



Joshua Lederberg

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## Science Has Long Known Ways to Make Subhumans

THE QUEST for knowledge is the indisputable root principle of Western civilization. Nevertheless, throughout the centuries, cautionary voices have warned that knowledge is dangerous.

It would be hard to improve upon "Prometheus Bound" by Aeschylus, dramatized in Athens 24 centuries ago, to document the theme. The gods did not punish Prometheus only for his stolen gift of fire to man, which symbolizes the technological transformation of human culture as man emerged from the Stone Age. As Prof. E. A. Havelock points out in his translation and commentary "Prometheus (The Crucifixion of Intellectual Man)," the greatest sin was to give man the arrogant hope that he might be master of his own destiny.

Abstract knowledge is indeed dangerous. In a modern drama, Bertolt Brecht explained the Roman Church's suppression of Galileo in terms of the social disruption that might be sparked by scientific skepticism.

MOLECULAR BIOLOGY is now provoking Promethean anxieties. Some biologists themselves are pointing out the social dilemmas that will accompany foreseeable biological advances. One hardly need go further than the probable extension of the life span that will result from the discouragement

of smoking and from fundamental attacks on heart disease and cancer. What could be a more drastic effect on human biology, overall, than adding another decade or two of old age to the average life?

The American Association for the Advancement of Science, meeting in Dallas in December, sponsored a symposium on "Public Considerations in Genetic Technology." Law Prof. Harold P. Green of George Washington University is quoted in press reports as being concerned that "the ability to create new forms of life might lead to the generation of a new form of subhuman species to perform man's menial tasks in a condition of slavery."

To ward off this possibility, he suggested a "stretch-out in time of technological development" in this field. This remark is likely to be inflated in some quarters, in a way that I doubt was intended, to discourage basic scientific research in human genetics.

IN MY OWN view, molecular biology will have far more impact on human affairs via abstract philosophy than as engineering technology. Nonetheless, moral concern about a subhuman species may be justified, and there are some legal and social steps that already deserve serious consideration. For example, there are three near-human species of

apes, the chimpanzee, gorilla and orangutan, whose special affinity to man should entitle them to more legal protection (subhuman rights) than they now enjoy. The orangutan in particular is close to extinction, and the gorilla may not be far behind.

The irony of Prof. Green's concern is that the necessary science and technology for making subhuman creatures have been developed long since and are already practiced on a global scale. In fact, there are several approaches.

Deprive pregnant mothers and young children of proper food with essential amino acids and you can achieve a nice permanent limitation of intellectual development. Even easier, just forget about educating the children, a technique that also works very well together with malnutrition and overpopulation. More sophisticated technicians can always wait for early infection of a fetus with German measles virus, and refuse an abortion.

An excellent approach to maintaining the present comfortable order of the world is the repression of scientific thinking and research. A kid-glove kind of thought control is rather easier to implement today than in Galileo's time. It can happen almost inadvertently as a byproduct of centralized budgeting for science.

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