Philip Handler on recombinant DNA research

In his annual report to the National Academy of Sciences, NAS president Philip Handler discusses, among other things, research with recombinant DNA. He says that with the greatest reluctance he has come to the conclusion that federal legislation to put some controls on such research is inevitable and perhaps desirable. But he goes on:

I am reluctant for two reasons.

First, I view with great alarm the prospect of any law that would authorize government officials to determine what subject matter it is permissible to investigate as well as the manner in which such research is to be conducted. It would be a first step along a dimly perceived trail concerning which we can be certain only that each step will facilitate the next. As a minimum, one can foresee constraints that will swathe research with bureaucratic complexities, will increase costs, will extend the time required for the gathering of information, and generally frustrate a career in research. If pursued yet farther, science could be shattered.

Second, it is profoundly ironic that this extraordinarily serious step should be taken in order to avoid hazards which, as best I can ascertain, exist largely in the imaginations of a very small group of scientists. Let me explain. Gene exchange among microorganisms and viruses undoubtedly occurs spontaneously on a vast scale in nature. Incorporation of eukaryotic genes into bacteria must be much less frequent but there is highly suggestive evidence that it does occur. Yet appearance of a new pathogen is extraordinarily rare. Thousands of clinicians and microbiologists have daily contact with the virulent pathogens responsible for the classical infectious diseases. They are seldom infected themselves and no epidemic has been known to start in this way. Moreover, it seems inconceivable that a successful pathogen can be created by the insertion of only one or two genes into an innocuous organism. Yet that is what such experiments entail. To be sure, no absolute guarantee can be offered. Nevertheless, those who have inflamed the public imagination by their rhetoric have raised fears that rest on no factual basis but their own science fiction.

The NIH guidelines already govern the conduct of research by all those whose work is supported by federal funds. The purpose of federal legislation, then, is to give those guidelines the force of law and extend that force to laboratories whose work is not supported by federal funds. But the principal reasons that many scientists acquiesce to passage of such legislation are (1) to terminate the feckless debate which has offered outlets for anti-intellectualism and opportunity for political misbehavior while making dreadful inroads on the energies of the most productive scientists in the field, and (2) to assure that no state or local government will adopt yet more stringent legislation or, indeed, ban such research entirely. But those outcomes are not yet assured.

The bills directed at regulation of research with recombinant DNA that have been placed in the Senate hopper seem better designed to prevent the conduct of such research than to promote its progress while also protecting the public health. One must continually remind oneself that [the] subject [of these bills] is not some monstrous ugliness but, rather, the conduct of elegant and extraordinarily productive research.

Moreover, by the terms of [several of the] bills, the federal government would deliberately forgo its right to pre-empt regulation in this field. Instead, they convey to state and local authorities the right to consider and implement yet more restrictive regulation, thereby inviting an endless series of episodes such as that which occurred in Cambridge, and with their outcome uncertain. I am unaware of the reasons for this position but I sincerely trust that if there is any legislation in this area, Congress will have the federal government exercise its right of pre-emption.

However the specifics may turn out, our successors will rue the day this legislation was passed. □

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