# Division of Biologics Standards: In the Matter of J. Anthony Morris

In 1955 a newly developed vaccine against poliomyelitis was rushed onto the market and promptly caused among the vaccinees and their families ten deaths and 192 cases of paralytic polio. The Cutter "incident," as the scandal was named after the company that produced most of the bad vaccine, caused the resignation of a Secretary of Health, Education and Welfare, a Surgeon General, and a Director of the National Institutes of Health. To ensure that such an incident should not recur, the NIH laboratory charged with regulating vaccines was reorganized as the Division of Biologics Standards (DBS), and the assistant chief of the laboratory, Dr. Roderick Murray, was installed as the DBS director. For some 16 years the DBS performed its regulatory activities in decent obscurity, a dim companion of the pure research institutes on the NIH campus at Bethesda, Maryland. This placid interlude ended abruptly on 15 October last year, when Senator Abraham Ribicoff (D–Conn.) announced he had received information indicating that there was something seriously wrong with the DBS.

Ribicoff's information was a remarkable list of charges describing incidents that occurred between 1955 and the present. The incidents purport to show how the management of the DBS has suppressed or ignored scientific information: has permitted the potency influenza vaccines to be labeled at greater than the true value; has failed to ensure that vaccines are effective; has harassed scientists whose research work adversely affected the vaccine market and forced many to leave the DBS; and has actively discouraged certain pertinent lines of research relating to vaccines.

Charged with ensuring the safety, purity, and potency of vaccines and other biological products, the DBS has an annual budget of some $9 million and a staff of 260, among whom the scientists undertake research related to vaccines in addition to their control and inspection duties.

Ribicoff's presentation has stimulated two investigations of the DBS's affairs by the NIH leadership, and the General Accounting Office is also studying the handling of specific vaccines prior to hearings which Ribicoff's subcommittee on Government Operations will hold shortly. Whatever the outcome of these hearings—separation of vaccine regulation from the NIH is the most extreme possibility—the DBS has a lot of explaining to do to its various official inquisitors. This sudden exposure to the public spotlight has been brought about largely by one man and his attorney. J. Anthony Morris, formerly the influenza control officer at the DBS and now chief of the section on slow viruses, has differed with the DBS leadership on policy and personal issues for almost a decade. Last year Morris felt these differences to be so insupportable that he initiated a Civil Service grievance proceeding against the management of the DBS. Morris was represented by James S. Turner, an attorney who authored a critical study of the Food and Drug Administration for Ralph Nader's Center for the Study of Responsive Law.

The significance of the grievance hearing is that, in the words of the director of the DBS, it "opened Pandora's box" on the division's affairs. It emerged, for example, that of Morris's two previous supervisors, the former considered influenza vaccine worthless and the latter, who is at present the DBS influenza control officer, believed that for years the manufacturers had been preparing, and the DBS certifying, watered down influenza vaccine. This and other disclosures formed the basis for several of the specific criticisms of DBS management policy which Morris and Turner presented to Senator Ribicoff. These criticisms, and the various rebuttals and counter-rebuttals that they have provoked, will be discussed in a later article. Described below is an outline of the grievance hearing, which affords a number of insights into the treatment of scientists and science by a regulatory agency.

The hearing was particularly revealing because of the nature of Morris's grievance. In essence, he claimed that he had been harassed and pressured to leave the DBS because of his doubts about the potency and efficacy of commercial influenza vaccine. The DBS management countercharged that Morris had been relieved of his vaccine control duties and research facilities because of his intransigence and refusal to communicate with his supervisors. The grievance hearing rapidly evolved into a technical debate on the methods of assessing the strength of influenza vaccines and the DBS's administrative procedures for certifying them.

The hearing was held before a three-member grievance committee consisting of Bernice Eddy, research scientist at the DBS; G. Burroughs Mider, deputy director of the National Library of Medicine and a former associate director of NIH; and Marvin Legator, chief of the genetic toxicology laboratory in the Food and Drug Administration. (Legator was involved in a palace revolt at the FDA over the banning of cyclamates in 1969.) Under Civil Service procedure, Eddy was chosen by Morris, Mider by Roderick Murray, director of the DBS, and Mider and Eddy together selected Legator to be chairman of the committee. The committee heard 14 days of testimony between 25 January and 26 March 1971, and delivered its findings on 28 April.

