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Recombinant DNA Legislation

During 1977 the scientific community escaped a threat to the freedom of inquiry in the form of harsh legislation. The ostensible target was alleged hazards of recombinant DNA, but objectives of some of the proponents were broader. The escape from restrictive legislation may prove to be only temporary. Last year congressional action was delayed in part as a result of extremely effective lobbying by scientists, especially a group headed by Harlyn O. Halvorson. If biologists relax the battle could be lost. Moreover, irresponsible acts by individual scientists could be very damaging.

One of the ironies of the situation is that biologists drew lightning to themselves. As long ago as the early 1960's some leading biologists were warning of ethical problems they envisioned as arising from genetic engineering. These warnings proved premature, but they were given prominence in the media. Statements discounting the imminence of genetic engineering received little attention. Gradually the public became uneasy about a hazard it could neither evaluate nor, perhaps, control.

The recombinant DNA technique that became available in 1973 opened new vistas in genetic research. It made possible the preparation of large amounts of individual genes. It also made possible the incorporation into the genome of chemically synthesized pieces of DNA. Molecular biologists who first became aware of the new developments could envision all kinds of experiments, some of which they felt might produce new pathogens. Seeking to be responsible citizens, they called attention to the matter and recommended a moratorium on some experiments.

In July 1976 the National Institutes of Health published guidelines that were soon made applicable to all research performed under federal grants. The guidelines permitted use of certain nonpathogenic mutants of the K-12 strain of *Escherichia coli* for recombinant DNA experiments. The containment procedures required were reasonable and adequate.

However, the long series of warnings about genetic engineering had created a climate of public opinion favorable for critics of recombinant DNA research. Though relatively few in number, their influence was great. The relevant committees of Congress accordingly prepared restrictive legislation. Because of the pressure of other business, Congress did not act quickly. In consequence, there was time for lobbying against the bills. In addition, during 1977, Roy Curtiss III produced further information that minimized potential hazards arising from the K-12 *E. coli* mutants. Halvorson and others pointed to the fact that extensive work with pathogens at Fort Detrick and the Center for Disease Control in Atlanta had not led to contagion among the families of microbiologists. Stanley Cohen showed that nature was already performing many of the experiments that the legislation proposed to regulate.

But some kind of legislation seems likely. At present, industrial laboratories are not compelled to follow the NIH guidelines. However, in the process of regulating industrial laboratories, almost anything can happen depending on the public mood of the moment. When such legislation is finally adjusted in a conference committee of the House and Senate, strange provisions can enter that bear little relation to the original bills.

A major hazard is that during the crucial moments of the legislation, news will come out of some irresponsible act by a scientist engaged in recombinant DNA research. This need not be an act of substance. Already at the Stevenson hearings in November, it was made clear that failure to complete some paper work could draw censure.

Today recombinant DNA research is highly productive, highly competitive. Workers are under temptation to take shortcuts. But they should behave as if their every act is under scrutiny, for indeed it is—by assistants, colleagues, or competitors. A scientist who furnished the pretext for restrictive legislation could count on the ill will of many of those he or she most wants to impress.—PHILIP H. ABELSON