WHO ARE THE REAL ARISTOTELIANS? A REPLY TO EDWARD J. FURTON

• **Adrian J. Walker** •

"The real bone of contention . . .
is whether or not there is anything
like an Aristotelian nature."

In a defense of Oocyte Assisted Reprogramming (OAR) that recently appeared in the pages of *The National Catholic Bioethics Quarterly*,[1] Edward Furton, the journal's editor, replies to what he regards as "some ill-conceived objections to this proposal raised by the editors of *Communio*."[2] In particular, Furton singles out my essay "A Way Around the Cloning Objection Against ANT?"[3] which he roundly criticizes on three counts: (1) it is a polemical attack on the supporters of OAR; (2) it betrays an erroneous understanding of the science underlying OAR; (3) it reflects an anti-scientific obscurantism whose commitment to shady philosophical a prioris translates into disregard for experimental evidence. I respectfully submit that he is both wrong on all three of the charges that he brings against me and that he has missed the point of my argument. In the present

[1]Edward J. Furton, "A Defense of Oocyte-Assisted Reprogramming," *The National Catholic Bioethics Quarterly* (Autumn 2005): 465–468.

[2]Ibid., 467.

[3]Adrian J. Walker, "A Way Around the Cloning Objection Against ANT? A Brief Response to the Joint Statement on the Production of Pluripotent Stem Cells by Oocyte Assisted Reprogramming," *Communio* 32 (Spring 2005): 188–194.

Communio 32 (Winter 2005).

essay, then, I would like to offer a reply to his attempted rebuttal of me (section 1), followed by a brief restatement of my diagnosis of what I think is the conceptual flaw inherent in OAR and, indeed, in every conceivable form of ANT (section 2). In the course of my argument, I hope to make it clear that my objections to ANT-OAR are serious questions formulated from within a commitment to the very Aristotelian-Thomistic natural philosophy from which Furton wrongly accuses me of departing.[4]

1. Rebutting the rebuttal

(A) Furton's first charge against me is that I have engaged in a personal attack on the supporters of OAR. Here is how he characterizes my argument:

> Adrian Walker's essay . . . is an attack upon the supporters of OAR, who are said to be attempting to wriggle out of a difficulty into which Walker and others have supposedly put them, namely, exposing their desire to clone and destroy human beings in order to obtain stem cells. The implications of Walker's line of argument is [sic] that supporters of OAR are deceitful people in search of a new marketing strategy. He calls OAR a "savvy entrepreneur," part of a "shell game," and "pottage." This kind of rhetoric seems inappropriate to reasoned discussion.[5]

Contrarily to Furton's account of my intention—which itself reads much like a personal attack—I nowhere accuse OAR supporters of harboring a "desire to clone and destroy human beings." On the contrary, I explicitly acknowledge OAR proponents' unquestionably good intentions in attempting to work out a method for obtaining human stem cells without creating or destroying human embryos in the process. The focus of my article is not on the

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[4]Referring to my supposed obscurantist apriorism, Furton writes that my "appeals to a mysterious realm of ontology appear to be little more than obfuscation. For those who follow the Aristotelian-Thomistic tradition, there can be no knowledge in the mind except that which first comes through the senses. To reject the evidence of the senses is to reject the epistemological tradition of the Church" (Furton, "A Defense of Oocyte-Assisted Reprogramming," 468).

[5]Ibid., 467.

intentions of OAR advocates, but *on the logical implications* of the particular position that they happen to take on this concrete issue. Similarly, I nowhere assert that OAR supporters are "deceitful people in search of a new marketing strategy." What I actually say should be fairly uncontroversial: OAR is an attempt to make the goal of obtaining stem cells without creating embryos foolproof against the objections that were raised against William Hurlbut's version of ANT through *Cdx2*—not only by *Communio*, but also by supporters of OAR,[6] including Furton himself.[7]

