two different senses of unity is to conflate an Aristotelian-Thomistic hylomorphic organism with what remains, for all its subtlety, a Cartesian mechanistic body.

(3) Substantial form is the internal principle of organization: it is what first accounts for the order that is manifest in organization. Which is to say, organization is the (external) manifestation of the (internal) principle of order. Again, substantial form, on an authentically Aristotelian-Thomistic reading, indicates the *immanent* meaning of the order that is *manifest* in organization. Substantial form is thus immaterial, precisely in its material manifestation as form *of the body*. This immateriality, which for Thomism is characteristic of all living entities (organisms), becomes in the human being what is properly termed spirituality.

This point regarding the properly immanent/immaterial nature of form, developed in our time in an important way by philosopher Kenneth Schmitz,¹⁸ is indispensable for avoiding the empiricist—and materialist—reduction that is implied in the conflation of form with manifest organization.¹⁹ The recognition that

¹⁷See Condic and Condic, "Defining Organisms by Organization": "This view of organisms as an interacting system is supported by a persuasive argument from a systems biology perspective, in which a human organism is defined as 'a dynamic complex and seamlessly integrated network not of organs or of cells but of molecules . . . connected by reaction pathways which generate shape, mass, energy and information transfer over the course of a human lifetime' [from Nicanor Pier Giorgio Austriaco, O.P., "On Static Eggs and Dynamic Embryos: A Systems Perspective," *NCBQ* 2.4 (Winter 2002): 659–683, at 661]. The systems perspective focuses on the molecular composition of the interactive system that constitutes an organism, while the discussion here focuses on organismal function at the cellular level, but the arguments are logically compatible and mutually supportive" (336, fn. 10). Note that, though Austriaco uses the term "integrated," it is clear that both he and the Condic equate integration with coordinated interaction.

¹⁸Kenneth L. Schmitz, "Immateriality Past and Present," *Proceedings of the American Catholic Philosophical Association* 52 (1978), 1–15; *The Gift: Creation* (Milwaukee: Marquette University Press, 1982).

¹⁹In light of the equivocation noted above, Austriaco's mechanist view of the organism cannot but imply what is simultaneously a dualism that leaves unknown (and unknowable) whatever of the substantial identity of the organism he does wish

substantial form, as immanent/immaterial act, transcends the body (“matter”) involves no trace of what is often called “vitalism” (dualism); on the contrary, it merely renders explicit what is entailed in hylomorphism, rightly understood. That is: the form is immaterial (and, in the case of man, spiritual) precisely *in*, and just so far *also-simultaneously as*, its manifest (bodily) appearance. But this affirmation, which thus rejects any vitalistic dualism, at the same time avoids the reduction of form to bodily appearance or organization (empiricist mechanism).²⁰

(4) We said above that substantial form is what first organizes the parts of an organism. In accord with a rightly understood Aristotelianism, this priority of form in establishing the organization of the whole does not at all deny, but on the contrary simultaneously presupposes, a material platform, as it were, upon which form itself depends. The all-at-once unity provided by form necessarily presupposes the progressive development and integration of material parts. The crucial point for Aristotle, however, is that this progressive development and integration of material parts itself occurs only-always from within, and simultaneously by virtue of, the (absolutely) prior all-at-once unity and agency of form. There is, in other words, a *mutuality* of form and matter (*materia apta*) in accounting causally for the unity of the organism as a-whole-in-parts and parts-in-a-whole, but this mutuality is *asymmetrical*. What may be termed the *relative priority* of matter/material parts (“potency”) in accounting for that unity always presupposes what may be termed the *absolute priority* of substantial form (“act”).

To put this in the language of cause and effect: as already suggested above (III, 1), substantial form causes the progressive development and integration of the parts of an organism in an absolute sense, while substantial form is simultaneously the effect of the latter in a relative sense. Substantial form and material parts are at the same

to recognize as transcendent of the organism’s manifest organization.

²⁰The OAR defenders confuse the appeal of the “Response to the Joint Statement” to hylomorphism (unity within distinctness of form and matter, soul and body) with an appeal to “vitalism” (dualism between form and matter, soul and body) only because they themselves already, however unintentionally, confuse hylomorphism with (a subtle form of) mechanism (as indicated, for example, in the equation of a systems biology perspective with hylomorphism).

time mutual causes and mutual effects of each other, but they are so in different ways—with radically asymmetrical kinds of priority.

