Hogness and Thomas have in fact put their case so effectively that other members felt the issue was being railroaded. Several even turned for help to a group of young Cambridge scientists who, calling themselves the Boston Area Recombinant DNA Group,* produced a cogent position paper in favor of tighter guidelines. It has in fact been largely in response to outside pressures, such as that exerted by the Boston Area Recombinant Group and others, that the guidelines have been increased in stringency.

The NIH committee's hardest working member has undoubtedly been Roy Curtiss of the University of Alabama. He and 8 colleagues have worked overtime for about a year to develop the enfeebled strain of *Escherichia coli* which the guidelines require to be used for many categories of recombinant DNA experiments. Since safety measures for some reason lack glamor, Curtiss and his team may not get the credit they deserve, but it is only through his voluntary efforts that the bacterium will be available just when it is needed. (The committee approved for use an enfeebled bacterial virus developed by Philip Leder and others at NIH. It is expected to certify Curtiss's *E. coli* imminently).

The NIH committee has clearly succeeded in producing a reasonable and scientifically acceptable set of guidelines that will probably be adopted or closely copied throughout the world. Yet Sinsheimer's arguments have raised awkward questions which nobody yet seems able to directly answer. So the present plan is to go ahead anyway and let them be answered by events. That is maybe what has to be done, but it would look better if Sinsheimer's Cassandra-like fears could be proved imaginary first.—NICHOLAS WADE

*The group consists of Richard Goldstein, Paul Primakoff, Margaret Duncan, and Hiroshi Inouye, all of the Harvard Medical School, and Cristian Orrego of Brandeis University. The group is not affiliated with Science for the People, as was erroneously stated in *Science* (27 February).

Biomedical Panel: Urging a Move to Bring Cancer Back into the NIH Fold

It has been 5 years since the passage of the National Cancer Act that elevated the National Cancer Institute (NCI) to privileged status within the National Institutes of Health (NIH). Under that 1971 act, skillfully maneuvered through Congress by forceful cancer lobbyists, the NCI was given two things that suddenly set it above the rest of NIH—truly vast sums of money and direct access to the White House through the creation of a three-member President's Cancer Panel, headed by New York financier Benno C. Schmidt. The rest of the biomedical community has been jealous and out of sorts ever since.

Now, the President's Biomedical Research Panel, established in 1974 to conduct an 18-month study of the country's biomedical enterprise as a whole, is taking what it sees as a first, gingerly step toward restoring the balance. When its report is released on 30 April, it will contain a recommendation that the existing cancer panel assume a dual role. In addition to serving as the senior policy-making body of the cancer institute, it will be asked to oversee policy-making for the rest of biomedical research as well.

On the face of it, it is a contradictory and, frankly, audacious recommendation. Were the President to accept it, the present cancer panel, already the object of distrust, would have its powers extensively broadened almost overnight. Benno Schmidt, the czar of cancer, would become the czar of all of biomedical research, at least until his term on the cancer panel expires 2 years from now.

The about-to-go-out-of-business biomedical panel that is making this recommendation is headed by Franklin Murphy, an M.D. who is now head of the Times Mirror Corporation in Los Angeles. Schmidt is the only layman on this panel. Its other members* are basic researchers and physicians from the nation's most prestigious medical schools. Why, one cannot help but ask, would they make such a recommendation? The answer, as expressed by members and panel staffers, is that they have come up with a clever scheme for eventually getting the cancer institute back into NIH. One said it is a way to "set the stage" for the eventual return of the NCI to fiscal control by NIH. Another described it as a move to "make rational, step-by-step," the present system that allows NCI to go its own way. Underlying it all is the probably correct assumption that if NCI is going to be divested of any of its privileges, this will have to be done with great diplomacy.

The biomedical panel acknowledges the tremendously powerful lobby that backs the present cancer program and concedes that, if it fought the program openly, it would probably lose. It also recognizes that Schmidt, as a member of the cancer panel, cannot, as a member of the current biomedical research panel, be put in the position of having to offend part of his constituency. So, one can suppose, there is a certain logic in giving him responsibility for both. In spite of Schmidt's obvious devotion to the cancer program, to which he gives a good deal of his time, it is true that he has consistently expressed an interest in other areas of research, taking the position that it is neither scientifically nor politically sensible for the cancer community to alienate colleagues in other fields. Furthermore, he has taken a strong, if not entirely successful, stand on the issue of training grants, a provision that is dear to the hearts of investigators in every discipline.

Nevertheless, the thought of having Schmidt, R. Lee Clark, head of the M.D. Anderson Hospital and Tumor Institute in Houston, and one yet-to-be-named new member of the cancer panel assume responsibility for all of biomedical research offends some individuals. The matter came up, for example, at a recent meeting of the National Heart and Lung Advisory Council. In a letter to biomedical panel chairman Murphy, heart council members said they wholeheartedly concur with the establishment of an advisory committee "at the highest level which will have a broad overview of the entire biomedical research enterprise," but they think it should be established "de novo," which is to say, they do not want it to fall into the control of individuals whose first loyalty is to cancer.