As for the three colorful expressions that Furton cites as evidence of my polemical flippancy, he has misread their clear meaning. (i) "Savvy entrepreneur" is part of a simile that is meant to illustrate the difference between OAR and the form of ANT proposed by Hurlbut.[8] (ii) "Pottage," as in "mess of pottage," is, of course, a reference to the biblical story of Jacob and Esau, which I evoke in order to bring home how much ground I think the OAR proposal, given its logical implications, ends up conceding to the mentality underlying embryonic stem cell research. My allusion to the Jacob-Esau story serves to highlight what I see as the logical implications of support for OAR, not to vilify the intentions of its proponents.[9] (iii) Likewise, the phrase "shell game" is not a characterization of OAR advocates' intentions, but of what I argue is the Joint Statement's failure to explain how OAR is not cloning. Furton would do better to refute my argument here than to accuse me of mudslinging.[10]

(B) This brings me to Furton's second charge, namely, that I misunderstand and/or reject the science underlying the OAR

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[6]I should point out that I never claimed that OAR is an attempt to "wriggle out of a difficulty into which *Walker and others have supposedly put them*" (my emphasis). I claimed that, if one reads between the lines, one notices that the Joint Statement subtly distances itself from Hurlbut's *Cdx2* variant of ANT. This is because many of the supporters of OAR had serious reservations about the morality of Hurlbut's proposal, as E. Christian Brugger explains in "Ethical Commitment Stimulates Scientific Insights," which appears on pages 445–446 of the same issue of *The National Catholic Bioethics Quarterly* that features Furton's essay.

[7]See Furton, "A Defense of Oocyte-Assisted Reprogramming," 466.

[8]See Walker, "A Way Around the Cloning Objection Against ANT?" 189.

[9]See ibid., 194.

[10]See Walker, "A Way Around the Cloning Objection to ANT?" 193.

proposal. Central to Furton's own account of this science is the concept of cellular "dedifferentiation." I will cite a key passage in which Furton explains how the ideal technique for obtaining stem cells without creating or destroying an embryo would be to use such dedifferentiation to wind the biological clock of adult cells back to the pluripotent stem cell stage, while stopping clearly short of zygotic totipotency:

> The ideal method of obtaining embryonic stem cells would be through dedifferentiation. In this procedure, an adult stem cell [*sic*] would be made to regress to an earlier stage of development, eventually returning to its early embryonic state. The regression of that cell, however, would be halted prior to totipotency; hence, what resulted could not (under any reasonable analysis) be an embryo.[11]

To Furton's question whether the editors of *Communio* "are opposed to dedifferentiation,"[12] I can confidently say "No"—with the proviso, which Furton would no doubt second, that the research conducted for the elaboration of cellular dedifferentiation techniques should not involve any experimental use of human embryos. So far so good, then. The real disagreement starts only when Furton goes on to claim that OAR is a "*type* of adult cell dedifferentiation."[13] Given Furton's admission that cellular dedifferentiation, as he describes it in the long passage cited just now, "is not yet possible,"[14] this claim should raise some red flags. Clearly, OAR is a not an instance of what I would like to call "*direct* dedifferentiation." Indeed, if we consider that the OAR product is not the same entity as the somatic cell nucleus, but a new entity, brought about by the fusion of the somatic cell nucleus with the enucleated egg, a new entity that replaces the donor cell nucleus as the subject of epigenetic states, then we have to say that OAR looks *prima facie* like cloning. Suddenly, the burden of proof shifts from the critics of OAR to its defenders. Let me briefly suggest where the crucial question lies with

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[11]Furton, "A Defense of Oocyte-Assisted Reprogramming," 467.

[12]Ibid.

[13]Ibid., emphasis added.

[14]Ibid.

respect to whether or not OAR eliminates any reasonable possibility of creating an embryo.

Human reproduction follows a certain logical sequence: fertilization and the concomitant formation of the new cell (during which the genesis of a new human being somehow occurs), followed by the creation of the zygotic epigenetic state. SCNT replicates the same logical pattern, while substituting the fusion of the somatic cell nucleus and the enucleated egg for the fusion of sperm and egg in fertilization. This fusion does not always work, but, when it does, it produces an embryo in what one could call a "mock fertilization." Now, OAR seems to follow the same logical pattern and have the same conditions for success as SCNT: the fusion of cellular materials to form a new cell (which, again, involves the generation of a new human individual), followed by the epigenetic reprogramming process. True, OAR differs from conventional SCNT in one respect: unlike conventional SCNT, it uses pre-transfer biochemical engineering to change the outcome of epigenetic reprogramming from the totipotent epigenetic state (which would be the normal goal) to a pluripotent one. Nevertheless, 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, 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. What, then, is to prevent us from understanding OAR as a mimicked fertilization, the development of whose product has been modified away from its natural direction towards premature pluripotency? OAR may modify the outcome of the epigenetic reprogramming process, but, so long as it does not modify the starting-point, indeed, the whole pattern of events it inherits from SCNT, this modification leaves entirely open the possibility that it has created an embryo.[15]