The development of the hearing, as it turned out, was not devoid of dramatic form, and for ease of description may be considered in five parts or acts. In act one, colleagues of Morris described his work and standing as a scientist, and aspects of his treatment by the DBS. In act two Morris presented his own account of the events that had led him to institute grievance proceedings. For act three, the management brought on as a witness Alexis Shelekov, former chief of the Laboratory of Virology and Rickettsial Diseases (LVR), who explained why Morris had been removed from his duties as influenza control officer. In act four Nicola M. Tauraso, present chief of the LVR and Morris's successor as influenza control officer, related his discovery that Morris had certified as potent certain vaccine lots that had failed Morris's own tests. A resolution in the final act afforded some notable disclosures on the DBS's methods of ensuring the potency of vaccines released to the public.

In caveat to what follows, it should be noted that the grievance hearing was an informal inquiry without the force of law, not a legal proceeding. Also relevant is that Morris was represented by a resourceful attorney, the DBS by

a staff member trained not in law but in science. The transcript of the hearings runs to 1473 pages; this account does not cover all the issues raised.

### Act One: Harassment

The hearing began with testimony from a series of scientists who described their collaborative work with Morris. For example Carleton Gajdusek of the National Institute of Neurological Diseases and Stroke (NINDS), a leading authority on slow viruses, testified that Morris had been a key figure in setting up the NIH research program on kuru (a disease of New Guinean cannibals) and scrapie (a virus disease of sheep). Robert M. Chanock of the National Institute of Allergy and Infectious Diseases described how he had worked with Morris on the respiratory syncytial virus discovered by Morris in 1954. "This I considered to be one of the most important discoveries in the field of respiratory virus research." Chanock also considered as a "first class piece of work" fieldwork done by Morris in studying the response to influenza vaccine of the inhabitants of the Caroline Islands in Polynesia. Morris was also primarily responsible for the finding in 1961 that SV40 virus, a common contaminant of certain monkey cells used to make vaccines, could infect man.

Clarence Gibbs, a microbiologist at NINDS, told the committee that Morris's scientific contributions had been "many and varied," although as a person Morris was sometimes hard to get along with—"I have always stated to him to his face, I would never work with him in the same laboratory."

According to Harry Meyer, chief of the Laboratory of Viral Immunology in the DBS, Morris "in any evaluation has established himself as a competent scientist who has done good work." Another witness, Colonel Edward Buescher, director of the Walter Reed Army Institutes of Research where Morris worked before joining the DBS, stated that in that period "certainly the work done was first class, as far as I was concerned."

After the testimonials, another set of witnesses described the treatment Morris had received since 1966, when he first fell out of favor with the DBS management.

RALEIGH BOAZE (DBS technician): Right after Dr. Shelekov [chief of the DBS Laboratory of Virology and Rickettsial Diseases from 1963 to 1968 and Morris's immediate superior] took three people from Dr. Morris, he attempted to take all of his [virus] pools, which would terminate his research because he wouldn't have any materials to work with. He also tried to collect his accumulated data, that Dr. Morris had. I know this for a fact, because I took various virus pools to other places on the reservation, to keep Dr. Shelekov from going into the freezers and taking them. . . .

. . . Dr. Morris had a lot of accumulated data which he had not written in the form of an article, and, when Dr. Shelekov began his disbandment of the section, Dr. Morris could only do so much work with the few people he had left. . . . [The articles Morris submitted for approval] sometimes would sit in Dr. Shelekov's office for 2, 3, even 4 weeks, with no action to get them through the proper steps so they could be published, and Dr. Shelekov would either just hold them or reject them. There were a number of co-authors on these papers, so what Dr. Morris would do would be to remove his name as the leading author of the article and send it on to the next person up, and that was the only way he could get this information out that he thought was important to be published.

CHAIRMAN LEGATOR: Do you know this for a fact?

