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To: kevles@hss.caltech.edu  
Cc: jsl@rockvax.rockefeller.edu  
Subject: Oped on cloning?  
Date: Sun, 16 Mar 1997 11:51:51 EST  
From: Joshua Lederberg <jsl@rockvax.rockefeller.edu>

Dear Dan

Have you done an op-ed for the NY Times on cloning?  
If so, I'd appreciate your sending me a copy

Josh

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FYI - FYI --  
Wed Mar 12 21:53:38 EST 1997

Testimony for NY State Senate Committee on Investigations.  
Sen Roy Goodman; Marchi bill

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0. Let me say first out that I do not work on cloning and have no personal intention of doing this in sheep, humans, or any other mammal. Almost all my work is with bacteria, which actually reproduce naturally almost exclusively by cloning; one of my more important scientific contributions almost 50 years ago was to show that bacteria sometimes also reproduce sexually as well. However my work has reached to fundamental issues of how DNA works in all species. I have been writing about the prospect of cloning, quite critically, for about 35 years, believing that it did deserve careful policy attention.

1. Cloning seems to have been demonstrated in sheep. Not yet confirmed in any other laboratory. Wilmut cannot display 2 sheep twins of disparate age for others to verify. Will undoubtedly be promptly sought by others -- mice, cattle, race-horses and mules; perhaps in a few months we will get corroboration. Only one success in 200.

2. Wilmut's scientific contribution -- if confirmed -- is that tissue cells in culture can be re-conditioned so that nuclei will be compatible with egg development. That alone would be important new knowledge.

3. Numerous applications in animal husbandry, just as cuttings play a key role in horticulture. Especially for sterile hybrids, like the mules I have already mentioned; very likely for propagation of critically endangered species -- depending on compatibility of egg cytoplasm from neighboring species.

4. Great concern, obviously, about application in humans. Recall that only 1/200 eggs came to full term, probably not just a remediable technical fault; and likelihood that mature somatic cells accumulate serious insults, especially as they age. Many trials with animals will end up with viable but malformed progeny, a severe moral burden that would inhibit any IRB or serious research group I can think of for many years to come. Already covered by existing obligations on research. If there were to be a malformed child issued from such an experiment, the progenitor would deserve the community's and my

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own severest condemnation, just to add to the chastening inherent in such an outcome. I could not in my own mind escape the analogy of parents who, sometimes with the gravest doctrinal encouragement, persist in having children, taking no precautions against known risk of transmitting genetic defects with high probability. But I would still tread very carefully about bringing in the sanctions of law to regulate that behavior.

5. The actuality of an isolated clone would not by itself be disturbing. Suppose, for example, that it were to happen naturally that one in a thousand births were in fact a clone of one or the other parent -- it would hardly get more notice than twins do today. This does happen with some species, turkeys for example; and it is hard to be sure it is not say a once-per million happening with humans. It is the \*intentionality\* that upsets us, the idea that a person might consciously intend to propagate his or her own personality. We are offended by the idea that some prince would certify his dynastic role in this way. But I would be very cautious about legislating that opprobrium! I am also offended by princes who multiply their offspring by the score or even hundreds; and I can point to many parents who are totally unsuited for that role -- even the more some of those who do \*not\* plan for their children, but leave that for a purely natural process. Many children are born out of egoistic or dynastic intentions, or worse, on the part of their parents; and I might deplore that as well. But, I would shudder at the idea that the state should examine parents' intentions before issuing them permits to have children.

6. What purposes would human cloning serve? As such, very few!!  
.. reduce risk of defective gene segregation. ?? One for him, one for her?? Replacing one risk by another.

Propagate the personality of the donor? Hardly! Perhaps some will try it; likely to be the shortest lived fad in history, as donors discover that far from extending their personality, there will be no memory trace; if anything intergenerational conflicts will be aggravated, by the unrealistic and inappropriate expectations laid on the child -- as we have seen in many non-clonal family situations. It often takes a geneticist to point out that, as important as are the genes, they are not our total destiny: education, life experience, human interactions; as well as many contingencies of trauma, infection and intoxication mold us equally. Gilbert and Sullivan apart, we cannot be assured that clones would even vote uniformly liberal or conservative.

Other genetic technologies, especially diagnosis; and some interventions enhancing normal development, do have great promise. The research base for these probably will be enhanced by the use of cloning technology in experimental animals.

7. There is the fantasy of a government propagating clones of workers or of soldiers. N.Y. State will have little to do with those horrors, but getting the government involved in individual reproductive decisions brings us closer to such outcomes.

8. What should N.Y. State do? By all means keep a critical eye on these developments. Plenty of time to intervene if a real problem seems to emerge; we have many others far more urgent and affecting the lives of our children. A national commission on biomedical ethics will be examining this issue. There is no need to rush in with hasty and ill-considered legislation at this instant.

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