(5) This mutual but asymmetrical priority of substantial form and *materia apta* in the constitution of a substance (organism) bears at least two important consequences. First, it signals the absolute priority of substantial form in accounting for the unity of an organism and hence its identity as an *unum per se*, and in so doing, it signals the *hierarchical* nature of an organism, which is always (substantial) form before (ontologically) it is organized matter, even as it is always simultaneously both.

Second, the mutual (but asymmetrical) relationship between substantial form and *materia apta* in the constitution of an organism entails that the hierarchy presupposed in this relationship is for all that not tyrannical. That relationship, in other words, is not deterministic. Though there is a necessary relation between substantial form and *materia apta* in the constitution of an organism, this necessary relation presupposes the enduring distinction between these two, such that the agency of neither can ever be reduced to, or thus ever *exhaustively determined by*, the agency of the other. To be sure, the substantial form of an organism makes the organism as a whole and in each of its parts be the kind of being that it is, and the substantial form thus *formally* determines the organism: the organism, insofar as it is what it is, cannot act otherwise than in accord with what it is. (A human cannot, strictly, act like a pig, but only as a human would act like a pig.) But the point is that substantial form, for all of its formal determination of the organism, always itself presupposes the distinct and simultaneous contribution of the *materia apta* in the determination. The causal agency within an organism, in a word, remains *simultaneously* “downward” from whole to parts and “upward” from parts to whole, with the absolutely prior causal movement and agency of the form that renders the organism as such whole always presupposing the relatively prior causal movement and agency of the parts.

In sum, then: if an adequately conceived hylomorphism requires granting a hierarchical priority to substantial form in the ordering of the being and acting of an organism, that hierarchical priority nonetheless implies non-determinism: it bears a “generosity” permitting all of the material parts of the organism to act distinctly, precisely from within these parts’ always prior formal determination

as parts of a specific kind.²¹ Indeed, were this not so, that is, were the relation between substantial form and the material parts (*materia apta*) of an organism deterministic, we could never, at least in a sense consistent with hylomorphism, have a defective organism.²²

The principles outlined in the foregoing thus help us to see what is involved in Austriaco's failure to understand and take adequate account of the distinction between substantial form and manifest organization in determining the nature of an entity.

a) Austriaco's argument evinces no awareness of a *substantial unity or identity* of the organism (as an *unum per se*) that remains distinct from the unity manifest in the systematic coordination of parts—even as it is true that each of these unities causally-internally expresses the other (albeit in a different order).

b) His argument evinces no sense of form as *immanent activity*, an activity that is thus never exhausted in manifest behavior—even as he is right that that activity is exercised simultaneously *as the form of the body* and thus (also and as a matter of principle) *in* and *as* manifest bodily activity.

²¹Cf. here again the work of Kenneth Schmitz cited above. As this statement implies, the non-determinism indicated by the "generosity" inherent in form is not synonymous with "indeterminate": the point rather is that the determinate order provided by form is open to individual-unique development. Form determines, but not in deterministic fashion. Cf., in connection with our comments here, Austriaco's "On Static Eggs and Dynamic Embryos: A Systems Perspective," 659–683, where, significantly, Austriaco denies hierarchy in an organism and affirms determinism in its behavior (see esp. 662f.).

²²There are obviously many human organisms with irregular genomes and consequent health disorders, which are nonetheless clearly persons from the beginning: for example, persons with Huntington's disease. The distinction between a normal organism and a defective organism presupposes a distinction between individual as member of the species and individual as such. That is, qua member, one ought to have the requisitely organized matter. Qua individual, of course, one may fail in some significant sense to have the requisitely ordered matter. But this failure does not take away one's status as a member of the species, to which, as such, that organized matter is owed. Austriaco and the OAR defenders confuse the actual possession of the wherewithal to be normal/survive with what establishes one as a member of the species. Thus it is not surprising that they overlook the significance of the moment of nuclear transfer as the beginning of a new entity, because the beginning is when membership is established, along with all of one's *de jure* claims to what follows from that membership. But see further the argument to follow, especially pp. 814–815.

c) His argument misses what is the radical asymmetry coincident with the genuine mutuality between substantial form and *materia apta* (organized material parts) in accounting for the original constitution of an organism. On the one hand: he evinces no sense of the *absolute priority* of substantial form, of the “downward,” hence *hierarchical*, causality exercised by form in accounting for the all-at-once, instantaneous beginning and primitive being and acting of an organism. At the same time, and consequently: he evinces no sense of a *genuine mutuality* (coincident with asymmetry) between substantial form and *materia apta* in accounting for this beginning and primitive being and acting. Although Austriaco nominally affirms the priority and distinctness of form in relation to *materia apta*—of form as the actuality of the latter—his argument in fact hinges on his having (however unwittingly) conceived form reductively as the *effect* of *materia apta*.

