

Prometheus, Pandora, and the Myths of Cloning

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One of the earliest human trials in regenerative medicine was conducted on a crag high in the Caucasus around the dawn of time. Or not strictly human, since Prometheus was a Titan. But for fraternizing with humans he was pegged out on a high rock where the eagle of Hephaestus ate his liver out each day, and it grew back each night.

With remarkable scientific insight, although without specifying the key role of hepatic stem cells, the Greeks observed that the liver is the one internal organ that has a capacity for vigorous regrowth after trauma.

Prometheus was being punished for his beneficence to humans—for teaching them arts practical and aesthetic, and worst of all for stealing the secret fire of Zeus to give humans comfort in their caves and supremacy over the animals.

To call scientists “Promethean” seems to me a compliment. Their role is to benefit humankind by their labours—and scientists who labor in the field of regenerative medicine using adult stem cells are most authentically Promethean.

The proper term for scientists who violate norms of human relationships and ethics, unleashing destructive forces upon us, is not “Promethean” but “Pandoran.” She was the other chapter in Zeus’s punishment of Prometheus. Pandora was asexually reproduced, “forged on the anvil of Hephaestus,” essentially a laboratory creation like the modern clone. Irresistibly packaged, she wowed the impressionable brother of Prometheus, who accepted her gift of a mysterious box—which, upon being opened, released all sorts of corrupt and harmful things into the world. It is said that one thing only remained in Pandora’s box after all the noxious things had emerged: hope, groundless and unreasonable hope.

With cloning, modern Pandorans raise unreasonable hope with their attractively packaged deceit. With obscure motives, they threaten forms of harm to humanity that we are only beginning to understand.

Keeping the lid on Pandora’s box is still possible if we can show clearly why cloning is both redundant and wrong.

Why cloning is redundant

A patient of mine with advanced Parkinson’s disease hopes to be the first man treated with stem cells from the back of his nose. He is among the dozens of patients with various genetic illnesses whose stem cells have been

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collected for research at the Griffith University Adult Stem Cell Centre, here in Queensland, Australia.

There are cautious, very cautious, grounds for hope for my patient, given that Griffith has successfully used these adult stem cells to treat Parkinson's in rats, and is planning primate trials. If all goes well, human trials will follow.

His case is an example of the true state of stem-cell science, as opposed to its political distortion. In the public mind embryonic stem cells and cloning are the main event, whereas in reality they are a conjurer's sideshow. Adult stem cells are now safely used in 72 human conditions (for more, see www.stemcellresearch.org); embryonic stem cells remain both unusable and dangerous. The cloning lobby dreams of creating "patient-specific stem cells" for research; adult-stem-cell researchers have already achieved that goal.

Australian cloning advocate Professor Alan Trounson has recently clarified that cloning is not about cell therapies for Parkinson's or spinal injury, but is limited to the modest research goal of creating patient-specific cells for studying disease and developing drugs. That is an important clarification, since the media still pretend that embryonic stem cells, cloned or otherwise, can be used as magic bullets for direct "cell therapy." That has always been false—since, among other things, the risk of tumors inherent in the use of embryonic cells rules out human application. Trounson's revised prospectus for cloning is more honest: "It's not about cells for therapy. This is about cells that give us an opportunity to discover what causes a disease and whether we can interfere with that."¹

Fine—but even that more realistic goal for cloning has been made redundant, since that is exactly the research capacity Griffith has now achieved with adult stem cells. They possess an expanding range of patient-specific stem cells, easily obtained from patients, readily transformed into the required cell type (brain, muscle, kidney, liver) and useful for genetic study of the disease and development of drugs.² These adult stem cells are superior for research because they are cheap, ethically uncomplicated, and free of the genetic damage caused by cloning. And only adult stem cells can be used safely for direct cell therapy without the risk of tumor formation and immune rejection.

Cloning has been left for dead, and Griffith Professor Alan Mackay-Sim has written its obituary telling the Lockhart enquiry into Australia's cloning laws that "it is probable that such stem-cell lines as these will render therapeutic cloning irrelevant and impractical."³

If that view is correct, what possible justification is there for pursuing cloning? What really motivates the cloning lobby?

I discussed that puzzling question with scientists at Johns Hopkins University in May, at a conference titled “What does it mean to be human?” After outlining the Griffith research to the panel I posed the question: If the Griffith findings are correct, and their adult-stem-cell lines can do everything the cloners dream of and more, what possible role is there left for cloning? The cloning advocate on the panel admitted he could think of no residual role for cloning if the Griffith claims are correct. But he added, “It sounds too good to be true.”

