

Acorns and Embryos

Robert P. George and Patrick Lee

The prestigious *New England Journal of Medicine* (*NEJM*) recently invited two members of the President's Council on Bioethics to reflect on the ethics of using embryonic stem cells in biomedical research. Paul McHugh, a professor of psychiatry at Johns Hopkins University, explained his opposition to the destruction of human embryos created by the union of gametes, but sought to distinguish such embryos from what he dubbed "clonotes": that is, embryos brought into being by cloning (a process known technically as "somatic cell nuclear transfer" or SCNT). He argued that human "clonotes" are not really human embryos, and thus do not enjoy the high moral status of embryos brought into being by ordinary sexual intercourse or by the process of in vitro fertilization (IVF). These "clonotes," McHugh argued, may be legitimately destroyed for purposes of stem cell harvesting, so long as they are destroyed before the fourteenth day of their development. Michael Sandel, a professor of political theory at Harvard University, defended the killing of human embryos in biomedical research without regard to the method by which such embryos are brought into being. In his view, human embryos, whether produced by union of sperm and egg or by somatic cell nuclear transfer, are not entitled to the moral immunity against direct attack that is enjoyed by human beings at later developmental stages.

Both McHugh and Sandel are leading figures in the embryo research debate, and the arguments they put forward are made frequently by others seeking moral grounds for engaging in the destruction of human embryos. But these arguments do not withstand critical examination. In our view, human beings in the embryonic stage are entitled to the same immunity from attack that is enjoyed by human beings at later developmental stages, and it is irrelevant whether these embryonic human beings came into existence by sexual union, in vitro fertilization, or somatic cell nuclear transfer.

The Basic Dispute

Part of the problem we face is the way the issue has been framed by the editors of the *New England Journal of Medicine* and many others who have

Robert P. George is the McCormick Professor of Jurisprudence at Princeton University and a member of the President's Council on Bioethics. *Patrick Lee* is professor of philosophy at the Franciscan University of Steubenville.

waded into the debate. Absent the appropriate framing of the issue, there is little likelihood of generating an illuminating public discussion.

If we were to contemplate killing mentally retarded infants to obtain transplantable organs, no one would characterize the resulting controversy as a debate “about organ transplantation.” The dispute would properly be characterized as a debate about the ethics of killing retarded children to harvest their vital organs. The issue could not be resolved by considering how many gravely ill non-retarded people could be saved by extracting a heart, two kidneys, and a liver from each retarded child. The threshold question would be whether it is unjust to relegate a certain class of human beings—the retarded—to the status of objects that can be killed and dissected to benefit others.

By the same token, we should not be speaking in terms of a debate “about embryonic stem cell research.” No one would object to the use of embryonic stem cells in biomedical research or therapy if they could be harvested without killing or harming the embryos from whom they were obtained. Nor would anyone object to using such cells if they could be obtained from embryos lost in spontaneous abortions. The point of controversy is the ethics of deliberately destroying human embryos for the purpose of harvesting their stem cells. The threshold question is whether it is unjust to kill members of a certain class of human beings—those in the embryonic stage of development—to benefit others.

But are human embryos human beings?

Indeed they are, and contemporary human embryology and developmental biology leave no significant room for doubt about it. The adult human being reading these words was, at an earlier stage of his or her life, an adolescent, and before that an infant. At still earlier stages he or she was a fetus and before that an embryo. In the infant, fetal, and embryonic stages, each of us was then what we are now, namely, a whole living member of the species *Homo sapiens*. Each of us developed by a gradual, unified, and self-directed process from the embryonic into and through the fetal, infant, child, and adolescent stages of human development, and into adulthood, with his or her determinateness, unity, and identity fully intact. Although none of us was ever a sperm cell or an ovum—the sperm and ovum from whose union we emerged were genetically and functionally parts of other human beings—each of us was once an embryo, just as we were once infants, children, and adolescents. In referring to “the embryo,” then, we are referring not to something distinct from the human being that each of us is, but rather to a certain stage in the development of each human being—like saying “the teenager” or “the five-year old.”

Some scientists and philosophers who agree with us about the status of human embryos as human beings nevertheless believe (mistakenly, in our view) that killing embryos in biomedical research can be justified. Some defend embryo-killing on utilitarian grounds, by asserting that killing a few thousand embryos today will help millions of suffering patients in the future. Others argue that no wrong is done in destroying “spare” IVF embryos that would otherwise be permanently frozen or discarded. There are, however, scholars who are prepared to deny that human embryos are human beings. Michael Sandel does just that in his *NEJM* article. He defends embryo-killing in biomedical research on the ground that human embryos and human beings are different *kinds* of entities.

