Recombinant DNA: Cambridge City Council Votes Moratorium

Cambridge, Massachusetts. The City Council chamber here was packed to overflowing late on the night of 7 July as the Council of seven men and two women, used to dealing with taxes and street closings and similar civic matters, tried to grapple with one of the most perplexing problems in contemporary biology—the safety of certain types of research involving recombinant DNA. Before them was the question of whether to allow investigators at Harvard and the Massachusetts Institute of Technology (MIT) to proceed with controversial and potentially dangerous experimentation or whether to ask them to hold off awhile until the councillors could better understand what is at stake.

By a vote of 5 to 3, with one abstention, the Council asked the researchers to hold off when it declared a 3-month, "good faith" moratorium on the work. In addition, the Council voted to establish a permanent body—the Cambridge Laboratory Experimentation Review Board—of scientists and citizens to investigate recombinant DNA (and, in the future, other types of research) and report back with a recommendation about allowing it to take place in Cambridge.

With those two votes, the councillors of this largely working-class town of 100,000 citizens took what are thought to be unprecedented steps to involve themselves in decision-making regarding biological research. There has been a good deal of discussion recently about so-called "public participation" in science (*Science*, 30 April), much of it led by Senator Edward M. Kennedy (D–Mass.) and other members of the Senate health subcommittee of which he is chairman. But there has been precious little said about just what public participation means. Ironically, it is the citizens of Kennedy's own state that are providing one of the first concrete examples of public participation. And they are calling on him to hold hearings to provide a national forum for debate. (He well may).

But opinion is divided over whether the City Council's example is one to be admired or deplored. There are some who hope that the Cambridge precedent of local involvement will be followed by similar action in other communities, and there are others who think it is a disaster.

For nearly 2 years, biologists voluntarily have been observing a moratorium on certain types of research with recombinant DNA, while looking to Washington and the National Institutes of Health (NIH) for guidelines on how safely to proceed with potentially hazardous experiments that involve combining in the laboratory the genes of organisms that do not combine in nature. On 23 June, the NIH guidelines finally came out (*Science*, 16 July) and, throughout most of the country, scientists began making preparations to get on with work they have held in abeyance since 1974.

But here in Cambridge, recombinant DNA researchers at Harvard and MIT were making preparations of a different sort. They were preparing a defense of their proposed research to put before the City Council that was holding a public hearing that night to find out what recombinant DNA is all about. Alfred E. Vellucci, the city's flamboyant mayor, had been saying that with recombinant DNA "those people in white coats" could build a Frankenstein or turn loose upon the populace a deadly organism like the fictional Andromeda strain. There was talk of a 2-year moratorium on controversial types of recombinant DNA research within the Cambridge city limits, and many scientists, who had already waited 2 years, saw their most exciting projects slipping out of their hands. As one city councillor said later on, "The Harvard and MIT people thought that, because Washington had said it was OK to go ahead, that was that. They were flabbergasted to discover that Al Vellucci could have a noose around their neck in just a few days' time. Here's a guy ranting and raving about monsters and germs in the sewers and they have to stop what they want to do because of him. They just didn't understand."

At that first City Council hearing, which lasted until 1 a.m. and was described as a "circus" by those who were there, the nine councillors, who had never before even heard of recombinant DNA, listened to testimony from those who spoke of its potential benefits to mankind and those who dwelled on its potential hazards. It was 2 weeks later that the Council held its second hearing and voted in favor of the moratorium.

The precipitating factor in the present situation was a split within the Harvard biology faculty over the renovation of one floor of the biology laboratories, but many observers believe that the issue of recombinant DNA would have come before the public sooner or later in any case because of the strong opposition to it from the Science for the People group, which is active at both Harvard and MIT.

Briefly stated, the NIH guidelines distinguish four classes of recombinant DNA research, designated from P1, which is safe enough to conduct in any open laboratory, to P4, which is to be conducted only under conditions of strict physical containment, such as those prevailing at National Cancer Institute facilities at Fort Detrick in Frederick, Maryland. Harvard wants to build a "moderate" containment or P3 laboratory by renovating existing space on campus. Some biologists, informally led by Matthew Meselson, favor this plan. Others, led by Nobel laureate George Wald and his wife, Harvard biologist Ruth Hubbard, are opposed. Three sets of circumstances apparently came together over this issue to bring it to public attention. One of the members of the City Council attended a hearing that the Harvard faculty held on the subject. So did a reporter for the Boston *Phoenix*, who wrote up the internal debate for that "alternate" paper. And Wald went to see Mayor Vellucci, whom he persuaded that the potential threat of P3 recombinant DNA experiments to the public health is a very real one.

From there, the course to City Council hearings was simple, especially since Vellucci for years has gotten a lot of political mileage out of attacking Harvard. He is well known around town, for example, for his periodic rhetoric about turning Harvard Yard into a parking lot. With something as esoteric as recombinant DNA, Vellucci had an ideal opportunity to go after Harvard (which has far poorer relations with the city than MIT) while protecting innocent women and children from the menaces of science. He was also able to jump on a favorite theme, that Harvard never communicates with City Hall. "All of these plans for research were going on and I had to read about it in the *Phoenix*," Vellucci fumed, choosing to leave out reference to Wald's visit to him.