Austriaco’s (unwitting) unidirectional understanding of the substantial form or identity of an organism as an effect of *materia apta*, in a word, implies a denial of the hierarchical meaning of organism (substance), even as this denial backs him into a deterministic conception of how *materia apta* (organized material parts—or the significant lack thereof) accounts for an organism’s substantial identity.

All of the above is expressed in and causes Austriaco’s failure, as described above, to distinguish the necessary from the sufficient conditions of an organism’s original constitution *as* an organism, or again to distinguish its substantial identity from its zygotic epigenetic state. But let us conclude by showing how this is so in terms of two key arguments employed by Austriaco in his judgment regarding the nature of the OAR-generated product. These arguments (in the forms proposed by E. Christian Brugger and Edward J. Furton, as well as by Austriaco) are treated also in the articles by Adrian Walker and José Granados elsewhere in the present number of *Communio*. Here I wish only to indicate how Austriaco’s judgment turns on a misreading of the Aristotelian-Thomistic notion of an organic substance.

(1) In his defense of the claim that the OAR procedure produces a non-embryo, Austriaco appeals repeatedly, in the name of Thomism, to the distinction between active potential and passive potential.

An active potential is actualized wholly from within. It is indicative of an entity’s nature—its ontological status. For

example, an acorn has an active potential to become an oak tree. In contrast, a passive potential is actualized from without. It requires the active causal intervention of an external agent in order to be realized. Thus, an acorn only has a passive potential to become a crucifix because it would need the agency of a master craftsman in order to realize this end.²³

Note Austriaco's language. He says that the active potential "is indicative of an entity's nature—its ontological status." The active potency, in other words, is the defining characteristic of the nature of an entity—"indicative of" is taken to mean "properly constitutive of."²⁴ As indicated above, however, Aristotle affirms the absolute priority of substantial form, and hence of act, in the constitution of an entity's nature. It is this formal act, precisely as act, that first defines the nature of the entity. Active potencies, as *potencies*, already involve reference to matter and thus to the material platform necessary for and ingredient in an actual entity. To be sure, the entity (organic substance) that actually exists is always a unity ("composition") of act (form) and potency (matter), and thus for Aristotle there is never an actual organic nature that does not involve relation to potency. The pertinent point, however, is that substantial act (form) retains its *distinct and absolute priority* in defining that actual nature, in determining *what kind* of entity actually exists.

In a word, then, whereas for Aristotle the active capacities of an entity are rooted in and thus flow from an entity's nature, for Austriaco it is nature that is rooted in and flows from the active capacities. Austriaco thus turns Aristotle on his head, reversing the causal relation that obtains in the ontological order implied in hylomorphism.

And indeed Austriaco's reversal entails determinism: since the nature of the thing for him is by definition equated with its active potential, it follows that the development of this potential over time will, *in and of itself*, tell us all we need to know about the ontological status of an entity. If the nature of an entity has been reduced to its active potential, it follows that that entity can be *essentially only* what

²³Austriaco, "Are Teratomas Embryos or Non-embryos?" 701.

²⁴While Austriaco at least once gives an indication that an entity's active potential is consequent upon its nature ("Are Teratomas Embryos or Non-embryos?" 701), this position is not borne out with consistency in his writings—quite the contrary.

comes to be unfolded—that is, its nature can be nothing more than the *manifestation of active potential*.