But it is true; so why the grudging nature of scientific and media response to this thoroughly good news story?

In later discussions with scientists it became clear, as I suspected, that the deepest motivation to “win” on cloning was to deny social conservatives a political victory, rather than any valid scientific purpose. Medical good-news stories that render cloning “irrelevant and impractical” are therefore not political good-news stories.

We, the scientific elite, will not be told by conservatives what we can and cannot research. One scientist told me frankly: “It you let them limit scientists on cloning, where will it stop?” Therein lies a key motivation for scientists to link arms on cloning, even if they are not sure it has any real scientific value. When I put to this scientist that his reference to potential embryonic cures for Alzheimer’s were false and misleading, his jaw-dropping response was, “Well, the other side say cloning is like the Holocaust, so we will talk about Alzheimer’s.”

Scientific integrity, RIP. If scientists have to win over the public with lies about treating Alzheimer’s, so be it.

How has it come to this? Deliberately misleading, creating false hope in sick people, using emotional blackmail on our elected representatives—along the lines that those who vote against embryo research or cloning are keeping little children in wheelchairs longer or blocking a cure for Alzheimer’s.

This distortion of science was on display again in June, when coverage was given worldwide to a paralyzed rat treated with embryonic stem cells—although the treatment cocktail still required adult stem cells to make it work—while little mention was made of research published that month in *The Journal of Spinal Cord Medicine* that showed that adult stem cells have now progressed to early trials in paralyzed humans. Tricks and tumors with rats versus safe treatment for humans: that truthfully sums up embryonic-versus adult-stem-cell science—but not in the public mind.

Alzheimer’s is the litmus test for the whole debate. As a rule, anybody who uses the A-word in the context of stem-cell therapies is either a fool or a fraud. This includes many politicians and science reporters; they may choose

which category, fraud or fool, they prefer. Australian embryo researcher Professor Peter Rathjen famously dismissed any talk of Alzheimer's therapies as "bloody nonsense." American stem-cell scientists are more subtle, seeing the need to lead a dumb public in their preferred direction. In response to the hysteria over President Reagan's death from Alzheimer's, the *Washington Post* correctly noted that Alzheimer's was not the sort of disease open to stem-cell therapy, and that science was being distorted amidst the hype:

It is a distortion that some admit is not being aggressively corrected by scientists. "To start with, people need a fairy tale," said Ronald D. G. McKay, a stem-cell researcher at the National Institute of Neurological Disorders and Stroke. "Maybe that's unfair, but they need a story line that's relatively simple to understand."⁴

Maybe that's unfair, or maybe that's a contemptible lack of integrity on the part of scientists. It violates the trust of the public. As our deputy prime minister, John Anderson, lamented in 2002: "If we can't believe leading scientists to give us the real truth, the real parameters for this debate, how are we as a society to form the right judgments?"⁵

The president of the British Association for the Advancement of Science, Lord Robert Winston, reproached his colleagues last year for their earlier misleading hype, observing that "the desire to source some stem cells from embryos—an ethically controversial area—probably led a number of the field's proponents to hype outcomes just to get liberal legislative approval."⁶ What a devastating admission—but it was made only *after* liberal legislation had been safely approved in Britain, at which time it was acceptable to admit an earlier lack of scientific integrity.

Back in 2002, our deputy prime minister had good reason to be dismayed and angry. Australia's leading advocate of embryonic-stem-cell research, Alan Trounson, had just misled Parliament in a spectacular way, showing a video of a paralyzed rat (a perennial form of propaganda), which, he explained to the impressionable politicians, was treated with embryonic stem cells and could now move its limbs. The vote was imminent on whether to allow "surplus" IVF embryos to be used for research, and this spectacular video was the trump card of the "yes" campaign.

Unfortunately for Trounson we had Dr. David Prentice, spokesman for the group Do No Harm, visiting from the U.S. We were in Parliament, and David said, "I know that rat!" He was not referring to the professor, but to the rodent from Johns Hopkins, 1998, which had been treated not with stem cells from a five-day-old IVF embryo (which was what our politicians were given to think) but with germ cells from the primitive gonads of a nine-week-old aborted human fetus. In the spirit of "people need a fairy tale,"

Trounson had not thought it relevant to tell the politicians where the cells actually came from; it would have spoiled the enchantment. Likewise, since fairy tales are not subject to scientific standards of scholarship, he felt free to lullaby the Senate that the rat research had been published in *Nature*, when in fact it had been rejected by that journal.