A Difference in Kind?

At the core of Sandel’s argument is an analogy:

although every oak tree was once an acorn, it does not follow that acorns are oak trees, or that I should treat the loss of an acorn eaten by a squirrel in my front yard as the same kind of loss as the death of an oak tree felled by a storm. Despite their developmental continuity, acorns and oak trees are different kinds of things.

Sandel maintains that, by analogy, embryos are different in *kind* from human beings. But this argument cannot survive scrutiny.

As Sandel himself implicitly concedes, *we value human beings precisely because of the kind of entities they are.* (That is why he has staked his entire argument on the proposition that human embryos are different *in kind* from human beings.) Indeed, that is why we consider all human beings to be equal in basic dignity and human rights. By contrast, we value oak trees because of certain accidental attributes they have, such as their magnificence, their special beauty, or a certain grandeur that has taken perhaps seventy-five or a hundred years to achieve. If oak trees *were* valuable in virtue of the *kind* of entity they are, then it *would* follow that it is just as unfortunate to lose an acorn as an oak tree (though our emotional reaction to the two different kinds of loss might, for a variety of possible reasons, nevertheless differ). Sandel’s purported analogy works only if he disregards the key proposition asserted by opponents of embryo-killing: that all human beings, irrespective of age, size, stage of development, or condition of dependency, possess equal and intrinsic dignity by virtue of *what* (i.e., *the kind* of entity) they are, not in virtue of any accidental characteristics, which can come and go, and which are present in human

beings in varying degrees. Oak trees and acorns are not equally valuable, because the basis for their value is not *what* they are but precisely those accidental characteristics by which oak trees differ from acorns. We value the ugly, decaying oak tree less than the magnificent, still flourishing one; and we value the mature, magnificent oak more than the small, still growing one. But we would never say the same about human beings.

Sandel's argument begins to go awry with his choice of analogates. The acorn is analogous to the embryo and the oak tree (he says) is analogous to the "human being." But in view of the developmental continuity that Sandel rightly concedes, surely the proper analogate of the oak tree is the mature human being, i.e., *the adult*. Of course, Sandel's analogy has its force because we really do feel a sense of loss when a *mature* oak is felled. But while it is true that we do not feel the same sense of loss at the destruction of an acorn, *it is also true that we do not feel the same sense of loss at the destruction of an oak sapling*. (Indeed, our reaction to the destruction of a sapling is much more like our reaction to the destruction of an acorn than it is like our reaction to the destruction of a mature oak.) But clearly the oak tree does not differ *in kind* from the oak sapling. This shows that we value oak trees not because of the kind of entity they are, but rather because of their magnificence. Neither acorns nor saplings are magnificent, so we do not experience a sense of loss when they are destroyed.

But the basis for our valuing human beings is profoundly different. We do not believe that especially magnificent human beings—such as Michael Jordan or Albert Einstein—are of greater inherent worth and dignity than human beings who are physically frail or mentally impaired. We would not tolerate the killing of a retarded child or a person suffering from, say, brain cancer in order to harvest transplantable organs to save Jordan or Einstein.

And we do not tolerate the killing of infants, which on Sandel's analogy would be analogous to the oak saplings at whose destruction we feel no particular sense of loss. Managers of oak forests freely kill saplings, just as they might destroy acorns, to ensure the health of the more mature trees. No one regrets this, or gives it a second thought. This is precisely because we do not value members of the oak species—as we value human beings—because of the kind of entity they are. If we did value oaks for the kind of entity they are, and not for their magnificence, then we would likely feel a sense of loss at the destruction of saplings, and it would be reasonable to feel a similar sense of loss at the destruction of acorns. Conversely, if we valued human beings in a way analogous to that in which we value oak

trees, then we would have no reason to object to killing human infants or even mature human beings who were severely “defective.”

In sum, Sandel’s defense of embryo-killing on the basis of an analogy between embryos and acorns collapses the moment one brings into focus the profound difference between the basis on which we value oak trees and the basis on which we ascribe intrinsic value and dignity to human beings. His analogy only makes sense if we reject the principle that all human beings possess equal moral worth—a principle that we assume Sandel wishes to uphold, not reject.

