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Anxiety about Genetic Engineering

Science and technology have provided society with innumerable options and the ability to influence evolution. Optimists see in this a great future, with enhancement of the quality of life and of the dignity of mankind. Pessimists see quite a different picture, and at present they appear to be the more numerous and influential. The average citizen, when he thinks about it, is uncomfortable with the necessity of judging complex issues without adequate facts or background. He also feels relatively powerless to affect the outcome.

In spite of the widespread feeling of ineffectiveness, some people have had very great influence and, collectively, the electorate is having profound effects. Public concern about misuse of technology is leading to measures designed to cope with such present abuses as pollution. Technology can be geared to ameliorate part of the disagreeable conditions, and constructive steps are now being taken.

Some of the difficulties created by science and technology are not so close to solution, particularly in biology and medicine. Advances in these fields have led to great benefits and also to puzzling problems, including some for which our present ethical concepts do not prepare us. More technology alone is hardly likely to provide satisfactory answers to the population explosion. Especially disturbing are aspects of the measures taken to prolong life in the very sick and very old. Death of a loved one was bad enough when it was in the hands of God; now it is often a much more distressing experience. Since every individual must participate in birth and death, he cannot escape some thought about the associated problems that science has created; in general, he is not grateful for the necessity to face such issues.

During the last several years, the public has repeatedly been warned that science is creating additional problems through raising the possibility of test tube babies and "genetic engineering." The response of the public has been negative, with some calling for a halt to research in molecular biology. In truth, the dire predictions of the potentialities of new science have outrun the accomplishments, and the predictors have assumed that society will exercise negatively the options that are provided. Speculation about test tube babies is based on a modest accomplishment—that is, fertilizing a human egg in vitro and keeping it alive for a week or so. For many years, biologists have been fertilizing eggs of countless species in vitro. Talk of genetic engineering received impetus from the isolation of an operon, a specific piece of DNA. This accomplishment is about as meaningful as the isolation of other components of the living system. Biochemists are experts at taking life apart, and they can reassemble some subsystems. The total system, however, is orders of magnitude more complex than anything they have put together. Even if biochemists achieve a capacity for genetic engineering, it is unlikely that their tools will match the tools that are already available. For example, artificial insemination is widely used to improve livestock. If some future ruling clique decided to engage in human genetic improvement, they would be more likely to adopt this technique and to employ their own semen than to use material concocted in the laboratory.

Talk of the dire social implications of laboratory-related genetic engineering is premature and unrealistic. It disturbs the public unnecessarily and could lead to harmful restrictions on all scientific research.

—PHILIP H. ABELSON