All of this raises a little-discussed question about the need for special panels in the first place. The immediate precedent

*Franklin D. Murphy, Times Mirror Corporation; Ewald W. Busse, Duke University Medical Center; Robert H. Ebert, Harvard Medical School; Albert L. Lehninger, The Johns Hopkins University School of Medicine; Paul A. Marks, Columbia University; Benno C. Schmidt, J. H. Whitney and Company, New York; David B. Skinner, University of Chicago Hospitals and Clinics.

for such a body is the cancer panel, which was created at a time when those who had won the political battle over the launching of a war on cancer were determined not to see it snarled in red tape as the NCI director tried to foster initiatives with all deliberate speed. The NCI director could have been designated the man to call the White House if things bogged down, but he wasn't. The cancer act created a special, presidentially appointed National Cancer Advisory Board to advise the NCI director. Its chairman could have been granted a direct line to the White House, but he wasn't. In the grand scheme of things, it was felt necessary to have a rank of supreme commander that was more prestigious still, and so the panel was mandated, and Schmidt, a Republican businessman who could speak the language of the Administration, was named to lead it.

Benno Schmidt is a person whose influence derives from his position and his personality. He is strong and determined and not easily pushed around. To top it off, he has taken his role in the cancer program seriously. There is no doubt that he has played an important, indeed central, part in the development of the cancer program. People tend to link the fortunes of Schmidt and the cancer program to each other, seeing him as an undefeatable power broker on behalf of his cause. There is some truth to that but a lot of exaggeration as well. Schmidt persuades, but he does not dictate to agencies such as the Office of Management and Budget, where he has won some battles but also lost some.

Nevertheless, the perceived influence of Schmidt and the cancer panel has

Conferees Collide on Bill for White House Science Office

Legislation which would restore science advisory machinery to the White House hit another snag when House and Senate conferees held their first meeting on 2 April. Seeking to reconcile differences between House and Senate bills, the conferees agreed equably to major sections of the bills creating the basic advisory machinery. The falling out came over two somewhat secondary issues.

The House and Senate conferees, headed, respectively, by Representative Olin E. Teague (D–Tex.) and Senator Edward M. Kennedy (D–Mass.), appeared to be solidly deadlocked. Sources close to both sets of conferees, nevertheless, said that the principal interested parties, including those in the White House, are anxious to move the bill forward and expect to resolve differences quickly. When *Science* went to press on 6 April, however, it was not clear what lines such agreement would follow.

As anticipated (*Science*, 27 February), a section of the Senate bill which would provide federal encouragement to state and regional science policy programs met opposition from House conferees. The House conferees also objected to the Senate bill's proposal to insert the word "engineering" in all titles in the legislation. The White House office, for example, would be the Office of Science, Engineering, and Technology Policy.

The change in wording apparently resulted from a late but intensive lobbying campaign by a coalition of engineering societies. The campaign was prompted by feelings in the engineering community that for too long engineering and engineers have been slighted in government science policy discussions and arrangements.

The House conferees in general argued that explicit mention of engineering is not necessary because it falls under the rubric "science and technology." Furthermore, they suggested that specific mention of engineering might incite other technical subgroups—medical and agricultural scientists, for example—to demand equal consideration.

In the case of the State and Regional Science and Technology Program, which appears in the Senate bill, the House conferees indicated sympathy with the aims of the proposal but argued that it should not be included in a bill designed to establish federal science policy machinery.

The Senate proposal has two main parts. It calls for creation of an Intergovernmental Science, Engineering, and Technology Advisory Panel with mixed federal-state membership to identify major problems important to the states and to foster technology transfer and utilization.

The second provision is a one-shot program of grants to the executive and legislative branches of the states to help establish or strengthen state offices of science, engineering, and technology. A total of $8 million would be authorized, with each state to receive not more than $200,000 on a 80 to 20 federal-state matching basis. The House conferees urged that such a program would be handled more suitably through National Science Foundation (NSF) legislation and that financing it under the federal science advisory legislation might create practical difficulties under new budget procedures.

Despite the impasse on the two disputed points, the conferees agreed easily on the main sections of the bill, ratifying a series of compromises between House and Senate versions reached in detailed negotiations in which staff members had acted as go-betweens.

In addition to the creation of a science advisory office headed by a director and four assistant directors, reminiscent of the Office of Science and Technology abolished by President Nixon in 1973, the bill imposes on the new office policy responsibilities which are more highly formalized than in its earlier incarnation. The bill, for example, calls for creation of a blue-ribbon study committee to conduct a 2-year survey of the federal science and technology effort and to come up with a report containing comprehensive recommendations.

The compromise version also requires the new office to produce an annual report on science and technology which would supplant the report now done by the National Science Board and also to prepare and update each year a 5-year forecast of federal investment in science and technology and assist the Office of Management and Budget in planning federal R & D investment.