Taking Continuity Seriously

Sandel’s argument also relies on an equivocation of the terms “oak tree” and “human being.” Of course, as Sandel says, acorns are not oak trees—*if* by “oak tree” one means a *mature* member of the oak species. By the same token, a sapling is not an “oak tree” if *that* is what one means (nor, by the same reasoning, is an infant a human being). But if by “oak tree” (or “oak”) one means simply any member of the *species*, then an acorn (or a sapling) *is* an oak tree—they are identical *substances*, differing only in maturity or stage of natural development.

Similarly, no one claims that embryos are *mature* human beings, that is, adults. But human embryos *are* human beings, that is, complete, though immature, members of the human species. Embryos are human individuals at an early stage of their development, just as adolescents, toddlers, infants, and fetuses are human individuals at various developmental stages. So to say, as Sandel does, that embryos and human beings are different *kinds* of things is true only if one focuses exclusively on the accidental characteristics—size, degree of development, and so on. But the central question is, precisely, should we focus only on the accidental characteristics by which embryonic human beings differ from mature human beings, or should we recognize their essential nature (that is, *what they are*)?

Sandel’s claim that human embryos are not human beings, or not “full human beings,” or merely “potential human life,” simply cannot be squared with the facts of human embryogenesis and developmental biology. Briefly, modern embryology shows the following: (1) The embryo is from the start *distinct* from any cell of the mother or the father, for it is growing in its own distinct direction and its growth is internally directed to its own survival and maturation. (2) The embryo is *human*, since it has the genetic constitution and epigenetic primordia characteristic of human beings. (3) Most importantly, the embryo is a *complete* or *whole*

organism, though immature. From conception onward, the human embryo is fully programmed, and has the active disposition, to develop himself or herself to the next mature stage of a human being. And unless prevented by disease, violence, or a hostile environment, the embryo will actually do so, despite possibly significant variation in its circumstances (i.e., in the mother's womb). None of the changes that occur to the embryo after fertilization, for as long as he or she survives, generates a new direction of growth. Rather, *all* of the changes (for example those involving nutrition and environment) either facilitate or retard the internally directed growth of this persisting individual.

The Nature of Persons

Perhaps with these facts in mind, Sandel sometimes seems to consider that though human embryos are human beings as a matter of biological fact (for example, he says that an oak tree was once an acorn, which, by analogy, would mean that more mature human beings were once embryos), they are not *persons*. According to this position, which has been famously promoted by Peter Singer and Ronald Dworkin, although we were once human embryos, we were not persons at that time and were not entitled to the respect and protection against lethal violence due to persons. And when did we become persons? Sandel, like Singer and Dworkin, says that the important difference between human embryos and human persons is that persons are not only sentient but “capable of experience and consciousness,” and therefore “make higher claims” on us than beings who lack such capacities.

But personhood is *not* an accidental characteristic, that is, a characteristic which one acquires at some point after he exists and may lose at another point. One is a human person by being a living member of the human community, a member of the human species. It is true that many people cannot immediately exercise the rational capacities characteristic of members of the species—such as the elderly person with dementia whose rational powers are gone forever, or the comatose person whose rational powers may or may not return, or infants, fetuses, and embryos whose rational powers are still developing. But such individuals are still morally valuable persons, at least to those who value all human beings equally. They are still members of the human community. Being a person is not a result of acquired accidental attributes; rather, it is being a certain type of individual, an individual with a rational *nature*. And human beings are individuals with a rational nature at every stage of their existence. We

come into being as individuals with a rational nature, and we do not cease being such individuals until we cease to be (by dying). We did not acquire a rational nature by achieving sentience or the immediately exercisable capacity for rational inquiry and deliberation. We were individuals with a rational nature even during the early childhood, infant, fetal, and embryonic stages of our lives. If we are persons *now*, we were persons *then*. We were never “human nonpersons.”

The Implications of Equality

Sandel’s final argument is that holding that a human embryo is a person has logical implications that either no one accepts or that are simply unacceptable. Those who hold that human embryos are persons, Sandel says, should be in favor of a total ban on the destruction of human embryos for research, not just a prohibition on federal funding. And they should be opposed to any fertility treatments that involve the creation and discarding of “excess” embryos. To this we reply that we *are* opposed to those practices—we are opposed to *all* dissecting or deliberate discarding of living human embryos. It is worth pointing out, though, that federal funding for the killing or discarding of human embryos (the matter now being debated) is worse than the failure to provide equal protection of the law to a class of human beings (the larger issue). If the government funds embryo destruction, then it is forcing us to participate, as members of the political community, in the killing of human beings. And while we would surely support a national ban on the deliberate destruction of any human embryo, we also seek to uphold those limits that can be preserved at present, while making the fundamental moral arguments about why additional limits are needed, and why other promising areas of research (like adult stem cells) should be pursued as morally desirable alternatives. It is better to prohibit the federal funding of embryo destruction than to prohibit nothing at all, even if it would be better still to prohibit the act of embryo destruction itself.