This determinism shapes Austriaco’s argument regarding how animal-testing will demonstrate the nature of the OAR-generated entity:

One essential element of testing OAR on animals would be to implant an OAR-generated cell, the product of nuclear transfer into the enucleated oocyte, into the uterus of a competent female. If the OAR-generated cell develops into a fetus or even a mature organism, then clearly OAR generates embryos. However, if the OAR-generated cell becomes a tumor, then OAR does not produce embryos, since an embryo considered as a whole entity does not have the active potential to become a tumor. The tumor-forming potential would be present in the OAR-generated cell from the beginning, since the genetic alterations are performed before the creation of the cell. Furthermore, the potential would be a property of the whole, since it would affect the cell and all subsequent cells derived from the initial cell. Given these two characteristics, this OAR-generated entity could not be an embryo.²⁵

But note the crucial premise: “since an embryo considered as a whole does not have the active potential to become a tumor.” The problem, as we have just pointed out, is that Austriaco has already conflated the nature that defines the essential wholeness of an organism—its wholeness as the *kind* of being it is—with active potential, thus collapsing the distinction between (substantial) form and matter (material platform: *materia apta*). However, it is just this distinction (see point 5 above) that permits *the logical possibility* that an organism can be *essentially* whole (by virtue of the all-at-once presence of form) even as it contains from the very outset death-inducing defects—defects, that is, that *may be* present by virtue of the simultaneous but *distinct* contribution of matter.

In a word, Austriaco’s failure to maintain the distinct and absolute priority of act (form)—which is to say, his confusion of substantial act/identity with active potency—commits him a priori to a consideration of only two possibilities with respect to the nature of the OAR-generated product: either a healthy embryo or not an embryo at all. Hylomorphism, rightly conceived, however, logically

²⁵Austriaco, “Are Teratomas Embryos or Non-embryos?” 704–705.

permits a third possibility—and it is indeed just this third possibility that is most relevant: that, namely, of an *organism* which, for all of its *essential* wholeness as the *kind* of being it is, nevertheless comes into being with what are almost immediately death-inducing disorganization/defects. A properly conceived hylomorphism thus forces us to consider the possibility that we could have an organism that, despite being formed substantially, and thus while retaining its substantial identity *as* an organism, could for all that fail in profound ways to manifest the normal organization of an organism: we could have an *organism* whose “birth” (conception) is followed virtually instantaneously by its death.

It is Austriaco’s a priori exclusion of this third possibility that warrants the caveat registered by the “Response to the Joint Statement” regarding the OAR defenders’ insistence that we simply move forward with the testing of animals, that such testing will determine whether as a matter of empirical fact the procedure produces an embryo or a non-embryo. To be sure, such testing may demonstrate the technical feasibility of the procedure, and indeed may show in some obvious way that an embryo results from the procedure, and that the procedure therefore must not be tried with humans. Suppose, however, that the testing results, as the OAR defenders expect, in an entity that fails to develop as an embryo when implanted in the uterus of a competent female animal. Would such an entity then be properly termed a tumor? Or should it rather be considered (possibly-reasonably) a radically defective embryo? Austriaco (the OAR defenders) would insist, *in the name of the empirical evidence* adduced through animal testing, that the entity is a tumor.

The burden of the above argument, however, is that this supposedly empirically-based conclusion in fact hinges decisively on Austriaco’s philosophical assumptions regarding the relative roles of act (form) and potency (matter) in defining and constituting the nature of an organic substance, assumptions that we have shown, in Aristotelian-Thomistic terms, to be false. Austriaco’s assumptions rule out a priori the possibility that the OAR-generated entity could fail to develop successfully, not because it is a non-embryo, but because it is, or was in its original constitution, a radically defective embryo, which is precisely the possibility left open by authentically Aristotelian-Thomistic assumptions. But if this possibility is thus ruled out in advance by Austriaco for primarily philosophical and not merely empirical reasons—ruled out, that is, on the basis of his

peculiar reading of hylomorphism—then what is to be gained by proceeding with animal testing? Proceeding with animal testing without clarification of these philosophical assumptions would risk creating the (dangerous) illusion that the crucial question had been answered (supposedly simply on the basis of experiment), when in fact it had only been begged (by virtue of questionable philosophical principles).

(2) However, even if Austriaco's argument regarding the nature of the OAR-generated product is unsound because it misses the distinction between substantial act and active potencies, he might respond that, for all that, in the case of the OAR procedure we still lack the *materia apta* necessary for a substantial form to be able to actualize a new kind of being. Even if we grant the absolute priority of substantial form, in other words, an apt material platform remains necessary for the actualization of this form and hence for the actual constitution of a new organism; and Austriaco argues that realization of this material platform is prevented by the OAR procedure, rightly understood and implemented. The OAR-generated product thus is not, and reasonably—certainly cannot be, an embryo but only a non-embryo. Our question, however, is whether Austriaco's claim regarding the absence of an apt material platform in the case of OAR does not, again, turn on his failure to understand properly—philosophically the nature and significance of an organism's original constitution.