The spell finally broke when a major daily newspaper—the *Australian*—passed on a rebuke from the rat’s owner, who was displeased at his pet’s being paraded without permission:

Douglas Kerr, of the Johns Hopkins Institute in Baltimore, said all his research used germ cells from older fetuses and not the cells involved in the Australian legislation. Although a supporter of embryonic-stem-cell research, Dr. Kerr also said it was “not accurate” to cite his research because it was not approved for publication.⁷

One reason I went to the May conference at Johns Hopkins was to pay my respects to That Rat and shake its poor paralyzed paw. I e-mailed David Prentice, who was to speak at the conference:

We should put the idea of a monument to That Rat to the Johns Hopkins board. I envisage a sculpture that will actually move its hindquarters when you put money in the slot. Or rather than money, perhaps there could be a “change machine” to dispense small round counterfeit objects, not unlike embryonic stem cells (and quite like germ cells, too), which make the legs move. I think it will catch on. The sculpture could be titled “Stem Cellar” . . .

No response so far from the Board.

One further insight into the murky motivation for cloning was suggested by a conference at Stanford a few weeks later on “transhumanism.” This radical philosophy considers it our duty, our destiny, to take human evolution under our own control—not be subjected to the “random insults” of normal reproduction. As we become better at editing the software of the human genome, deleting damaged bits and inserting improved genes from our own or other species, there remains the problem of how to “launch” this new, improved genetic software. It seems that cloning must be perfected for the transhumanist vision to be realized—for how else can we get our transformed genome up and running as an embryo? Is this one of the covert motivations for cloning?

Returning to the rat: If that episode was an early sign of the sneakiness of the cloning lobby, the full flowering of deceit came with Korea’s “supreme scientist”: Hwang Woo-Suk, the king of cloning. But at the same time as the world was being taken in and intoxicated by his elaborate lies about cloning human embryos and extracting patient-specific stem-cell lines—“the biological gold that can regenerate any organ,” as one of our science reporters drooled—there was a more discreet and sinister fraud

being perpetrated by a wider group of scientists.

Their strategy was exposed in a vitally important editorial in the June 2005 issue of *Nature*⁸, titled “Playing the Name Game,” which scolded stem-cell scientists for attempting “to change the definition of the word ‘embryo.’” Reporting on the June 2005 meeting of the International Stem Cell Society in San Francisco, *Nature* accused scientists of “playing semantic games in an effort to evade scrutiny”: “Whether taken from a fertility clinic or made through cloning, a blastocyst embryo has the potential to become a fully functional organism. And appearing to deny that fact will not fool die-hard opponents of this research. If anything, it will simply open up scientists to the accusation that they are trying to distance themselves from difficult moral issues by changing the terms of the debate.”

Remember that the cloning lobby has been faced with principled resistance to the deliberate creation of human embryos for destructive research. Their audacious way around this ethical roadblock? Simply to agree amongst themselves, and teach the public, that the cloned embryo is not really an embryo after all. Therefore it is hardly human. Therefore there is no ethical issue in creating or destroying it.

This rhetorical attempt to dehumanize the cloned embryo was exemplified in an Australian radio report on the Korean cloning story on May 20, 2005:

“The announcement from the South Korean scientists is a breakthrough without an ethical dilemma because the researchers did not use a fertilized egg to create the embryonic stem cells. So a human embryo was never actually created.”⁹

In the next day’s *Sydney Morning Herald*, we had an equally astonishing misrepresentation of the facts from a Melbourne professor of genetics:

“Professor Williamson said the technique reproduced genetic material from a living person and the intermediate cellular products should not be called embryos, because they were not formed by the union of egg and sperm.”¹⁰

This is biological nonsense. An embryo is an embryo no matter how it is made. Cloning is simply one way of making an embryo; uniting egg and sperm is another. Each looks like an embryo, each grows like an embryo—each is an embryo.

The campaign to dehumanize the cloned embryo is an international one, and in May of last year the head of the President’s Council on Bioethics, Leon Kass, pleaded for honesty in public discourse:

“If we are properly to evaluate the ethics of this research and where it might lead, we must call things by their right names and not disguise what is going on with euphemism or misleading nomenclature. The initial product of the [Korean] cloning technique is without doubt a living cloned human

embryo, the functional equivalent of a fertilized egg.”¹¹

Truthful nomenclature was also used by former President Clinton’s National Bioethics Advisory Commission. Its 1997 report on “Cloning Human Beings” explicitly stated: “The Commission began its discussions fully recognizing that any effort in humans to transfer a somatic cell nucleus into an enucleated egg involves the creation of an embryo, with the apparent potential to be implanted in utero and developed to term.”

