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NUDE PIGS AND HEADLESS CLONES



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As I was preparing to come to Florence last fall, a number of articles had been appearing in the American press about events which seemed relevant to our conference. In the summer of 1999 an article in the *New York Times* carried the headline, "Human-Cow Hybrid Cells are Topic of Ethics Panel", and if one read down into the article, there was this paragraph, "The hybrid cow-human cells consist of the nucleus of a human cell inserted into a cow egg whose own nucleus has been removed. Factors in the cow egg are thought to make the human cell nucleus revert to its embryonic form". The general reader of this article might well conclude that if such research were not stopped, the new millennium will be populated not only by humans but by Minotaurs.

In the week before the Florence conference, a major front-page article appeared on the tragic case in Philadelphia where an 18 year old boy died after receiving experimental gene therapy. Even though his rare liver disease was controlled adequately with traditional therapies, he was persuaded to volunteer for the radical gene therapy, after his parents had been assured of the safety of the procedure. Therein lies the poignancy of the desperately sick patient who is persuaded to endure experimental procedures.

The Philadelphia case has become a major scandal in the United States. It has led to hearings before the U.S. Senate on the controls over gene therapy. The revelation of three more unreported deaths of a similar sort has deepened the scandal. Subsequently, it emerged that the doctors had covered up some negative alarms about their procedures during testing on animals. The father of the dead boy subsequently testified before Congress that he was misled by the doctors about the benign nature of their treatment. The program has since been disbanded, but the scandal widens. Now we learn that more than

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a dozen other volunteers for gene therapy have been inadvertently infected with the AIDS virus.

And so the general reader of this long and sad tale might reasonably conclude that there are many unscrupulous doctors lurking about, ready to experiment on any innocent, unsuspecting patient, either for fame, or more likely, for fortune. Beware of becoming a laboratory animal.

Other articles, especially in the supermarket tabloids, were reporting the scheme of Hollywood super models to sell their eggs for in-vitro fertilisation, or even conducting auctions for the highest bidder. The perverse dream is that perhaps such eggs might be matched with the sperm of a Nobel prize winning scientist (might he or she be a geneticist?), and from the petri dish would emerge the most brilliant, most beautiful human specimen ever decanted. Two weeks before the Florence conference an article appeared in the *New York Times* about a Massachusetts case in which a divorced couple were fighting over the fate of their embryos which they had frozen before they became estranged. Who gets the eggs? Can they be used without both husband or wife agreeing? Or ... can they be destroyed without mutual consent.

And so the general reader of this article might well conclude, to use Professor John Finnis's phrase in Florence, that "little people" reside in refrigerators all over America.

On the political front, we Americans are having our debate about whether stem cell research can go forward unchecked or whether human cloning should be outlawed outright. In the United States Senate an act called *The Human Cloning Prohibition Act* has been proposed, but it would not make human cloning illegal, but merely prohibit government monies to be used in human cloning research and experimentation. President Bill Clinton has supported the prohibition on stem cell and human cloning research, but a Senator from Iowa, Tom Harkins, has argued in the Senate that no prohibition should exist in these areas. Such total freedom to experiment was celebrated by a scientist in Florence with the phrase that "it is morally legitimate to know all things". All scientific research, he argued, is by definition moral, since it is harnessed to the advance of knowledge. Senator Harkins likes to compare the advocates of scientific prohibitions on cloning to Pope Paul V, who in 1616 prosecuted Galileo for heresy after Galileo said the earth revolves around the sun.

In Florence the Oxford don, John Finnis, shocked the conference

when he predicted that a human being would be cloned within the next two years and that human cloning would be widely accepted in the West in the next ten years. Thus, the political debate which I mention above, seems unlikely to produce strict laws to stop this daunting eventuality. Judging from the gene therapy situation mentioned above, government oversight of experimental laboratory procedures has completely broken down anyway.

Already a doctor in Chicago, Dr. Richard Seed, has announced that he will go forward with cloning a human being regardless of the restrictions. If he should succeed, he could become either a pariah or a visionary of science, or both in one lifetime, depending upon how society reacts. (This pariah-to-hero phenomenon took place within the span of only several years for the British doctors who succeeded in creating Louise Brown, the first in vitro fertilised baby. At their first profession conference after the artificial insemination, they were ostracised as pariahs, only to receive a standing ovation at the same conference two years later.) There are those who assert that no legal restrictions can ever stop such a process when huge fortunes stand to be made (just as huge fortunes were made from the cloning of the sheep, Dolly). As everyone knows, science is driven, if not by money, then by ego.

If the general reader takes Professor Finnis's prediction seriously, the countries of the West had better begin to prepare themselves for the cataclysm that will be the imminent announcement of the first human clone. (It was instructive to listen in Florence to the French sociologist, Dominique Mehl, speak of how France as a nation felt compelled to "protect" itself from the news of Dolly).

I've mentioned the general reader as if he were some sort of detached arm-chair couch potato, but actually, in this case, I am he. I was present at the Florence Conference ostensibly for two reasons. The second day of the Conference which I was asked to chair had the theme, *Cloning and the Popular Imagination*. As a writer of popular books for a wide audience, I presumably could guide and contribute to the discussion of how this *Brave New World* of genetics and cloning might interest a popular audience. Additionally, as the parent of a severely handicapped child with renal and neurological disabilities, I'm a potential consumer of this bold new research, especially in the area of the mapping of the human genome and in the area of cloning and organ production. The mapping of the genome could once and for all provide a definitive diagnosis for our impaired daughter's rare condi-

tion and could present ethical questions about whether we are obliged to test our healthy children for potential difficulties.