We begin by recording two of our own assumptions: first, that, “*at the fusion of the gametes, a new human cell, endowed with a new and exclusive informational structure that forms the basis of further development, begins to operate as a unit*”²⁶; and that “the life cycle of every human being starts when the two gametes fuse. From that event a new life of a new human being does indeed start.”²⁷ Secondly,

²⁶Angelo Serra and Roberto Colombo, “Identity and Status of the Human Embryo: The Contribution of Biology,” in *Identity and Status of the Human Embryo: Proceedings of the Third Assembly of the Pontifical Academy for Life*, ed. Elio Sgreccia and Juan de Dios Vial Correa (Vatican City: Libreria Editrice Vaticana, 1998), 128–177 at 153 (emphasis original).

²⁷*Ibid.*, 177. Cf. the definition of *Donum vitae*: “From the time that the ovum is fertilized, a new life is begun which is neither that of the father nor of the mother; it is rather the life of a new human being with his own growth. . . . Right from fertilization is begun the adventure of a human life, and each of its great capacities requires time . . . to find its place and to be in a position to act” (25, citing the

SCNT (somatic cell nuclear transfer) produces (at least possibly—cf. the birth of Dolly) an embryo.

The question in light of these assumptions is whether OAR is an instance of SCNT in the relevant sense: does OAR, like SCNT, involve, as Austriaco puts it, “the same cell-to-organism transformation in the egg associated with fertilization, but in the absence of sperm”²⁸? His answer is no. To what extent does this negative answer hinge on his philosophical principles—his misconstrual ofhylomorphism?

Austriaco expresses the heart of his argument in the following citation:

The enucleated egg must . . . be able to *reprogram* the transferred human genome, transforming it from a genome where only those genes associated with the donor cell type, say a human liver cell, are turned on, to a genome where only those genes associated with a single-cell human embryo are turned on. It is this second event—the reprogramming of a human genome into the epigenetic state associated with embryos—that is the essential event that constitutes a new human organism. This is the event that gives the single cell—now properly called an embryo—the intrinsic capacity to follow a self-driven, robust developmental pathway that manifests its species-specific organization. In other words, this is the event that properly corresponds to the organism-constituting event²⁹

Thus in the case of SCNT: “the introduction of a nucleus taken from a starved somatic cell obtained from an adult animal is able to transform the egg and prompt it to begin embryogenesis. The egg cytoplasm reprograms the donor nucleus such that the living unit is now a system where the molecular network is able to progress through normal development.”³⁰ The difference between SCNT (cloning) and OAR, then, according to Austriaco, consists in the fact

Congregation for the Doctrine of the Faith’s *Declaration on Procured Abortion*, 12–13).

²⁸Austriaco, “On Static Eggs and Dynamic Embryos: A Systems Perspective,” 677.

²⁹Nicanor Pier Giorgio Austriaco, O.P., “Altered Nuclear Transfer. A Critique of a Critique,” *Communio* 32, no. 1 (Spring 2005): 172–176; here, 174–175.

³⁰Austriaco, “On Static Eggs and Dynamic Embryos: A Systems Perspective,” 677.

that OAR, unlike SCNT, involves an alteration of the somatic cell nucleus prior to the fusion, such that the second event to which he refers above, namely, that of “the reprogramming of a human genome into the epigenetic state associated with embryos,” cannot be accomplished. While OAR involves the fusion of the relevant materials (donor nucleus, enucleated oocyte) that in normal SCNT produces an embryo, OAR alters these materials such that, when fused, they are unable to progress through epigenetic reprogramming to the epigenetic state associated with embryos, and *it is at this second stage that the organism-constituting event occurs*, for Austriaco. Hence, for him, OAR, unlike normal SCNT, does not produce an embryo.

The problem, however, is that Austriaco’s philosophical commitments cause him as a matter of principle to overlook the (possible) ontologically significant implications of what we may call the “first event”: the *original fusion* of the somatic cell nucleus and the enucleated egg—which fusion, as SCNT shows us, *can* in fact create an embryo. To be sure, Austriaco insists that this cannot happen in the case of OAR, but note his reasoning: the cell resulting from the fusion of somatic cell nucleus and the enucleated egg cannot complete its inner (however infinitesimally brief) movement toward its second stage (event)—that is, cannot complete “the reprogramming of a human genome into the epigenetic state associated with embryos”—and it is only at this second stage that we have the decisive indication that such a cell has become a new *suppositum*—has become ontologically different from the original somatic cell nucleus and possesses its own intrinsic natural unity. Thus, because the OAR procedure prevents realization of this second event—by virtue of the over-expression in the OAR-generated cell of Nanog, a transcription factor associated with pluripotent stem cells, or of some similar factor—it follows that the OAR procedure, properly performed, will not produce an embryo.