BOAZE: Yes . . . I saw Dr. Morris writing a note on several of the articles to either the next person on line . . . Dr. Morris's name was taken off the top as the leading author and was put lower on the list.

CHARLES SHAW (laboratory technician with Morris from 1961 to 1969): We began to lose all of our people [starting in 1966, Morris's section, then the largest in the LVR, was reduced from ten to two technicians]. They were called in one by one and told they had no future in Dr. Morris's lab . . . and they were never going to get raises. I was told the same thing. . . . There were two who decided they were going to stay, two of us, and we stayed and we stuck it out. . . .

. . . At this time we had to get rid of a lot of animals [mice], some on slow virus and some on an extended flu study. All of these virus animals were very, very valuable.

Q: What happened to the animals?

SHAW: Well, we moved them around. They told us to get them out of this room. We put them in another room. They told us to get them out of that room and put them in another room. Eventually they told us we would just have to destroy them. So one night Dr. Morris and I came out about 2:00 o'clock at night and destroyed all of these animals.

Q: How many were there?

SHAW: There must have been about, at that time, 2000.

ROBERT SCHENO (counsel for the DBS management): Do you know if all of these studies had the approval of the laboratory chief? Was he kept informed of this? It seems such a destruction that it is unbelievable.

WALTER BROWN (LVR technician): (*Describing the room assigned to Morris after he was ousted from his lab*) It was a room with no telephones in it. . . . It was a small room, and it was used with someone else. . . .

Q: How did people communicate with Dr. Morris, do you remember?

BROWN: They would leave memos on the door saying, you know, get in touch with so and so.

Q: You mean they couldn't go in without permission?

BROWN: Yes.

SCHENO: Permission from whom?

BROWN: The chief of the laboratory.

SHAW: We went rapidly from ten people to the two of us. Yet we had all of these studies, some of them collaborative. . . . I was working on the average of 12, 13 hours a day. That was not enough. . . . At this time we had really to call on people for physical help. In other words, we had to get cells and have other people supply us technicians, other people to supply us hands, other people supply us many, many materials that were needed. We needed cells of course to work on influenza. We were stopped from getting cells so we had to beg and borrow to come up with cells. At the same time we had to import students and other people who could be loaned to us from the people who we were collaborating with.

### Act Two: Morris's Story

Called to testify, Morris told the grievance committee that early in 1970, after more than 3 years of harassment, he decided to leave the DBS and look for a job elsewhere. Then in March he was called in by Tauraso, his supervisor and chief of the LVR, who asked to know when Morris planned to leave the DBS. Tauraso told him, Morris said, " 'We want to know what you are going to do by the first of April, and if you don't tell us we are going to charge you with passing

to the public influenza vaccines with insufficient potencies.' I was astounded."

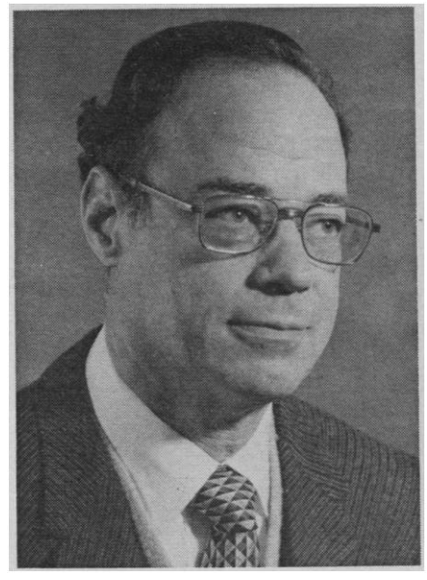
Rather than have this charge hanging over his head, Morris decided not to resign from the DBS, and to initiate a grievance that he had been falsely accused as well as harassed.

How had Morris managed to fall out so badly with the DBS management? Morris was recruited to the DBS in 1959 by Joseph Smadel, a former associate director of the NIH who decided to return to the bench as chief of the LVR. Smadel drew up with Morris a long-range plan of research that has occupied Morris ever since. In 1966 Morris carried out an important field study of influenza vaccine, for which he then had sole control and research responsibility in the DBS. The study consisted of a vaccination program in the Caroline Islands of Micronesia, whose isolated populations possess no natural resistance to influenza. Five months after the program there occurred a flu epidemic of the same virus strain against which Morris had vaccinated.