To move the discussion into the grotesque, should human beings ever be cloned, part of the motivation would be the cultivation of human organs for transplant. The potential consumer would face ethical questions from that *Brave New World* (the "Organ Store in the Sub-basement", as Aldous Huxley put it). It is daunting enough for a family to ponder the likelihood that the first breakthrough for living transplant might come from what is called a "nude pig", that is, an immunologically stripped pig called xenografts. What would we feel about transplanting a human kidney from a pig or a clone into our daughter? The subject of clones as slaves was discussed at the Florence conference, but not clones as raw meat.

There can be no doubt that, in the coming years, genetic engineering and cloning will provide, if not raw meat, certainly raw material for a flood of novels and movies. To use the vernacular, genetics has become very "hot" in both New York and Hollywood. But it's well to return to that seminal work about genetic and social engineering, Aldous Huxley's *Brave New World*, and to remember what Aldous Huxley wrote in a foreword to the 1946 edition of his masterpiece.

"A book about the future can interest us only if its prophecies look as though they might conceivably come true... In *Brave New World* this standardisation of the human product has been pushed to fantastic, though not perhaps impossible extremes". Huxley's towering achievement lies in the prophetic quality of the work, seventy years later. The achievement is all the greater for the meager evidence in 1930 upon which the author focussed his imagination. In the 1946 forward he states that, technically and ideologically, the world was a long way from bottled babies and groups of laboratory-created semi-morons. Suddenly, in the dawn of the new millennium, such a world does not seem all that far away at all. Indeed, the imminence of such a world accounts for this area being hot for the creative artist.

The useful role of science fiction, at its best, lies in the ability of the creative artist to speculate on the ultimate consequences of current scientific processes. It is left to the imaginative seer to give us a picture of the fantastic but not impossible extreme. At our Florence conference the scientists, and even the moral philosophers, were reluctant to speak of controls and safeguards on genetic research and cloning experimentation. Thus, it seemed to me, the ground is ceded to the dra-

matist, with the specific intent to shock a wide, popular audience into its senses. And as the English writer, Jon Turney, remarked in Florence, "people will be influenced by fictions"

In a sense, the genre of film and books about biological engineering already reasonably well developed. Over the years it has produced certain recognisable character types.

Mad scientist. The mad and messianic and diabolical scientist with an obsession is perhaps our most recognisable stereotype. A good example is the film, *Boys from Brazil*, where Gregory Peck plays Dr. Mengele, creating 94 little Hitlers from a vial of blood and a swatch of skin he took from Hitler in a "giddy moment in 1943".

Frankenstein. The original Frankenstein book and movie provide us with two archetypes: the man of science "who creates a man in his own image, but did not reckon on God", as the opening to the Boris Karloff movie tells us and the monster that can emerge from laboratory experimentation with the chemistry of the human being. "Now I know what it feels like to be God", cries an exultant Dr. Frankenstein at the bringing his creature alive before things go horribly wrong, and his monster nearly chokes him to death.

Spurned scientist. In the 1952 English film *Four Sided Triangle*, cloning becomes the theme for a love conflict, when two scientists fall in love with the same woman. The scientist who loses out clones a second paramour in his "reproducer".

Clone and Drone. In more recent times cloning becomes the stuff of comedy when in the film *Multiplicity* the lazy character of Michael Keaton creates a clone of himself to do all of his work. The scheme goes awry when Keaton's clone starts ogling Keaton's girlfriend.

Silent virus. In the novel, *Andromeda Strain*, the horror of dormant, silent viruses emerging from the artificial manipulation of the human gene is the dramatic premise. Few would dispute the very real possibility that manipulation may unleash cells that mutate into unknown and uncontrollable malformations.

Brave New World Updated. In the brilliant Hollywood thriller, *Gattaca* we see a high tech modern world socially engineered, with various emotionless classes of human product. In this film the recognisable hero of the passionate rebel who tries to beat the system, rides again. We see a baby emerge from the womb, a nurse pricking its finger for a drop of blood and dropping it into a machine which reads out a print-out: neurological probability, 60%; manic depression probability, 89% heart disorder probability, 99%; life expectancy, 30.2%. Such a possi-

cially. Our immediate hope, he said, must be a xenograft, a nude pig. Fortunately, the problem is not cardiac, so we are not considering a baboon's heart.

If a xenograft were possible, would we want it? I don't know. It's a moral dilemma. In the aftermath of the Florence session, an American professor spoke to me of how animal tissue, including pig's tissue, has long been used in human operation, and that in fact, his own mother had had such an operation. Still, with the use of cross-species transplantation becoming increasingly common in the years ahead, we are certainly facing a new creationism. Evolution by natural selection starts to sound like an arcane concept. Can the death of homo sapiens be far behind?

The other opportunity, said my child's doctor, is human clones. Here one imagines a situation beyond Huxley's "organ store in the sub-basement". One imagines a human abattoir. There, headed and headless clones await their turn on the butcher table, for their sole purpose in life before death would be to furnish their organs to be "harvested", as the current phrase goes, for transplantation into the more valuable members of the new society.