One could usefully adapt a phrase of that former president and sky-write over the Capitol, “It’s an embryo, stupid,” in the face of all attempts to fool the people’s representatives by misleading nomenclature.

Another act of verbal trickery instituted by the International Stem Cell Society was also noted by Nature: “At the equivalent meeting last year, the society decided to formally adopt the term ‘somatic cell nuclear transfer’ (SCNT) . . . Scientists realized that the word ‘cloning’ was generating public concern. So they decided to adopt a more technical term less likely to stir up strong emotions.”

The cloning lobby is trying to put the public off the scent by avoiding the familiar word “cloning,” using only the innocuous acronym “SCNT.” These word games may dupe the dullest of our politicians, yet the technique, by any other name, will still create a cloned human embryo, the identical twin of the donor and a being that could be born as a baby. Kass had a comment on this tactic as well: “Although as a scientific matter ‘somatic cell nuclear transfer’ (SCNT) may accurately describe the technique that is used to produce the embryonic clone, these terms fail to convey the nature of the deed itself, and they hide its human significance.”¹²

The human significance of cloning is the subject of the second part of our argument.

Why cloning is wrong

Here is the dual desecration of “research” cloning: not just that a human life is wrongfully killed for the benefit of others, but that a human life is wrongfully created outside of any normal human setting.

To clone is to generate a living human embryo with no mother—think of that! Only an emptied-out female egg is used, with no trace of the mother’s genetic identity. And no father, either—for the donor of DNA is not father to the clone, but is instead its identical twin, and could be as anonymous a donor as a piece of human tissue from the laboratory fridge.

Cloning creates a subclass of humans who are nobody’s children. Anonymous artifacts, not beloved offspring; scientific objects with no mother or father to defend their interests. The bonds of belonging are broken: A

human being is created outside the circle of human kinship and care.

And yet the cloned offspring is a child like any other; if it were allowed to be born, we would care for it as any other orphan. As Australia's religious leaders have pointed out, it would be a lesser evil to let a cloned embryo be born as a child—even considering the sociological distress and genetic disease it will suffer. The greater evil is the one proposed: that it will be created but never allowed to be born, remaining a mere laboratory animal, meat for the consumption of science.

That is not to condone the obvious abuse of “live-birth” cloning. Let Dolly the sheep, Matilda the lamb, or Snuppy the puppy be part of the freak show of cloning, but not a human child. But it is to be clear that the act of asexual reproduction of a human being, regardless of whether the clone lives for days or for years, is an abuse in itself—violating the essential bonds of “blood and belonging” that every human individual needs, willfully creating the world's first absolute orphan. That is a desecration of humanity, and must be condemned as such.

In Australia in 2002, our Parliament was united in condemning cloning—but in 2006, the debate has been reopened. We are at a different stage of the debate than the U.S.; in 2002, we banned cloning but lost the argument over the use of “surplus” IVF embryos, which are now available for research. At that time we argued that there was no good way out for the “surplus” embryos. We advised that it would be a lesser evil to let the current frozen generation of embryos die—acknowledging our shame in allowing them to be stockpiled in the first place, and ensuring it never happened again. We said it was a greater evil to set up a permanent industry exploiting human embryos, since demand would ensure supply: IVF clinics would ensure the ongoing creation of surplus embryos to feed the drug companies.

Our argument failed. In the U.S., there does not appear to be a fixed deadline at which frozen embryos must be thawed out, so they are not so clearly “going to die anyway”; more vividly, the U.S. practice of adopting frozen embryos further negates that fatalistic argument. In Australia, by contrast, the argument that the doomed embryo “may as well be used for research” (in the context of wild claims of miracle cures from the use of embryonic stem cells) carried the majority vote. The prime minister, a fair-minded man, spoke for the misled majority: “I could not find a sufficiently compelling moral difference between allowing embryos to succumb in this way and destroying them through research that might advance lifesaving and life-enhancing therapies. That is why, in the end, I came out in favor of allowing research involving excess IVF embryos to go ahead.”

But importantly, an ethical line in the sand was drawn between using IVF

embryos that were “going to die anyway” and deliberately creating new embryos specifically for destructive research. The PM made this distinction: “It is also my very strong belief that human embryos should not be created for any purpose other than IVF treatment.” On this principle a ban on creating embryos “by any means other than by the fertilization of a human egg by human sperm” was passed unanimously by Parliament.