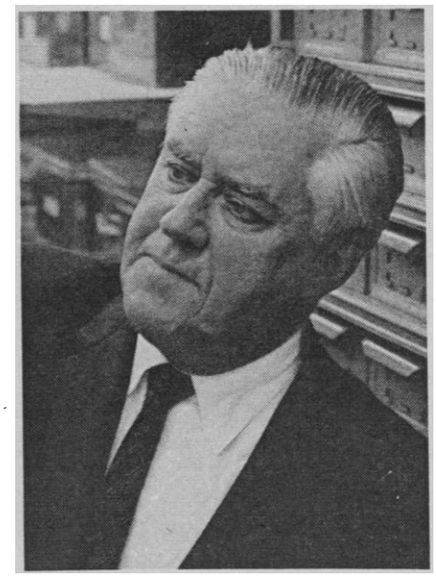
Analyzing blood samples back in his laboratory, Morris calculated that the vaccine had afforded only 20 percent protection, a finding that confirmed his growing doubts about the vaccine's efficacy. His belief, both now and at the time, was that the vaccine stimulates the production of the wrong type of antibody, of circulating antibody (IgG) rather than the secretory antibody (IgA) which is produced in nasal and other tissues and combats the virus at the source of infection.

As the analysis of the Caroline Islands epidemic progressed, Morris kept his superiors Shelekov and DBS director Murray informed of the results. In August 1966, by which time it was clear that the vaccine had been ineffective, Morris experienced the first adverse administrative action during his time at the DBS, the removal of three of his staff. Shelekov informed him, Morris told the grievance committee, that his competency was fine but his work was not meeting the needs of the DBS.

In December, Morris presented the completed data of his study to the DBS director with his conclusion that the vaccine had been of minimum benefit and that the reasons for this should be more fully explored. Two days later Murray informed Morris by memorandum that he should hand over to Shelekov all records and materials relating to influenza, and that he was relieved of all duties as influenza control officer.



J. Anthony Morris



Roderick Murray [*Medical World News*]

Even after removing Morris from vaccine control duties, the DBS management continued to reduce his staff and actively impede his research. Early in 1967 Morris was forced to destroy some 5000 mice, 2000 of them on a single night, which were being held on long-term influenza and scrapie studies. Shelekov delayed giving clearance to Morris's manuscripts, and refused clearance altogether to an article on typhus vaccine unless Morris would alter his conclusion that the vaccine was ineffective. (Morris declined to alter the article, and had to have it published at his own expense.)

Shelekov left the DBS and was succeeded as chief of the LVR in January 1969 by his colleague Tauraso, who had inherited the influenza control duties from Morris. A new period of harassment began, Morris told the grievance committee: his staff and facilities were further reduced, and finally his last technician, Charles Shaw, was taken away from him.

Asked to state the central issue that led to the deterioration of his relations with the DBS leadership, Morris said he believed the cause was that his research had turned up the shortcomings of influenza and other vaccines.

### Act Three: Shelekov's Story

After Morris's side of the case had been presented, the DBS called in Shelekov, who is now microbiology chairman at the University of Texas Medical School, San Antonio. Shelekov told the committee he considered Morris a "capable, well-trained scientific worker who nevertheless was extremely difficult to deal with. . . . Dr. Smadel had a very fatherly attitude toward Dr. Morris who he raised, I guess, scientifically speaking for so many years. (But) he did not extend to me the type of respect he did to Dr. Smadel."

