HUMANICS AND HUMAN DILEMMAS

Humanics is defined in the dictionary as the scientific study of human nature. It tells something of our past traditions that the word is an unfamiliar one; but the subject it describes is inevitably caught up on the recent rush of progress in experimental biology. In particular, dramatic advances in our knowledge of the biochemistry of DNA and of its function as the material basis of heredity have provoked much new speculation about the application of this new knowledge to man and man's problems. We anticipate better tools to mitigate disease, to improve agriculture, and to exploit micororganisms in industry. We must also visualize the impact of genetic engineering on humanics, which includes the possible modification of human nature towards previously unattainable ideals. However a recitation of the options of experimental biology, having potential uses in man, is often a dubious form of sensationalistic journalism. To avoid distortion, we must examine "Genetic Engineering" within

a broader view of man's evolutionary history and in the light of the established impact of other existing institutions on human biology.

Phrases like "genetic programming" or "engineering" may conjure up the Frankensteinian image of a mad scientist or a technocratic dictator pushing the buttons that will control an assembly line of babies produced to order for service as infantrymen or storm troopers or docile subjects. Some may even fantasize that their own genes may somehow be subject to alteration at someone else's command, or, alternatively, that they will have unlimited options to create any manner of offspring they wish. A would-be Zvengali will welcome the power to produce a child who, without unusual effort on his parents' part, might grow up as an athletic prodigy with an IQ of 350 and a head of hair that automatically shears itself at regular intervals. In fact, our present knowledgeof genetic science is not the obvious limiting factor for the furtherance of such aims. Rather, we lack the necessary insight into the essential biochemistry, developmental biology and psychology,and social dynamics of these phenomena. And indeed, were we to gain such insight, genetic engineering would probably be a redundant tool in competition with many other ways of influencing human development and behavior.

Humanics, the understanding of human nature, is rightly viewed as the capstone of western culture. Scientific insight is, however, a challenge to traditional thought and authority in at least two ways. It amplifies the power for good or harm that men can inflict on one another, when we are already on the brink of failure to contain massive aggression. Perhaps even more embarrassingly, it reveals existing flaws in the providence and justice of our social institutions--like the world arrangements that leave so many human beings malfed and uneducated.

Many thoughtful critics have questioned whether we are socially and morally prepared to cope with newly emerging powers like genetic engineering. Some go so far as to advocate explicit restraints on technological development in this field, a plea which is readily translated into diffidence about financial support for basic biological research. The straw man has even been erected that pictures scientists (but which ones?) as demanding that we put into practice everything that is technologically possible, without regard to the human consequences.

Such absurdities should not require discussion, but insofar as they do, they have a positive answer. The consequences of ignorance are no less frightening, perhaps more unpredictable than those of scientific understanding. Then when we contemplate large scale technological applications in any sphere, we need a wide range of scientific knowledge to analyze their consequences. Restraints on research in genetic science might restrain sophisticated genetic engineering, but will make even more plausible the crude efforts of those who advocate the legalized involuntary sterilization of the "unfit" and deprive us of many urgently needed advances in medicine and in agriculture. Sharply limited military research would never have uncovered the genetic hazards of radioactive fallout. The euphenic point of view may upset some people who do not know how to handle the responsibility of choice for the quality of their offspring; but our present uninformed choices (like those which lead to global malnutrition and mentally retarded development for millions of infants) are also a policy. Man may have lived in a paradise of submissive ignorance before he ate from the tree of

knowledge of good and evil, but human civilization began just then and there is no return.

This is not to shrug off the perversion of science. Brute force is the overriding instrument of authority, but the most totalitarian governments will exploit more subtle weapons to secure the peaceful cooperation of their subjects. The "control of the mind" by chemicals is the usual cliche one thinks of here, but Aldous Huxley himself pointed out that the scientific techniques portrayed in Brave New World were intended as a parody of existing institutions. Is it less intrusive on a human personality to indoctrinate a child in a given set of religious beliefs than it would be to "program" his genes? (The answer is usually "yes"--if the religion is the right one.)

But dictators will not stop at propaganda; they will use genetic engineering too, if they have the wit and if they stay in power long enough. The only answer is to strengthen our democratic institutions, of which public education to make informed critical judgment is the most crucial. We should also minimize the intrusion of government in any aspect of individual reproductive policy. It

is incredible to think that until recently, many states had laws which interfered with information about family planning. It is equally incredible that most states still interfere with the private decision of a mother to terminate an unwanted pregnancy.

The self-awareness that distinguishes man is part of his unique capacity for cultural evolution. During the past 100,000 years, this has completely overtaken his biological evolution. Biological change during this period is not only much less important than the cultural, but is itself deeply influenced by self-awareness, as illustrated by the rapid differentiation of the races with respect to obvious features, as opposed to the deeper elements of humanity. Self-awareness may also impede substantive biological change unless we can learn to assimilate a view of the human future that allows for variety, experimentation, change. What is quite new is that we are now scientifically aware of evolution and must take on the burden of conscious choice about its future directions.

The most important ethical inference from the fact of human evolution is that we are still perfectible. It is one of the least debatable of human purposes that our posterity should be wiser

than we are, and above all for deciding the direction of the species. This principle puts a high premium on preserving the flexibility of decision for future generations, to make the fewest irreversible decisions. It is arguable whether evolutionary commitments are less reversible than cultural ones; but we would still prefer eugenic and somatic modifications to those which committed the whole species to a new genotype. On the other hand, we should not confuse global shifts (for which war is already more pertinent than eugenics) with isolated experiments in genetic engineering any more than we would confuse global indoctrination with efforts at educational experimentation.

We may face some dilemmas connected with the legal definition of "human", (which Vercors has deftly explored in his novel, You Shall Know Them) but these issues are already before us in the care of "nature's experiments", infants with serious chromosome anomalies, and the inhuman treatment of our nearest primate relatives.