Arguments for and against doing certain types of recombinant DNA experimentation were pretty much the same ones that were heard nationally as scores of scientists contributed their thoughts to the debate about the NIH guidelines.

Those in favor claim the risks are minuscule but the potential rewards are great—the cure of cancer and the production of new kinds of organisms to eat up oil spills being frequently mentioned. On the other side, it is said that to dangle the cure of cancer before the public is to make an empty promise and that bugs that eat spilled oil will eat oil from other sources as well. According to those who were present at the first hearing, the City Council listened to it all but did not really come alive until the matter of the Cambridge city health commissioner came up.

Responding to the mayor's taunts about Harvard not involving the city in its research plans, one university scientist declared in prepared testimony that the health commissioner had been invited to attend meetings of the Harvard committee on the regulation of hazardous biological agents. It was a grievous mistake, for, as one observer told *Science*, "The members of the City Council didn't know a thing about DNA but there was one thing they did know and that is that Cambridge doesn't have a health commissioner. Hasn't had one for 19 months, and it's something of a sore point with them."

But now the mayor has promised to find a health commissioner posthaste because whoever fills that long-empty position already has a central role to play in the current DNA contretemps. It is the health commissioner who has the authority of last resort in this matter—the power to ban the research by declaring it a health hazard. (The reason the City Council issued only a "good faith" moratorium is that it lacks legal authority to decree anything more forceful.) And it is the health commissioner who is likely to be chairman of the Laboratory Experimentation Review Board that must recommend a course of action to the City Council. It is easy to see why recombinant DNA research proponents feel discouraged about having their fate in the hands of a nonexistent board, but there it is.

In all of this, the city councillors say, the most important issues are political, in part because it is nearly impossible to grapple with the scientific ones. During the weeks between the two City Council hearings, every councillor was lobbied by scientists hoping to convince them that the work is safe and a moratorium not necessary. But they found it hard to know what was true in the face of mountains of conflicting statements from scientists themselves. Councillor Leonard J. Russell told *Science* that listening to the scientific debate made him feel "fuzzy" because "every time I think I understand an argument, someone pokes holes in it." Councillor Saundra Graham tried to help but missed the point when she moved to change the 3-month moratorium to a 6-month one, so that the scientists themselves could resolve their differences. But they cannot, of course, and that is why the political process is going to help them.

Councillor David E. Clem, a city planner by training, put it this way: "I tried to understand the science, but I decided I couldn't make a legitimate assessment of the risk. When I realized I couldn't decide to vote for or against a moratorium on scientific grounds, I shifted to the political." In the end, Clem, who voted for the moratorium, was influenced by his concern for public participation and the need for scientists to educate the public, which he called "cumbersome but necessary," and by his fears that NIH is not the right agency to assume responsibility for monitoring work on recombinant DNA.

The issue comes down to this: Can an agency that promulgates research as its primary mission also effectively regulate that research? Clem is among those who think the answer is "no." He recalls what happened to the Atomic Energy Commission when it tried to do two jobs. What is needed, Clem maintains, is a separate, federal regulatory body to oversee recombinant DNA research not just in universities but in industry as well. He is urging the City Council to petition Congress on this point and believes that, short of federal regulation, NIH should at the very least provide funds to enable local communities to monitor for themselves research at local institutions.

The members of the City Council are adamant in saying that they do not want to stop work on recombinant DNA in its tracks, and, on the whole, most of them say they are more persuaded by its proponents than by its detractors. But the fact that federal guidelines have been written is not, in itself, enough to satisfy them. As one of the mayor's aides said, "We looked at the process by which they arrived at those guidelines and found it was anything but placid. We were not reassured." And so Cambridge is going to go through at least part of that process itself, redundant though it may be, until the local community is satisfied that all is well. Clem put it aptly when he said, "Science is just going to have to learn to bear with it."

—BARBARA J. CULLITON

Grant Applications: Panel Finds New Laws Enable Stealing of Ideas

The President's Biomedical Research Panel claims to have evidence that the Freedom of Information Act and various court rulings have made it possible for researchers to steal ideas from the grant applications of their rivals.

The panel never actually uses the word "steal," but it notes that many scientists frankly admit that they have already peeked at their rivals' proposals in an effort to gain information that would assist their own research or help them improve their own grant applications.

This finding was gleaned from a recent questionnaire survey of persons who had requested disclosure of information from grant, contract, or fellowship applications submitted to agencies of the Department of Health, Education, and Welfare during 1975. Almost two-thirds of those who responded (47 of 71) said that they had requested the information because they wanted to examine the specific protocols, hypotheses, and designs of other scientists "to give better definition to their own research, or to improve the competitiveness of their own applications for research support," the panel reported.

"These data indicate that the intellectual property rights of researchers may not be sufficiently protected because they are subject to disclosure that could not only benefit less innovative researchers but could also jeopardize the original researcher's intellectual property rights under patent law," the panel said.