Morris would not communicate about his research or vaccine control activities. Shelekov began to doubt the reliability of the CCA tests (meaning chicken cell agglutination—the standard unit of measurement of influenza vaccine) that Morris conducted. "It seemed to me the CCA procedure was done unusually rapidly. And always that very few other people were doing it in the laboratory but Dr. Morris and Mr. Shaw." (Later testimony showed that Morris had developed an automated procedure for the CCA test.) It crossed Shelekov's mind that Morris was falsifying the data. "There was continuous discussion and unpleasantness about the results of some of the vaccine testing," and Shelekov asked his assistant Tauraso to check some of the CCA tests. The precipitating factor in removing Morris from influenza control duties, however, was a letter received on 5 December 1966 from the World Health Organization inviting a collaborative study. Because of the "lack of communications between Dr. Morris and myself, I could not trust that the job would be done without embarrassing DBS, NIH, and for that matter the U.S. government." It was this episode, Shelekov said, that resulted in the taking away of Morris's control activities and the reduction of his staff.

Q: Did you ever tell [Morris] that it crossed your mind that he might not have been turning in proper data?

SHELEKOV: I don't think so. . . .

Q: Did you inform Dr. Murray that Dr. Morris might be not turning [out] honest data?

SHELEKOV: Only as a vague possibility. I don't think I ever told Dr. Murray.

Q: You didn't think this was of sufficient importance to call to the attention of the director?

SHELEKOV: Yes, but I don't think I had sufficient evidence . . . to insist that such action be taken.

Asked his opinion about the worth of influenza vaccine, Shelekov replied, "I have never been impressed with it—particularly the efficacy of influenza vaccine. For many years I have not taken influenza vaccine myself or given it to my family; I have not been impressed with its potency."

Q: Is it your belief that vaccines having 10 to 20 percent of their required potency were released [onto] the market while Dr. Morris was the person who was doing the initial potency testing?

SHELEKOV: I don't know. I have to see the data.

Q: Do you think it is possible?

SHELEKOV: It is possible.

### Act Four: Tauraso's Story

The ambiguities left by Shelekov's declaration were swiftly dispelled by the forthright testimony of Tauraso, chief of the LVR since January 1969 and influenza control officer since he relieved Morris in January 1967. The charges which Tauraso had read out to Morris early in 1970 were later drawn up in a formal document presented to Murray, known as the 8 May 1970 memorandum. (Murray at first refused to let the grievance committee see the 8 May memo but was overruled after protests from Morris's attorney to the general counsel of the NIH.

In the 8 May memo Tauraso states that, on going through Morris's laboratory notebooks for 1965 and 1966, he found that 8 of the 22 vaccine lots certified as potent during the period had in fact failed Morris's potency tests. From his own experience during 1967, Tauraso believed that the manufacturers "were submitting vaccine which contained less than 40 percent of the required antigen content. . . . In my opinion, manufacturers, over the years, had been submitting vaccines containing less and less antigen because they realized they could get away with it." Morris's dishonesty and "betrayal of a public trust" was reason enough to terminate his employment, the memo concluded.

Tauraso opened his testimony by describing the "horrible problem" he had inherited on assuming his vaccine control duties from Morris. The required test at the time was the mouse potency test (an intricate biological test which is imprecise but reproducible; the CCA test, a physical measure of vaccine antigenicity, is moderately precise but hard to reproduce). Tauraso's problem was that, although all the vaccine lots passed according to the manufacturers' tests, he could not

## Drug Abuse Council Formed

The Ford, Carnegie, Commonwealth, and Kaiser foundations are jointly backing a Drug Abuse Council designed to be an independent source of information and policy advice and to provide limited funds for research on a range of problems related to drug abuse.

Headquartered in Washington, the council will have a 15-member board recruited nationally from among prominent persons, most of whom have expertise or experience relevant to the council's concerns. The private agency will have a small staff headed by the council's full-time president Thomas E. Bryant who holds degrees in law and medicine and was former director of the office of health affairs of the Office of Economic Opportunity. Chairman of the council board is Bethuel M. Webster, an attorney and former president of the New York Bar Association, who served on that city's Health Research Council.

The idea for the council was germinated within the Ford Foundation, and, as a result of discussions over the last year, the Carnegie Corporation, the Commonwealth Fund, and the Henry J. Kaiser Family Foundation joined Ford as cosponsors. The council's first year budget is set at $2.5 million and funding is projected at $10 million to $15 million over 5 years. Financing, as one foundation officer put it, will be rather "a horse and rabbit stew," with Ford providing more than double the money put in by the other foundations combined.