One issue which had concerned many proponents of returning the science adviser to the White House had been the question of the adviser's role in military matters. With the present arrangement, under which the NSF director serves as the President's science adviser, scientific aspects of military matters are excluded from his jurisdiction. In the language of the new bill, the science adviser would be a "statutory adviser of the National Security Council [NSC]." This does not make the science adviser a full member of the NSC, but affords him the same status as the director of the Central Intelligence Agency and is said to restore the science adviser to an effective role in military questions.—J.W.

made others in biomedical research want one too. But you cannot clone Benno Schmidt, and you cannot mandate the kind of influence he has had on White House officials who were freely prepared to be receptive to him.

An attempt to do for all of biomedical research what the cancer panel has done for the programs of NCI was made in 1974 before legislation creating the present President's Biomedical Research Panel passed the Congress. The original idea was to mandate a permanent panel with the same White House access that the cancer group enjoyed, but it was stopped by threats of a presidential veto. So the present panel, whose only job is to issue a single, one-shot report, was put in place instead. Destined to officially dissolve by 1 July, its only hope of continuing on in spirit is to have its recommendation to expand the cancer panel accepted. It is not certain whether this recommendation will be adopted, but it most surely will come up when the Senate the House hold hearings on the panel's full report. The Senate hearings are already on the calendar for 30 April, the same day the report must go to the President.

In all of this, it might be noted that there already exist a number of advisory bodies to oversee the conduct of biomedical research. Every institute at NIH has an advisory council; the NIH director has an advisory council too. The former exist to review the scientific projects supported by the individual institutes; the latter is supposed to advise the NIH director on the way things are going overall. It is true that, in the past, these groups have not taken their policy-making responsibilities as seriously as they might, but there is no immutable reason might, but there is no reason that could not change. The authority is there.

The NIH director's advisory committee, long plagued by vacancies (*Science*, 31 October 1975), is not at full strength, and director Donald S. Fredrickson says he intends to make full use of the committee as a policy-making resource. In fact, an additional recommendation of the President's Biomedical Research Panel, one with which Fredrickson concurs, will be that the members of the director's committee, now appointed by the Secretary of Health, Education, and Welfare, be appointed in the future by the President. "To make the NIH director's advisors Presidential appointees would raise their visibility and lend a new tone to their work," one biomedical panel staffer observes. One foresees a situation in which one presidentially appointed committee on biomedical research is overseeing another. It hardly seems necessary to have both.—BARBARA J. CULLITON

Michigan's PBB Incident: Chemical Mix-Up Leads to Disaster

The hazards posed by the manufacture and distribution of dangerous toxic substances, and by their dispersal to the environment, are being pointed up by such stark episodes as the widely publicized Kepone poisoning incident in Virginia. Some of these episodes fail to attract national attention, however, and when the injury is not so much to human health as it is to farm animals the incidents may be little noted outside the regions where they occur.

A prime case in point is the episode that first came to light 2 years ago in Michigan, where, apparently as the result of a frightening and extraordinary mix-up of two chemical products, nearly 30,000 cattle plus thousands of other farm animals have had to be quarantined and destroyed. On hundreds of farms the livestock and poultry was contaminated with polybrominated biphenyl (PBB), a fire retardant closely related to polychlorinated biphenyl (PCB), one of the most notorious and widespread of all chemical contaminants. PBB has been employed in the manufacture of certain hard plastics, such as some that have gone into television cabinets and other products in which heat resistance is desired.

Disastrous as this Michigan episode has been—damages for livestock and poultry losses are variously estimated between something less than $75 million and $100 million or more—it could have been still worse had the nature and source of the contamination gone undetected even longer than actually was the case. Yet, except for a remarkable combination of circumstances and good luck, the cause of the disaster might remain a mystery even today.

Because of this, supporters of the pending toxic substances control legislation, which has already passed the Senate and now awaits further committee action in the House, point to the Michigan disaster as another strikingly clear demonstration that this legislation is critically needed. Also, the great difficulty many Michigan farmers have had in coping with and overcoming the PBB contamination is cited as compelling evidence that the farmers victimized in such episodes often need emergency help from Washington.

The most commonly cited hypothesis as to how the Michigan PBB disaster came about is as follows. Sometime during the summer of 1973, at the Michigan Chemical Corporation plant at St. Louis, Michigan, ten to twenty 50-pound bags of "Firemaster"—the fire retardant PBB—somehow were included in a truck load of "Nutrimaster," or magnesium oxide, a compound used to sweeten acidic feeds. The truck was bound for the big feed mill operated by Farm Bureau Services, Inc. (a part of the Michigan Farm Bureau), at Battle Creek.

Normally, the Firemaster, which resembled Nutrimaster in physical appearance, would have been packaged in bags lettered in red. But, because of a shortage of bags with pre-printed labeling the Firemaster, as well as the Nutrimaster, was packaged in plain brown bags on which the trade names were stenciled in black. How the Firemaster and Nutrimaster bags became mixed at the plant, if this is indeed what happened, is a mystery.

According to Roger Clark, an attorney for Michigan Chemical, the buildings in which Firemaster was manufactured and stored were several hundred yards from those where Nutrimaster was produced and stored. Also, it was the practice to load these products directly from the storage buildings onto trucks for shipment, with no need to move them to some common loading area where a mix-up could have occurred.

Yet, the fact is, a partially filled bag of Firemaster would be found at the Farm Bureau Services mill when an investi-