The crucial point, however, is that Austriaco’s argument here fails to consider the (possible) significance of the *first event* enacted by the OAR procedure—namely, the first and all-at-once moment in which the somatic cell nucleus fuses with the enucleated oocyte—and this failure is driven not (merely) by the empirical content of the procedure, but (especially) by his particular philosophical assumptions. Having already confused substantial identity with manifest organization—having as a matter of philosophical principle collapsed being in its original and essential constitution (its “already”: first event) into what it is to become (its “not yet”: second event)—

Austriaco has just so far lost any principled capacity to consider the ontological implications of the fusion of the somatic cell nucleus and the enucleated oocyte that is presupposed by the epigenetic reprogramming process, from the beginning to the end-point of that process. His argument does not demonstrate, but on the contrary assumes a priori on the basis of his questionable philosophy, that, because OAR engineers the fusion of enucleated oocyte + donor cell nucleus in such a way that the epigenetic reprogramming process does not result in the epigenetic state associated with totipotency, there could not have been a (substantial form-driven) *telos* toward that totipotent state, and thus a new human being with its own substantial identity, already *coincident with the fusion*.³¹

³¹Cf. here the summary statements of Adrian Walker's criticisms, respectively, of Brugger and Edward Furton, which emphasize the importance of the logical sequence of a normal human conception: fertilization—existence of a new individual—initiation of the reprogramming process (cf. Adrian Walker, "Reasonable Doubts: A Reply to E. Christian Brugger," 770–783, and "Who Are the Real Aristotelians? A Response to Edward J. Furton," 784–794 in the present issue of *Communio*):

"SCNT also follows this process, except that it substitutes the fusion of an enucleated egg and a somatic cell for fertilization—which is why [we can speak] of a "mock fertilization" in this context. Now, OAR, as a form of SCNT, also replicates this pattern. It differs from normal SCNT in one respect only: it tries (prior to transfer) to get the epigenetic reprogramming process to move towards a pluripotent stem cell-like epigenetic state. Is this enough to distinguish OAR from cloning? Since, in the normal case, the zygotic epigenetic state logically presupposes the fertilization event that constitutes a new human being as the *suppositum* of that state, the mere premature forcing of factors associated with the epigenetic state of pluripotent stem cells is not by itself sufficient to ensure that OAR involves no "mock fertilization," and so cannot guarantee an affirmative answer to this question. In order to deliver a warranted Yes, OAR would have to change the entire pattern of fusion—new entity—reprogramming, rather than just modifying the outcome of the last element in the series.

The problem, of course, is that, if OAR hopes to get stem cells, it has to use nuclear transfer, and if it uses nuclear transfer, it can only modify the outcome of the reprogramming process, while working within the overall fusion—new entity—reprogramming pattern" (Walker, "Reasonable Doubts," 777–778).

And again, in response to Furton:

"[Thus] although OAR differs from conventional SCNT with respect to the *end-point* of epigenetic reprogramming, OAR agrees with it with respect to the *starting-point* of that reprogramming. It does not alter the overall pattern that SCNT mimics from normal reproduction, but [rather], like SCNT, brings about an entity that, *prima facie*, has a built-in *telos* towards the totipotent epigenetic state—whose attainment OAR blocks through its pre-transfer biochemical engineering" (Walker,

This criticism of Austriaco's defense of OAR in fact implies further that *no* form of the OAR procedure (i.e., of any procedure that follows its logic) can succeed in demonstrating with reasonable certitude that its product is a non-embryo. For the procedure, carried out in the way and with the results that the OAR defenders expect, will always and can only show that the change they have engineered in the epigenetic state of the entity will lead to a disorganized entity. But this reasonably-certainly demands the conclusion that such an entity truly is a tumor—and not rather a radically flawed embryo—*only insofar as* one has already assumed that substantial act/identity is exhaustively expressed in active potential. Such a conclusion is warranted, in other words, only on the basis of what we have shown to be a basic misreading of Aristotle and St. Thomas on the meaning of *esse*, *agere*, and the hylomorphic structure of organic substance.