(C) Furton claims that David Schindler and I are "anti-science," because, in his view, we are unwilling to let our a priori

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[15]The fact that OAR intervenes on the cellular materials prior to transfer is irrelevant, because the actual taking effect of the modifications it introduces depends logically on the fusion of those materials and the initiation of the reprogramming process happening as it normally would in SCNT.

philosophical commitments to a mysterious "ontology" be corrected by experimental evidence: "let us see what the studies tell us about this question," he urges us, "and then invoke 'ontology.'"[16] Ironically, Furton himself objects to William Hurlbut's version of ANT prior to any experimental testing of it.[17] Clearly, Furton is as convinced as I am that it is not "anti-science" to critique at least some forms of ANT in advance of experiment, on the grounds that even their experimental success would not be enough to quiet the doubts that they had modified only the expression of the *developmental pattern*, and not the *being* or *essential status* (the "ontology," if you will) of their product. By the same token, the real question at issue between Furton and the editors of *Communio* is not whether experiment in principle is important—Schindler and I readily concede that—but whether or not OAR, like Hurlbut's *Cdx2* scenario, is one of the ANT variants that can be criticized in advance on the grounds just suggested. Here is why I think that it is.

As I noted in section (B), the biochemical modifications that are part and parcel of OAR aim at changing the outcome of the epigenetic reprogramming process. They do not change the logical sequence of events inherited from SCNT that goes from fusion of the cellular materials to the creation of a new cell to the initiation of epigenetic reprogramming. Indeed, they presuppose it; they cannot change the outcome of epigenetic reprogramming unless epigenetic reprogramming actually happens, and epigenetic reprogramming cannot actually happen unless the fusion of the cellular materials happens. But if OAR does not change this basic pattern, but actually relies on it, then how can it change this pattern's basic nature? And if this basic nature is, as we saw above, to be a "mock fertilization," then how can OAR be reasonably supposed to be the direct creation of a pluripotent stem cell? Perhaps OAR proponents have a perfectly good answer to this question—I will consider whether this is the case or not in section 2—but, as long as it is unanswered, the mere fact that experiment confirms that OAR modifies the outcome of

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[16]Furton, "A Defense of Oocyte-Assisted Reprogramming," 468.

[17]"In my opinion, there is every reason to believe that what would be produced under this proposal is a defective embryo. Hurlbut would deny this, but the fact remains that this entity will pass through several divisions of normal embryonic development before the engineered defect expresses itself and brings further development to a halt" (ibid., 466).

epigenetic reprogramming towards early pluripotency remains perfectly compatible with the possibility that it is the production of a clone with a planned defect, namely, the hypertrophic premature expression of a factor that would normally come into play only at a later stage of its organic development. In other words, in the case of OAR, the laboratory evidence by itself is equivocal: it leaves entirely open the possibility that, even if what we have before us looks and acts much like a pluripotent stem cell *now*, it still *originated* as an embryo. But if the lab is not the sole court for distinguishing OAR from cloning, then Furton, along with other defenders of OAR, must provide an argumentative justification, on grounds other than OAR's presumptive experimental results, for their claim that these results would mean that OAR produces pluripotent stem cells without creating and/or destroying embryos. OAR advocates do not own the empirical high ground, but rely on a trans-empirical criterion of human organism that they must make explicit and defend. In section 2, to which I now turn, I would like to explain why I think the attempt to work out such a defense is bound to run into insuperable difficulties.