Sandel also points to the frequent occurrence of early spontaneous abortions, claiming that “more than half of all fertilized eggs either fail to implant or are otherwise lost.” He then says that “the way we respond to the natural loss of embryos suggests that we do not regard this event as the moral or religious equivalent of the death of infants.” There are, he points out, few burial rituals or mourning rites for the loss of an embryo. As a factual matter, Sandel somewhat exaggerates the rate of early pregnancy loss, with leading embryologists estimating a loss rate of roughly

45 to 50 percent. Moreover, as almost all authorities in human embryology note, many of these unsuccessful pregnancies are really due to incomplete or defective fertilizations, and so in many cases, what is lost is not actually a human embryo. (To be a complete human organism, a human being, the entity must have the epigenetic primordia for a functioning brain and nervous system, which may be lacking as a result of a severe chromosomal defect.) But even if Sandel had the facts right, his argument here does not hold up. The absence of formal burial rites and (in many cases) intense mourning for the embryo who dies is explained by numerous considerations having nothing to do with whether human beings in the embryonic stage of development possess human dignity or intrinsic worth. Chief among these is the fact that people have not had the opportunity to bond emotionally with the human being who is lost at an early stage of development. As to the way we respond to miscarriages, Sandel is mistaken to assume it is uniform. Many people, women in particular, very often *do* grieve intensely when a miscarriage occurs, even when it is early in pregnancy.

In any event, someone's status as a human being possessing dignity and intrinsic worth in no way depends on whether anyone would grieve for him or her after death. Emotional responses are notoriously limited in their capacity to function as sources of moral knowledge. The real question is whether human embryos are human beings, as we contend, or whether they are different *in kind* from human beings, as Sandel attempts to show by his analogy with acorns and oak trees. His argument succeeds only if the analogy holds. But the analogy fails dramatically. The dignity of human beings is *intrinsic* to the kind of entity we are; it does not depend on accidental attributes like size, skin color, age, or IQ. The value we accord to oak trees is *conditional*; it depends precisely on those accidental attributes, like size and beauty, that make some oaks more remarkable and thus more valuable than others. And so we object to killing human infants (though we experience no great feeling of loss at the destruction of saplings), and we should object to killing human embryos (though we feel no sense of loss at the trampling of acorns).

The Clonote and the Sheep

But what about the claims of Paul McHugh? Is there a morally relevant difference between blastocysts that come into being by the union of gametes and those that are produced by somatic cell nuclear transfer? Even if human embryos are nothing other than embryonic human beings,

as we argue and McHugh agrees, are “clonotes” something other than human embryos?

Here is McHugh’s argument in his own words:

I argue that in vitro fertilization entails the begetting of a new human being right from its start as a zygote and that we should use it to produce babies rather than cells or tissues to be harvested for purposes dictated by other human beings. In contrast, SCNT is a biologic manufacturing process that we may use to produce cells but should not use to produce babies.

The trouble with this argument is that the “cells” he seeks from SCNT are derived by creating and destroying a cloned human embryo. And the “clonote” and the embryo, despite the different processes by which they come into being, are indistinguishable in their essential nature. What McHugh rightly says about the in vitro fertilization process, namely, that it “creates a new human being right from its start as a zygote,” is also true of the entity produced by somatic cell nuclear transfer. All the biological characteristics of the embryo are to be found in the “clonote.” Indeed, there is no point in inventing a new word. As the vast majority of people on both sides of the ethical debate understand perfectly well, what somatic cell nuclear transfer produces is a cloned *embryo*.