On the same principle, there was a majority vote (non-binding) against all forms of human cloning at the United Nations last year. One delegate expressed the principle as: “No human life should ever be produced to be destroyed for the benefit of another.” They saw the inhumanity of creating a cloned human embryo—identical to you or me at that stage of life—with the sole intention of exploiting it for science. Likewise, the creation of a human embryo purely for research is expressly prohibited in Article 18 of the European Convention on Human Rights and Biomedicine.

Australia’s Prohibition of Human Cloning Act 2002 provided for periodical review of the legislation, and in late 2005 a six-person committee, hand-picked under the auspices of a pro-cloning cabinet minister, predictably recommended overturning the unanimous vote of Parliament and allowing research cloning. This committee acknowledged that cloning creates a human embryo, which could be born as a baby like any of us. But they callously reasoned that the cloned embryo does not really “matter” to anybody, since nobody intends to bring it to birth—therefore let it be cut up for stem cells, used for drug testing, even hybridized with animals, provided it is killed by the age of 14 days.

The question of whether the embryo “matters” goes straight to the heart of this debate. This is the dividing line for public opinion in every legislature around the world. Interestingly, the question is no longer whether the embryo is a human life, but whether that human life “matters.” In the words of our Senate report from the 2002 debate: “There is in fact little disagreement that the embryo is a human life and that its life commences at fertilization. The difficulties arise in specifying exactly in what sense it is to be considered ‘a life,’ and hence what significance should be attached to it.”¹³

The committee referred to an earlier Senate report that had reviewed “the biological facts of the matter” and concluded: “Two universally accepted attributes are that the fertilized ovum has ‘life’ and that it is genetically human (ie it is composed of genetic material entirely from the species homo sapiens). It is also generally agreed that it is an entity (a centrally organized unit which has a purposeful independent function as opposed to an organ or tissues). It also has developmental potential.”¹⁴

One can agree on the bare facts—that the embryo is a living individual

member of our species—but whether that individual life “matters” depends on the worldview one brings to the debate. And faced with this key question—the meaning of a human life in all its embryonic simplicity—the cultural divide shows up most starkly.

A citizen who believes, as C. S. Lewis put it, that human life is “a transient and senseless contortion on the idiotic face of infinite matter” is unlikely to grant great meaning to a mere embryonic contortion. If ultimately we are all just strangely complex lumps of meat floating in time, then the embryo is just a very small lump of meat, devoid of real meaning.

For those citizens whose worldview gives a deeper context to human life, even the life of the embryo has meaning. To those who share the Christian theory of life, all of us matter, even the “littlest of these His brethren,” precisely because we matter to God. Size and age are not a measure of human meaning; what matters is that the individual life is known and loved in God.

On this understanding, a new name is spelled out at conception and written on the palm of God’s hand—even if the font is too small for us to read. That name, that genetic identity, will take a lifetime to be fully expressed, but it is the same name we carry for our whole existence: a new character scripted into our vast mystery play, which no other character has the right to erase.

It is vital to engage in the battle for the meaning of the human embryo, for even if there is no hope of persuading card-carrying nihilists, there is always the muddled middle of fellow citizens who can be convinced one way or the other. All future policy on cloning, human-animal hybridization, prenatal eugenics, transgenic manipulation, and other as yet unimagined abuses depends on the dominant view of what the human embryo is, and therefore how we are bound to treat it.

There are four key arguments demeaning the human embryo, which can be rebutted in interesting ways.

First, there are the recurrent dismissive comments that the embryo is “smaller than the full stop at the end of this sentence” (which, being translated into American, refers to a “period”). On this, we should play the scientists on their own ground, reminding them that, according to their own theories, the Universe itself was once “smaller than a period.” To cosmologists, the fact that such a tiny entity as the embryonic Universe contained within itself the capacity to unfold into this vast and fruitful cosmos is not a cause for contempt, but intellectual wonder. We need similar eyes of understanding, not of ignorant contempt, when we contemplate the embryonic human. This tiny entity, like the embryonic Universe, is unfolding into the vast and fruitful cosmos of a human being, and deserves a comparable response of

intellectual wonder. The only event in the physical world comparable in complexity and wonder to the Big Bang is human conception, which creates the only entity that can know, and therefore in a sense transcend, the Universe itself. The embryonic human is in that sense a greater being than the embryonic universe.