The major aim of the council seems to be to gather and make available reliable information on drug abuse problems and to cooperate with federal, state, and local planning and operating agencies in the drug abuse field. The council will foster studies by its own staff and outside consultants and will sponsor meetings. It does not plan to fund major drug treatment or rehabilitation pilot programs and will limit research support to promising projects that otherwise would be likely to be ignored.

Planning for the council has been strongly influenced by a year-long study for the Ford Foundation headed by Washington attorneys Patricia M. Wald and Peter Barton Hutt. The report on the study will be published in March by Praeger under the title *Dealing With Drug Abuse.*

A salient finding of the study is that on the drug scene there are "few areas in which there is not widespread disagreement." Disputes over theories and practices in drug treatment and rehabilitation programs have if anything grown more widespread and acrimonious as the number of programs and vested interests have increased.

In a statement accompanying the announcement of its formation, Webster said the council would "seek to bring a calm voice to the confused national discussion on behalf of a frightened and baffled public."

The council has apparently concluded that it can be most effective if it preserves a reputation as a neutral and, obviously, a good deal of care has been taken to recruit board members who are knowledgeable but not closely identified with particular biases on drug abuse questions. When the council does get into the useful business of evaluating programs or of taking positions on controversial policy issues, however, it is difficult to see how it can keep out of the crossfire.—J.W.

get a single lot to pass the mouse potency test in his laboratory. On the other hand, his superiors, Murray and control officer John C. Wagner, told him that the White House and the Department of Defense kept phoning to know why the vaccine wasn't being released.

Tauraso's solution, adopted by Murray, was to suspend the potency test throughout 1967 and release the vaccines on the basis of the manufacturers' tests alone. "Since the public had been getting watered vaccines for a number of years . . . we would have expected that the quality and potency would have been about the same as it was in previous years," Tauraso told the committee.

During 1967 Tauraso was "still extremely upset at having to pass vaccines on manufacturers' protocols. We needed some type of test because the manufacturers would sell water if they were allowed to. That is my opinion. They would sell water if they could get away with it. . . . But I couldn't get a feeling of what people wanted or how one could move the higher echelon."

From tests in his own laboratory Tauraso decided the mouse potency test was hopelessly erratic and that the CCA test should be required as a basis for certifying vaccines. The DBS leadership was reluctant to accept this suggestion until Tauraso played what he called a "Jesuitical trick" on the manufacturers who were preparing vaccines for the 1968 Hong Kong flu epidemic.

The vaccines were supposed to contain 400 CCA units per dose, but the samples submitted by three manufacturers proved to contain only 40 units. Tauraso invited the manufacturers to send representatives to his laboratory, bringing their own machines and reagents, so that they and the DBS could resolve their differences on how the CCA test should be performed.

What Tauraso devised, he told the grievance committee, was a stratagem whereby the manufacturers would test their own vaccine samples twice under identical conditions, except that in one instance they would know it was their own vaccine, in the second they wouldn't. Sure enough, the manufacturers got 400 CCA units in the former instance, and about 20 CCA's in the latter.

TAURASO: From that point on the manufacturer has been putting out vaccines that have been consistently potent with respect to the reference vaccine.

EDDY: If it was very evident they . . . were misrepresenting their results, wouldn't that be a reason to take their license away from them?

TAURASO: That is not my decision . . . I felt like telling them, "You're fudging your results," but I couldn't.

EDDY: It seems to me they are dishonest and something ought to be taken up.

TAURASO: It's not that easy to revoke a manufacturer's license. One only has to look at the problems of the FDA when they are trying to remove a product and have themselves overruled. You have to in an extremely strong position here.

CHAIRMAN LEGATOR: This is falsification of data of the worst order.

The final part of Tauraso's testimony concerned the response of the DBS to his 8 May memo. Asked what comments Murray had made on the memo, Tauraso said: "They were essentially whether I was aware of the fact that the [charge of Morris's dishonesty] may open up Pandora's box. . . . Dr. Murray wanted me to revise the charge . . . I told him I would consider it. . . . On about the 9th of October Dr. Murray asked me if I had made a final decision about changing the first charge, and I told him I had indeed made a final decision and the first charge would remain as it was. . . . I felt it was not right to have the memo rewritten in order to make it acceptable to him."