A concluding point, then, concerning the sense in which we can achieve certitude regarding the ontological status of an entity resulting from fertilization or some “mimicked” version thereof such as ANT-OAR. In the normal case of fertilization, of the fusion of sperm and egg, it is of course true that we can judge reasonably and with certitude that an embryo has been produced when its zygotic epigenetic state manifests behavior proper to an embryo. But the burden of our Thomistic argument has been that this manifestation of embryo-like behavior, for all its importance, does not alone tell us what properly constitutes the nature of an embryo, nor does it tell us *precisely—in exhaustively empirical terms—when* that embryo has *begun* to be.

Now, in the case of normal fertilization, this question may well be left unaddressed—after all, as Austriaco has rightly insisted, a normal zygotic epigenetic state would certainly indicate the presence of an embryo. But in the case of OAR (and any procedure following the logic of OAR), the relevant point is that the cell that results from the fusion of a somatic cell nucleus and an enucleated oocyte has been engineered in and from its original constitution to skew the normal reprogramming process—such that the entity

“Who Are the Real Aristotelians?” 788).

For an analysis of the beginning of life in the case of products of SCNT and ANT, see the argument of José Granados in “ANT-OAR: Is Its Underlying Philosophy of Biology Sound?” Sections 2.1 and 2.2, in the present issue of *Communio*.

resulting from the fusion never reaches a normal zygotic epigenetic state. The decisive question in this case, then, remains that of how we would be able to know for certain whether this engineered entity was a non-zygote, *unless we had already assumed a simple identity between zygote and zygotic epigenetic state*. The point, in short, is that it is just the fact of OAR's engineering a suborganismic epigenetic state while relying on and "mimicking" the logic of the zygote-constituting event (fertilization) that forces—as a condition of any claim of reasonable certitude regarding the nature of the OAR-generated entity—further reflection regarding what properly constitutes the nature of an zygote and what it would mean properly to know that nature and to judge when it had actually begun to exist.

Such reflection of course always has empirical roots, but it is nonetheless also and inherently trans-empirical. It is trans-empirical in the sense that, in the encounter with the empirical, it involves a distinctly philosophical content, indeed a content which, rightly-Thomistically understood and relative to the constitution of organisms, entails recognition of an immaterial (or, in the case of humans, spiritual) soul (substantial form). This much our earlier discussion has already made clear. But it is important to see further here in conclusion how the trans-empirical philosophical content set forth earlier in the name of hylomorphism itself unfolds of its own inner dynamic into recognition of mystery. It unfolds into mystery in the sense that that philosophical content, when pondered in all of its *finality*, leads us to recognize as a matter of reasoned principle that we can *never determine or control in exhaustively empirical terms* the *beginning* or *original-natural constitution* of a human being.

Recall in this connection that, as indicated in (5) above, an actual organism presupposes a mutual if asymmetrical dependence of whole and parts. The organism in its actual wholeness is prior to the organism in the coordinated action of its parts, even as the coordinated action of parts is simultaneously and subordinately necessary for that actual wholeness. But this mutual if asymmetrical dependence of whole (substantial form and unity) and parts (*materia apta*) implies that the organism as such, in its substantial being, is dependent. If each of the constituent principles of substance is dependent on the other (albeit in asymmetrical ways), then the "composite" of the two must likewise be dependent: it must somehow *be given to itself*,

not self-generated but received. Thus Aquinas insists that substantial form itself is not able finally to account for the being of the organism (*ens*: what is).³² On the contrary, form itself is “potential” with respect to the existential act constituted by *esse*.

The ontological dependence indicated here is properly understood only in terms of what Thomists call the “real distinction” between *esse* and being, and this distinction in turn, when pondered to its depths, evokes the question of the nature of the given as *gift* and hence further of a(n) (ultimate) Giver, and thus of God and his goodness and indeed of the theological meaning of creation (and redemption). The existence and nature of organic life as given, and as (possibly-ultimately) gift, in short, can be adequately known only in the pondering of such questions, finally in light of faith.

