

Cloning experiment answers some questions but raises many more

A sheep named Dolly

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Résumé

L'ÉTHICIEEN LEIGH TURNER AFFIRME QUE LE CLONAGE RÉUSSI annoncé en février par des chercheurs écossais soulève plusieurs questions d'éthique. Même si le débat a porté en grande partie sur les répercussions du clonage sur les humains, Turner affirme que l'expérience soulève aussi des questions d'éthique qui ont trait à la relation entre l'homme et les espèces non humaines. Il prévient aussi que l'être humain n'est pas fait que d'ADN, ce qu'il ne faut pas oublier dans le débat sur le clonage.

On Saturday, Feb. 22, Dr. Ian Wilmut of the Roslin Institute in Edinburgh precipitated a global media frenzy by announcing the results of an experiment in which DNA from the mammary cell of an adult sheep was successfully fused with an unfertilized egg from another sheep, leading to the production of a genetically identical copy of the sheep providing the DNA.¹ In more populist terms, with Dolly's birth Wilmut succeeded in creating a "clone" from adult cells. Now, philosophers, theologians, lawyers and scientists are considering the moral, social, medical and legal implications of his work.

More than 25 years ago, when the field of bioethics first began to emerge, the cloning issue served as a prominent focus for the moral consideration of developments in reproductive biology and the life sciences. At the Hastings Center, where I work, the archives contain a host of papers and reviews from the early 1970s that address the subject of "clonal man." By the late 1970s, however, few bioethicists continued to address the topic. The files remained dormant until 1993, when researchers at George Washington University reported the results of an experiment in which they twinned early-stage embryos.²

According to Daniel Callahan, a participant in those early debates, in the 1970s scientists pleaded with philosophers and theologians to cease their speculative queries and address issues further from the realm of fantasy and science fiction. In particular, scientists were worried that such discussions would needlessly exacerbate public apprehension concerning scientific inquiry.

Now, with the publication of Wilmut's research, cloning moves further from the realm of science fiction and closer to established scientific practice. Awakened like Snow White from a 25-year slumber, bioethicists are sheepishly realizing that their earlier considerations regarding cloning were all too prescient.

Although many of the papers from the early 1970s engaged in excessive rhetoric and unwarranted speculation, the absence of a serious and sustained discussion of the moral issues surrounding cloning means that, once again, technologic developments proceed far ahead of reflective public moral analysis and debate. With little preliminary public discussion about appropriate moral frameworks or legal standards, cloning, even in this preliminary stage of research, nonetheless seems to be technically feasible. The question, now that Wilmut has demonstrated that cloning can be done, is whether or not it should be done.

Put so bluntly, however, this query misdirects considered moral judgement because it fails to recognize that the merits of cloning might depend not on the intrinsic character of the act but on other factors, such as why the cloning is being done and just what or who is being cloned.



Editorial

Éditorial

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Fantasies concerning cloning have long played integral roles within both utopian and dystopian thinking. The archetypal futuristic scenario for some, for others cloning evokes images of docile cloned workers in a nightmarish and technocratic "brave new world."

Most likely, however, cloning will lead to neither extreme. Just as unbridled optimism because of this latest technologic achievement would be unjustifiable, so too would be the categorical response that the act of cloning invariably breaches natural "taboos" and must therefore not be allowed to proceed under any circumstances. As the public debate about these issues proceeds, a few crucial matters must be considered.

Anyone debating these issues must recognize that the cloning of genetic information is not the same as cloning personhood, and any speculation about the cloning of human genetic material must not reduce the human person to DNA. Although the relative contribution of biologic and social factors to particular behavioural patterns is the subject of hot dispute, a compelling argument can be made that socialization within a particular familial, social, economic and historical setting plays a significant role in sculpting human identity.

It is misleading to think that someone with DNA cloned from another person will represent a copy of that person in all respects. Were it somehow possible to clone genetic material from Mozart, the resulting individual might become a brawling hockey player or a computer hacker instead of a great musician.

However, recognition that the cloning of genetic information should not be equated with the replication of personhood leads to no immediate policy implications. Some will say this means that we shouldn't bother with cloning, since it fails to fulfil the popular fantasy of creating a true facsimile of a particular individual.

Others might claim that since genetic information should not be equated with the rich notion of personhood, we should not be particularly alarmed by the act of cloning. After all, if we are not creating identical copies of other individuals, including all of their thoughts, mannerisms and idiosyncrasies, then why all the fuss? Perhaps future public debate will avoid the temptation to equate genetic information with personhood by recognizing the inappropriate assumptions guiding such an understanding of human beings.

The type of regulatory response that will emerge from such discussions is much less predictable. However, we must recognize that there are important differences between cloning sheep, pigs and cattle, and cloning humans. The burden of proof concerning humans ought to reside with those who argue on behalf of cloning human genetic information. The personal and social benefits that would emerge from such a practice are not obvious. Unfortu-

nately, arguments that can be used to oppose cloning are also rather murky and inchoate, as though emerging from the realm of taboo. In this region of reflection, gut reactions and intuition are perhaps more forceful than logically compelling reasons.

Although there are many reasons to question the merits of cloning human genetic information, the benefits arising from the cloning of nonhuman organisms are more obvious.

- Cloning techniques could provide a vastly improved method of animal husbandry, making it much easier to produce animals capable of generating pharmaceutical substances that can be used to ease human suffering.
- Cloning could play a role in hastening advancements in cross-species transplantation, or xenotransplantation.

Whatever the merits, however, the disadvantage to such an approach is that cloning could lead to the creation of homogeneous animal herds, and this could be dangerous. A heterogeneous population might have only a few animals killed because of a particular disease, but a uniform group of cloned animals might be highly susceptible to eradication.

There is also a more subtle ethical issue surrounding the cloning of nonhuman animals. Just how instrumental and invasive should humans be in their relationships with cattle, sheep and other species? To what degree should animals be utilized as means to human ends? If it is acceptable to raise sheep to produce lamb chops, is it justifiable to clone sheep to serve as pharmaceutical "factories?" What limits might be warranted in curbing this instrumentalist, objectifying approach to other species?

Such questions deserve considerable public scrutiny. We need to ask whether cloning represents just the latest incremental development in animal husbandry that merely hastens what we want to achieve, or whether, symbolically, it raises questions about where human intervention into the existence of other species ought to cease.

The most difficult things to predict in this initial period following the publication of Wilmut's research are the regulations that will be established concerning cloning in the next few years and the way the public debate will proceed.

Will cloning lead to improvements in human health and well-being without radically challenging notions of human identity and individuality? Will citizens look back at this experiment one day and view it as a wolf in sheep's clothing? In April 1997, the answer to neither question is yet evident.

References

1. Wilmut I, Schnieke AE, McWhir J, Kind AJ, Campbell KH. Viable offspring derived from fetal and adult mammalian cells. *Nature* 1997; 385:810-3.
2. Kolberg R. Human embryo cloning reported. *Science* 1993; 262:652-3.