



Some Ethical Reflections on Reproductive and Therapeutic Cloning¹

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The possibility of producing human beings with genetic codes identical to our own arouses much excitement. This excitement takes various forms: from the imaginative sci-fi visions of Hollywood whose films like *The Sixth Day*, *The Replicant*, and *Multiplicity* explore some of the possible fantastic consequences of cloning technology, to the exuberant forecasts of those who see in cloning a source of genetic material which could enable physicians to heal pathologies such as Parkinson's disease or type I diabetes that until now have eluded cure, to the disturbing predictions of those who fear that cloning will usher in a Frankensteinian age of designer babies and monstrous humanoids. In the following reflections I will attempt to steer clear of forecasts of any sort, since I am persuaded that prior to an evaluation of the beneficent or harmful consequences of cloning technology we must first soberly analyze the procedure itself, along with its medical, legal, and especially ethical ramifications.

Every ethical analysis begins with a simple premise: that some possible human activities are "right" and others "wrong," in other words, that the categories of practical, feasible, costly, useful, and

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pleasant do not exhaust the spectrum of human experience. The ethical experience of what ought and ought not be done cannot be reduced to any other category. Regarding the case at hand, if everything that *can* be done *may* rightly be done, we might as well end the discussion here and turn to more pragmatic questions such as a financial cost/benefit analysis of cloning procedures.

A second ethical premise concerns the relationship between actions and their consequences. Whereas the foreseeable consequences of our actions must be taken into account for a correct ethical judgment, they are not sufficient to arrive at such a judgment. Therefore, from an ethical point of view, the possible positive implications of cloning do not in themselves obviate the need to evaluate the procedure itself. Good ends do not justify evil means. I once spoke with a 23-year-old Mexican woman who had been raped several years earlier and subsequently conceived. She assured me that the child resulting from this rape had become her life's greatest joy and comfort. Yet we cannot conclude from this evidently positive consequence that the rape was a morally good act.

With this in mind, we may formulate the ethical question at hand as follows: Independently of whether or not we are technically able to clone human beings, and prior to weighing the possible positive and negative consequences of this activity, and independently even of the laws that prohibit or allow it, is this the sort of thing we ought to be doing? We all know from history that laws can be just or unjust. The important thing is to adapt our legislation to objective moral truth, rather than deriving moral truth from our legislation.

Not one act, but three

A first step in ascertaining the morality of cloning consists in identifying the human act involved. Yet when we study the actual procedure involved in so-called "therapeutic" cloning we discover not just one morally relevant act, but three. The choice of engaging in "therapeutic cloning" comprises, in reality, three separate choices. Thus the only way to arrive at a sound moral judgment of this activity is by evaluating each of its component parts.

1. In the first place, we have the decision to produce a new human individual by removing the nucleus from an unfertilized ovum and replacing it with the nucleus of a cell taken from the skin or some other tissue of a human being, a procedure referred to as somatic-cell

nuclear transfer. At the moment of transfer a new individual of the human species comes into existence, and given the right conditions will grow to maturity and adulthood. This action is what is known as cloning an individual, regardless of what other actions follow.

2. A second act consists in the choice to harvest inner cells from the embryo (blastocyte) approximately five days after the cloning procedure. These pluripotential stem cells are generally placed in a culture so they will continue to multiply. Removing these stem cells results in the instantaneous death of the embryo.

3. A third act involves taking the pluripotential stem cells from the culture and implanting them into a patient suffering from a disease, in the hopes that the stem cells will develop into the healthy cells needed by the patient. For example, embryonic stem cells may be introduced into the brain of a patient suffering from Parkinson's, in the hope that, through contact with the patient's brain cells, these stem cells will develop into healthy brain cells.

From the above it is clear that a proper ethical evaluation of the entire process requires consideration of these three, discrete acts, taken not only in their totality but also individually. Other conclusions also become readily evident, as we will now see.

All cloning is reproductive cloning

The act of cloning *per se* is complete in the first of the three human acts described above. The decision of what is to be done with the cloned individual is logically and ethically independent of the decision to create a new human being through cloning. Though the motivations for undertaking this process may vary widely, the fact remains that cloning always involves a-sexual human reproduction for the sake of manufacturing a new individual genetically identical to another.

Seen in this light, the distinction between so-called reproductive cloning and therapeutic cloning begins to blur. Newer terminology adopted by the President Bush's Council on Bioethics distinguishes between cloning-to-produce-children and cloning-for-biomedical-research, but what I wish to emphasize here is that in all cases, the cloning itself is one and the same process. The only thing that differs is the fate of the human embryo once created.

It should be noted here that what we have described as a simple act—that of replacing the nucleus of an ovum with another nucleus

containing 46 chromosomes—is actually an exceptionally difficult endeavor. The celebrated cloning of Dolly the sheep by Professor Ian Wilmut was the only successful attempt in 247 tries, and subsequent attempts by other scientists to replicate Wilmut’s experiment have failed.

No such thing as therapeutic cloning

The above distinctions lead us to a further conclusion, namely, that “therapeutic cloning” as such does not exist. Granted, once a human embryo exists, its pluripotential stem cells may be harvested and implanted in another human being, but this act is entirely separate from the act of cloning. The adjective “therapeutic” is applied to actions that aim at treating or curing mental or physical illnesses or disorders. The act of producing another human being can never be therapeutic in itself, and the embryo’s subsequent destruction is anything but therapeutic for the embryo.