McHugh says that his “distinction rests on the origin of cells in SCNT, not on the process’s vaunted potential for producing a living replica (clone) of the donor, as with Dolly the sheep.” But, of course, Dolly the sheep began her life as an embryonic sheep. She did not skip the embryonic stage. In this respect, she was indistinguishable from other sheep. Similarly, a human adult brought into existence by somatic cell nuclear transfer would begin his life as a human embryo. The potential he fulfilled—namely, the potential to develop from the embryonic into and through the fetal, infant, child, and adolescent stages, and into adulthood—would be the potential he possessed from the embryonic stage forward. (Indeed, it is inaccurate to say that the embryonic Dolly had the “potential” to be a living replica of the sheep from which she was cloned. From the embryonic stage forward she *was* a living replica of that sheep.) Just as the life of a new human being conceived by sexual union develops by a gradual and gapless process during which the developing human never changes from one kind of entity into another, so too the life of a human being produced by somatic cell nuclear transfer would unfold without what philosophers call “substantial change” (i.e., a change from one kind of entity into another). In the life of such a being, there would be no point from the embryonic stage forward at which one

could say that the developing being changed from a nonhuman entity into a human being. From the point at which SCNT succeeded in producing a distinct, self-integrating organism, a new human being existed.

McHugh attempts to support his position with an argument in the form of a *reductio ad absurdum*: “if one used the notion of ‘potential’ to protect cells developed through SCNT because with further manipulation they might become a living clone, then every somatic cell would deserve some protection because it has the potential to follow the same path.” But this argument fails. Somatic cells that may be used in cloning are analogous not to embryos, but to gametes. Functionally, they are parts of other human beings. They are not distinct, complete, self-integrating organisms. They are not living members of the species *Homo sapiens*. Embryos—however produced—are.

In fact, McHugh’s own argument is vulnerable to a *reductio ad absurdum*: if a “clonote” is not an embryonic member of the species of the animal from which it is cloned, then even in the adult stage the cloned entity cannot be a member of that species. By this reasoning, Dolly was in fact *not* a sheep, and the child, and later adult, who began life as a “clonote” would *not* be a human being. But that is absurd.

McHugh has one more argument. Relying on testimony given by Rudolf Jaenisch at the July 24, 2003 meeting of the President’s Council on Bioethics, McHugh asserts that “SCNT performed with primate cells produces embryos with such severe epigenetic problems that they cannot survive to birth.” The first thing to notice about this assertion is that it concedes that the entities produced by SCNT are, in fact, embryos, albeit severely disabled ones. More importantly, Jaenisch’s testimony does nothing to prove that disabled or “defective” embryos lack moral worth. As we mentioned above, in some cases reproduction fails because fertilization is incomplete, and in such a case there is a growth (for example, a complete hydatidiform mole) but there is not a human embryo. But if SCNT is successful then it generates a distinct organism with the full genetic program and active disposition to develop itself in accord with that program (even if it also has a defect which will cause its early death). There are newborn infants who, as a result of genetic diseases, are destined to die in a matter of days or even hours. This fact does not alter their status as human beings. It would be scandalous to suppose that it authorizes us to treat afflicted children as impersonal collections of organs available for transplantation and research.

Human beings may be severely afflicted at any developmental stage, from the embryonic to the adult. All of us will eventually die, and many

of us will die as a result of factors in our genetic makeup from the point at which we came into being. From the moral viewpoint, the certainty of death—whether in ninety years or nine minutes—does not alter our inherent dignity or relieve others of the obligation to respect our lives. That someone will soon die, no matter what we do, is never a license for killing him. That the human being whose death is imminent happens to be at an earlier rather than later stage of development is morally irrelevant. Cloned human embryos are still embryonic human beings, and the fact that this particular way of initiating human life (SCNT) might harm human life does not give us a license to destroy cloned embryos or a reason to pretend that these living organisms are mere artifacts.

Moral Norms and Modern Medicine

Like Michael Sandel and Paul McHugh, we desire to see biomedical science advance towards therapies and cures for diseases. Our objection is not to embryonic stem cell research as such, but to the killing of embryonic human beings to harvest their stem cells. We support research using stem cells that can be obtained harmlessly from bone marrow, fat, and other non-embryonic sources. The day may well come—and come soon—when it is possible to obtain embryonic stem cells without killing embryos. It is likely that at some point in the future scientists will be able to reprogram adult cells back to the embryonic stage. Even sooner, it may be possible to create non-embryonic entities, analogous to complete hydatidiform moles and teratomas, from which embryonic-type stem cells may be obtained. When that day comes, we will enthusiastically support research using these cells. Now and always, though, we believe that biomedical science must remain faithful to the moral norm against killing in the cause of healing. To fail in fidelity to this norm is to undermine the moral foundations of the very enterprise of biomedical science. We must not allow our desire for scientific advancements, and even for therapies and cures, to cloud our judgments as to what human embryos are and what it means for us deliberately to kill them.