2. What is wrong with OAR: a brief conceptual diagnosis

It should be clear by now that my objection to OAR is not based on any sweeping claim of the impossibility, under any conceivable scenario, of ever obtaining pluripotent stem cells without creating or destroying human embryos in the process. My objection to OAR rests rather on what I see as the essential impossibility of using *nuclear transfer* to achieve this goal. Even assuming that OAR can harness nuclear transfer technology to create pluripotent stem cells—which is itself far from obvious because of the formidable technical difficulties standing between us and reliable forms of such technology—I would still have serious doubts (and not merely hairsplitting cavils) that it had not created and/or destroyed an embryo in the process. Dependence on nuclear transfer, in short, introduces a major conceptual flaw into the very heart of OAR, which seems to me to vitiate radically and a priori its usefulness as a method for obtaining pluripotent stem cells without making or unmaking embryos in the process. Since my objection to OAR applies, *mutatis mutandis*, to any conceivable form of ANT, I will

begin my diagnosis of this conceptual flaw with the latter, before moving on to show how the same flaw also inheres in the former.

All possible forms of ANT share one thing in common, namely, they are all predicated on replicating the natural starting point of the process leading to pluripotent stem cells through nuclear transfer. It is just here that ANT's problems begin, though, for the natural starting point of the process leading to stem cells is what it is only because it is first and foremost (logically, if not chronologically) the natural starting point of a human life. Of course, ANT is supposed to get around this difficulty by *altering* nuclear transfer—hence the name "ANT"—through the appropriate biochemical engineering. The burden of my argument, however, is that, if the starting point of the stem cell development process is first and foremost (again, logically, not chronologically) the starting point of a new human life, then ANT cannot suppress the latter aspect without compromising the former aspect, too. Despite claims of ANT proponents to the contrary, all ANT can really do is replicate the genesis of a human organism while preprogramming it toward an abnormal development trajectory that is supposed to guarantee that what is produced was actually never a human organism, but only a sub-organismic entity/stem cell. All ANT can do, in other words, is engage in a self-contradictory effort to use developmental modifications to neutralize the basic character of the very event that sets the context in which any development—and so any developmental modification—can be relevant and efficacious in the first place. In my view, Hurlbut's *Cdx2* variant of ANT clearly illustrates this contradiction at the heart of all possible forms of the procedure.[18]

At this point, advocates of OAR will no doubt insist on the differences between OAR and Hurlbut's form of ANT. They will point out that Hurlbut proposed deleting the gene (*Cdx2*) that regulates the formation of the trophectoderm, whereas OAR switches on a pluripotency-associated gene (e.g., *Nanog*). Instead of engineering the delayed implosion of what until that point was like a human organism in every other respect, OAR supporters will insist, OAR supposedly transforms the nuclear transfer event itself into the direct formation of a pluripotent stem cell. The problem with this description of OAR, however, is that it overlooks the fact

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[18]For more argument, see Adrian J. Walker, "Altered Nuclear Transfer. A Philosophical Critique," in *Communio* 31 (Winter 2004): 649–684.

that the active expression of the pluripotency-related gene in question depends on the fusion of the cellular materials that occurs within an overall developmental pattern of fusion, formation of a new cell, and initiation of epigenetic reprogramming—and not vice versa.[19] If, then, we cannot engineer away this asymmetrical dependence (even if we might be able to engineer their chronological simultaneity) without robbing the former of the context in which alone it can be relevant to, and efficacious in, the production of stem cell-like properties, are not OAR advocates doing just what Hurlbut was doing? Are they not proposing to replicate the starting point of human life while simultaneously neutralizing it as the starting point of human life—even as they would do so using developmental factors whose efficacy and relevance depends essentially on that starting point being the starting point of a human life in the first place? Is not OAR, like the *Cdx2* scenario, like every other form of ANT, a self-contradictory attempt both to initiate and not initiate a human life at the same time and in the same respect?