The only action that can be considered therapeutic is the third of the three acts described above, namely the implantation of harvested stem cells into an individual in the hope that they will develop into healthy cells of the type needed by the patient. The general aim of the global process may be therapeutic, but not the first two discrete acts (i.e., the cloning and harvesting of stem cells). And here it should be mentioned that the act of introducing stem cells into a patient is therapeutic only in the intention, not in fact, since no case of embryonic stem cells curing a pathology has yet been recorded despite numerous attempts.

Adopting the term “therapeutic” to describe any procedure whose end intention is the eventual curing of those suffering from disease or disability is misleading. By this measure virtually any human experimentation could qualify as therapeutic, even the Nazi experiments on war prisoners. Nazi doctors would discharge firearms into prisoners’ bone tissue in an effort to understand the effects of such lesions and to discover how best to treat them. Although the end result was scientific progress resulting in more effective treatment of patients, calling such experimentation “therapeutic” stretches the term beyond recognition. The destruction of human embryos in order to find cures for other human persons can be called therapeutic only in this same distorted way.

The morality of cloning-to-produce-children and cloning-for-biomedical-research

Cloning-to-produce-children has received a nearly uniform negative reception. In the United States, public opinion, Congress and the President's Bioethics Council are opposed to the practice. According to Dr. Leon Kass, head of the Council, there are two reasons to resist it. First, the technique is "demonstrably unsafe and could never be safely attempted." The process is dangerous both for the fetuses and their mothers. Cloned animal fetuses normally develop severe abnormalities and spontaneously abort, often putting the mother's life at risk. Secondly, the procedure would "imperil the freedom and dignity of the cloned child, the cloning parents, and the entire society." By enabling parents to predetermine the entire genetic make-up of their children, writes Kass, "it would move procreation toward a form of manufacture."²

Yet despite the clear, reasoned opposition to this practice, it seems to me that if anything cloning-to-produce-children is morally *preferable* to the practice of cloning-for-biomedical-research. As we saw earlier, the exact same cloning process is involved in both. A new human being is brought into existence in both cases. The only difference lies in the fate of the new individual after it comes into existence. To think that the destruction of the new individual could somehow justify the act of cloning, whereas allowing the individual to live would be ethically aggravating seems to me paradoxical in the extreme. In other words, once we have a human embryo, how can we qualify its destruction as ethical and its preservation as unethical?

In the end, the ethical question hinges on the anthropological, legal, and moral status of the end-product of somatic-cell nuclear transfer. If the developing embryo is not a human being but rather a mass of tissue or cells, then the embryo is morally irrelevant, and any use of such "tissue" for the good of other human beings should be permitted and promoted.³ No one has, for instance, moral qualms about the pro-

² Leon R. Kass, "Stop All Cloning of Humans for Four Years," *Wall Street Journal*, 11 July 2002.

³ As Berkowitz observes: "On one end of the spectrum, where many scientists seem to reside, is the view that the cloned human embryo 'should be treated essentially like all other human cells,' and hence is deserving of no more respect than any other microscopic particle. For those who hold this view, embryonic stem cell research presents no moral dilemmas, and therefore it follows that research should proceed forthwith" (Peter Berkowitz, "The Pathos of The Kass Report," *Public Affairs*, No 115, October-November 2002).

duction of and experimentation on mouse embryos. If, however, we recognize in the embryo an individual of the human species, and thus a morally and juridically relevant subject, then the embryo cannot be manufactured and destroyed with impunity by the sheer will of other human beings.

It should be noted here that from a moral and legal perspective ambiguity regarding the status of the embryo is sufficient to warrant its protection; definitive establishment of the status of the embryo as a human person is unnecessary. If a hunter walking through a forest spies a moving object at a distance which could be a person or could be a deer, the hunter is morally and legally held to refrain from shooting. Likewise the mere possibility that the human embryo may be a person is sufficient to mandate its protection in law.

The foregoing reflections, offered in schematic fashion, represent at least some of the ethical issues involved in the cloning debate. A distinction of terms and a clarification of the fundamental moral questions regarding cloning constitute a necessary first step in the debate on this important matter. Only by carefully distinguishing actions from their consequences, and acts from their motivations and intentions can we come to a clear ethical evaluation of cloning.

Sommario: *L'autore considera la moralità della clonazione attraverso una serie di distinzioni. Anzitutto, distingue fra l'atto di clonare in sé e le possibili conseguenze di questa procedura. Poi, dimostra che la cosiddetta "clonazione terapeutica" consiste di tre atti distinti, ognuno dei quali merita una valutazione morale: (1) la sostituzione del nucleo di un oocito non fecondato con il nucleo di una cellula somatica (la clonazione propriamente detta), (2) la raccolta di cellule interiori dell'embrione (blastocito) qualche giorno dopo la clonazione, che risulta nella morte dell'embrione (3) l'introduzione di queste cellule in un paziente che soffre di una patologia. Finalmente, l'autore spiega che in base a queste distinzioni si arriva necessariamente alla conclusione che ogni atto di clonazione è clonazione riproduttiva e che la clonazione terapeutica in realtà non esiste. Se la clonazione riproduttiva merita un giudizio morale negativo, come tanti affermano, tanto più la clonazione terapeutica che aggiunge l'aggravante della morte dell'embrione.*

Parole chiave: embrione, clonazione, terapeutica, riproduttiva, cellule staminali, atto umano, valutazione morale.

Key words: ethical judgment, human act, moral truth, cloning, therapeutic, reproductive, stem cells, cloning-to-produce-children, cloning-for-biomedical-research.