The point, then, is that even hylomorphism itself does not yet suffice to disclose the full meaning of what is implied by the axiom, *agere sequitur esse*, rightly-Thomistically understood. For the five principles enunciated above in the name of hylomorphism, taken together and of their own inner dynamic, bring us face to face with what may be termed the “ontological mystery,” and indeed finally the mystery of creation. These principles press us toward and into the question of the nature of the *givenness*—and indeed ultimately *giftedness*—of (organic) being. This givenness/giftedness is thus a matter not of mystification but of the mystery that is woven into the very logic of (organic) reality—given, again, the hylomorphism that affirms a mutual-asymmetrical *dependence* between substantial form and matter and thus between the principles constitutive of an actual organism (*ens*). Such a dependence signifies a being-given in an organism’s original existence and abiding nature *as* a being, and thus also *in* the acting that follows its being. Which is to say, such dependence, in its not-wholly-explicable, hence just so far mysterious, givenness, reaches down through the entire order of being and being’s acting. It therefore must be taken into account in any finally adequate account of what it means to know or control an organism in its original constitution and abiding nature and acting as such.

This last comment regarding the not-wholly-explicable ontological and ultimately theological mystery of the beginning and actuality of the nature of organic being of course leads into a literally

³²STI, q. 44.

infinitely open-ended reflection, the completion of which is scarcely necessary to make a judgment regarding the entity produced by the OAR procedure. On the contrary, as we have shown, that the OAR-generated entity is not a non-embryo but a fatally-flawed embryo follows reasonably and with certitude already from an adequate understanding of the Thomistic axiom, *agere sequitur esse*, and from the hylomorphic structure of organic being that expresses and grounds this axiom. Our final comment nonetheless deepens our awareness of an *intrinsic* limit in our ability to rationalize or control—empirically or otherwise—the beginning and original constitution of a human being. There is, in other words, a limit that can be known a priori, on the basis of reasonable philosophical and theological principles, a limit that is thus not merely empirically determined—not something that can properly be ascertained only through (endlessly) continued experimentation.

The question that emerges from the foregoing reflection on the meaning of *esse* and *agere* and organic being is whether, in OAR, we have not reached this principled, and not merely empirically determined, limit. For what our argument suggests is that the OAR procedure, as a matter of its inner logic, can *never* be interpreted as showing conclusively—reasonably and with certitude—that the entity it produces is not a distinct organism. Or rather, that it could be so interpreted, paradoxically, only by assuming a priori the mechanist-empiricist philosophy of biology whose rejection is entailed by a sound (Aristotelian-Thomistic) understanding of *esse*, *agere*, and substance.

The present article, then, has accomplished its purpose insofar as it has established a *prima facie* case that Austriaco's guiding philosophical³³ assumptions misconstrue basic Aristotelian-Thomistic

³³Although it has not been our purpose here to respond to the respectful and carefully developed argument by Stuart Swetland and William Saunders, I believe the principles we have adduced in the present article counter to Austriaco suffice also to show, contra Swetland and Saunders, that the entity produced by OAR is credibly an embryo. Indeed, in the end, Swetland and Saunders share the same logic as Austriaco in ascertaining the nature of this entity: "To put it briefly, OAR is based upon our position that the nature of a cell is defined by its epigenetic state" (725). Also, "[f]rom the external evidence, then, it appears that the human being comes into existence when the enucleated oocyte reprograms the nucleus into a totipotent zygote. This reprogramming provides it with all of the epigenetic primordia necessary for inward development into a mature human being" (731). Note, again, that the entire burden of the argument here is placed on the end-point

philosophical-biological principles. But the reason for making this case is not to press the philosophical issues for their own sake, but rather to show, through clarification of the issues, how and why the OAR defenders' arguments in defense of OAR, represented here by Austriaco, leave us—theoretically and practically—vulnerable to the unjust taking of human life, despite what are their/his unequivocally explicit intentions to the contrary.³⁴ □

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of reprogramming rather than on the OAR-product in its original constitution.

³⁴It should be pointed out in this connection that a central core of the OAR Joint Statement signatories acknowledges the possibility that the OAR procedure may not be 100% reliable, even if performed rigorously and with the results they expect. That is, in a “statistically negligible” number of cases, it may “fail,” and thus produce embryos. The signatories insist that, notwithstanding the possibility of this failure, there is no reasonable moral doubt about going forward with the procedure. Why not? Because they hold that the *intention* not to produce embryos can in such a case, by virtue of an appeal to the principle of double effect (as they understand it), still justify the risk of occasionally (in a “statistically negligible” number of cases) mistakenly producing an embryo. On the problems with this argument, see Walker, “Reasonable Doubts,” 781–783, in the present issue of *Communio*.