Second, the logic of the culture of death will work backwards from abortion to argue that since the fetus does not matter, the embryo matters even less. Professor Alan Trounson put this baldly in a debate I had with him on national television in 2002:¹⁵

VAN GEND: The fundamental issue is that, if the embryo matters there are certain things we cannot do. We cannot define this littlest member of the human family as mere meat for the consumption of science.

COMPERE: Alan Trounson, is it the smallest member of the human family, the embryo?

TROUNSON: It's clearly human. We treat it with respect, but we have laws which say that we have to destroy it.

COMPERE: Taking the points David van Gend has raised, does that actually bother you ethically if this is a human entity?

TROUNSON: No, it doesn't bother me at all, because the regulatory bodies have just approved the morning-after pill, which would prevent implantation, we use the IUD, that prevents implantation, we're allowed to have abortion on demand. I mean, what suddenly tells us that the five- or six-day embryo is outside the boundaries of what we already accept that we can destroy or not allow to implant? It just doesn't make sense to me.

Care is needed here. Policy on how we treat embryos is formed in an entirely different context from policy on abortion. Abortion is portrayed as an act of self-defense against the threatening intruder in the womb. In no way is the laboratory embryo threatening the mother. In the case of the cloned embryo, there is no mother to threaten. Abortion is portrayed as an assertion of moral autonomy over one's private life, often in the context of emotional crisis, while policy on embryonic research is a coldly calculated decision by public committees. The two types of policy must be kept widely separated, and the meaning of the embryo considered on its own merits.

Third, there is the argument that the embryo cannot be considered an individual human being until the stage of possible "twinning" has passed. This is generally taken to be about 14 days of embryonic life. Until that time, we cannot know if the embryo is going to end up as one "entity" or two, which surely casts doubt on its moral status. I admit to finding this a very muddled argument, and it is the phenomenon of cloning itself that finally clears the fog. For with cloning you or I can now undergo "twinning" well past day 14—in fact, tomorrow, if you like. Does that mean that your moral status as a true, unambiguous "individual" today is in question, just because tomorrow

you might have split off an identical twin? Is your current “soul” somehow diminished because you have twinned yourself into a clone? The problem is no different for the embryo: If it splits off a twin at day 14 it has merely cloned itself into an identical embryo, a twin that is 14 days younger than the original embryo. So, again, there is a positive way to look at the early embryo: It is a wonder, a marvel, and if it splits off a twin, that is just greater cause for celebration: We now have two marvels, two wonders. At the very least we are looking at one embryonic human; there is the happy chance of a second, younger human being arising a few days later from the phenomenon of natural cloning, or twinning, but that is no cause for downgrading the significance of either life.

Fourth and finally, there is the argument that so many embryos are “wasted” naturally that they surely cannot be considered to have a full human status—even, for some sensible Christian people, full spiritual status in the eyes of God. Estimates vary wildly for embryonic loss, but even if the figure is 30 percent I do not see how the problem is any different from the similar “wastage” of infants in the part of Africa I was born in. Does the fact that some 30 percent died in infancy (including some children of my early missionary ancestors) mean they were not truly human? With all due respect, if God has a problem with taking seriously the moral status of embryos because so many are “wasted,” He has the same problem with these wasted African infants, or with the high percentage of Chinese babies wasted through female infanticide. And I remain unconvinced as to why a higher spiritual status should be granted to those of us who, through good luck and good environment, happen to have persisted longer on this earth. None of us matter, in the Christian understanding, unless we matter to God, and it seems wise to give the benefit of the doubt to the most embryonic of these His brethren.

Conclusion

Cloning is wrong. It violates our humanity and the bonds of love and care to manufacture offspring who have no mother or father. It violates the most basic ethical prohibitions to create an embryo with the intention of destroying it in research. Only the parent-child relationship is the legitimate and humane context in which to create a human embryo.

Cloning is redundant. Once we have rejected it on ethical grounds, the great consolation is that we do not need cloning anyway; adult stem cells will get us the good things of stem-cell science, leaving cloning “irrelevant and impractical.” But we must remember that the scientific argument is strictly secondary: Even if there were additional scientific benefits from

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cloned-embryo stem cells over the new disease-specific adult stem cells (and there appear not to be) cloning must still be rejected on grounds of basic humanity: fundamental respect for the dignity of a living member of the human species, which rules out creating such a life with its destruction in mind.

In the magnificent new field of regenerative medicine, we can and must be diligent Prometheans, while keeping the lid locked on Pandora's deceitful and dehumanizing gift.

NOTES

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