So much for the conceptual contradiction at the heart of ANT-OAR. There is one strategy—let us call it Strategy B—that proponents of ANT-OAR might try in order to bypass this contradiction. In this strategy, they might insist that there is nothing sacred about the logical pattern of fusion, cell, epigenetic reprogramming that I am insisting is the *sine qua non* for the very efficacy of the modifications that OAR would undertake. This pattern, they might argue, reflects no trans-empirical *Something*, no mysterious "Ontology," that somehow essentially escapes man's technical knowledge. But if Strategy B has the merit of reducing what I claim is an insuperable flaw in every conceivable form of ANT to—at most—a transitory technical glitch that biotechnology will eventually be able to bypass, it nonetheless labors under a huge problem of its own. For it is tantamount to claiming that human reproduction—mimicked in SCNT—has no trans-empirical nature that is manifest somehow in the empirical phenomena in which it is embedded and that puts a physical limit on what we *can* do with it. But if there is no natural limit to what we can do with reproduction, then there is no reason

[19]Otherwise, we could get a stem cell simply by manipulating the somatic cell nucleus without nuclear transfer—which would be tantamount to the sort of direct dedifferentiation that, as noted above, is as yet beyond the reach of our bioengineering capabilities.

for ascribing to it any special moral quality that puts an ethical limit on what we *may* do with it. Strategy B, in other words, buys its small argumentative gain at the very high price of conceding to the mentality underlying embryonic stem cell research and cloning that attempts to break down the distinction between the artificial and the natural.[20] If proponents of ANT-OAR do not want to go this route—and I do not think they do—would they therefore not be better advised to scrap ANT-OAR altogether, and to devote their energies to developing methods for obtaining ES cells without using anything even remotely resembling nuclear transfer? Or, perhaps even better, might they not devote themselves to helping the culture understand in the deepest and most comprehensive way why even the—by all accounts rather remote—promise of medical advances is not enough to justify the current methods of embryonic stem cell research?

"Who are the real Aristotelians?" My choice of this title is meant to underscore that I have not raised questions about the morality of OAR out of an un-Aristotelian disdain for sense knowledge or for scientific experiment, but because the conceptual structure of OAR (and of all the other variants of ANT that we have encountered so far) seems to me—on sober analysis, not mystical intuition—to require for its logical consistency what is itself an un-Aristotelian endeavor to abolish (at least for the origins of human life) the distinction between the natural and the artificial upon which the Stagirite's whole natural philosophy rests. The real bone of contention between the editors of *Communio* and proponents of ANT-OAR, in other words, is not whether or not we should be corrected by the biological phenomena—of course we should—but whether or not there is anything like an Aristotelian nature to make itself manifest in the phenomena and so to guide our assessment of bioengineering practices, including ANT-OAR. I doubt that most proponents of ANT-OAR would want to deny that trans-empirical natures can be manifest in the empirical—otherwise there would be no grounds for speaking of anything like "natural law." But is not such a denial the only conceivable justification for their failure to consider adequately the possible implications of the crucial empirical phenomenon of the embryo-producing powers of the cellular

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[20]For more argument, see Adrian J. Walker, "The Primacy of the Organism. A Response to Nicanor Austriaco," *Communio* 32, no. 1 (Spring 2005): 177–187.

materials whose fusion ANT-OAR relies on? Does not this failure suggest a certain deafness to the voice of *physis*—or even a relegation of it to the domain of what Kant would have called a "brain phantom," of a shady "ontology" that supposedly has absolutely nothing to do with the biological phenomena before us?

If the foregoing essay has been successful, then I have shown that the questions *Communio* and others have been raising about ANT-OAR are serious and responsible ones. Since these questions are genuinely serious and responsible, and not merely hairsplitting cavils, then ANT-OAR advocates must confront them head on, rather than accuse those raising them of personal rancor or arrogant stupidity. Perhaps they will be able to produce convincing counter-arguments that will put to rest the sorts of doubts expressed in these pages. In the meantime, so long as the appropriate arguments are not forthcoming, it would be rash for ANT-OAR supporters to continue to try to win governmental and ecclesial approval for the proposed procedure. As John Paul II reminded us in *Evangelium vitae*, the mere probability that a human life is at stake suffices to make a procedure involving intervention into the early stages of human existence unethical. The issues are simply too great for ANT-OAR supporters not to stop and reflect more deeply on the presuppositions of their proposal. What are at stake are the protection of embryonic human lives, the restoration of the peace of the Church, and the fostering of American Catholics' ability to evangelize the "culture of death" through intelligent thinking about the relationship between biotechnology, human nature, and the faith, with the help, among other things, of Aristotle's understanding of *physis*. □

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