### Act Five: Pandora's Box Opened

Tauraso had displayed zeal, even hubris, as a defender of the public weal against unscrupulous manufacturers. But his unfamiliarity of the DBS system had blinded him to a striking irony, foreshadowed in the following exchange:

TURNER (Morris's attorney): Do you have any knowledge as to whether Dr. Morris felt that there was a serious problem about passing vaccines that were not at the proper potency?

TAURASO: No.

TURNER: You have no idea about whether he made the argument that some things should [not] have been passed and was overruled?

TAURASO: No.

TURNER: If it were shown to you that he did make these arguments and was overruled, would that change your opinion as to what you in fact inherited? Would it be possible you inherited a situation which Dr. Morris also found untenable?

TAURASO: I can't answer that. Anything is possible, yes.

TURNER: . . . Is there anything that you know of that says to you that Dr. Morris reacted differently in this situation than you did?

TAURASO: You want cold facts? No.

Morris was recalled to the witness stand and related how when he had first taken over the duties of influenza control in 1960 he had frequently opposed the release of subpotent vaccines but was overruled by his then supervisor, LVR chief Smadel. For a time Morris refused to sign the protocols of the bad vaccines, and Smadel signed them instead. Then, in a memorandum dated 18 September 1962, Smadel ordered Morris to pass vaccines on the basis of the manufacturers' tests alone: "The manufacturer will provide full data on the potency assay of his lots which are submitted for release. Furthermore, release by the DBS will be on the basis of data submitted by the manufacturer and not on the basis of results obtained in this institution." Three days later Smadel wrote to Morris concerning specific vaccine lots: "In view of the fact that these lots are to be released, there is no purpose testing these two in the LVR. Therefore, discard your mice which were vaccinated with lots X and Y." Morris was obliged to destroy all his animals, about 2000 mice.

Over the years Morris had continued to protest with DBS leadership the release of subpotent vaccines. But, as Murray himself testified, the operating instructions laid down in Smadel's 18 September memo were continued in force after Smadel's death in 1963.

Under the terms of Smadel's directive, but unknown to Shelekov and Tauraso, Morris's job as influenza control officer was simply to check that the vaccine lots were potent according to test results provided by the manufacturers. All vaccine testing subsequently carried out by Morris was done for the purposes of his own experiments. This included the eight vaccine lots described in Morris's laboratory notebooks and believed by Tauraso to have failed the mouse potency test. Some of these lots had indeed failed, but had been released by the

DBS in the usual way on the basis of the manufacturers' tests. Other lots had in fact passed. (Tauraso in recalculating Morris's sums had neglected a certain correction factor.)

TAURASO: I must admit I could not conceive of Dr. Morris rejecting a lot on his tests and having this overruled by somebody above him.

TURNER: Did you know that Dr. Morris had been running a continuous fight with the hierarchy of the DBS on that very point?

TAURASO: I was not aware of this.

TURNER: Did you think before making a charge of this magnitude that it might be wise to check all of the facts on your charge before . . .

TAURASO: I think it would have been wise, yes.

TURNER: Why didn't you do it?

TAURASO: I didn't have the wisdom I have now.

It remained for the three members of the grievance committee to present their verdict. The committee found unanimously that Morris had, as he charged, been harassed by his superiors over an extended period of time from 1963 to the present. The accusations leveled against Morris in the 8 May memorandum were false, but "his reputation as a scientist would probably not suffer by these internal allegations." One committee member, Mider, added an addendum to the effect that in his belief the committee's report, with which he agreed generally, should "recognize the contributions of the grievant to the prolonged controversy."

The committee's recommendations were that Morris, as a "highly productive, imaginative scientist, highly regarded by his peers," should be allotted the facilities, staff, and supplies necessary to so function. In addition, the committee recommended thus:

"The entire management of DBS should be censured for allowing the harrassment of Dr. Morris by Dr. Shelekov and Dr. Tauraso to proceed for an extended period of time without taking remedial action."

—NICHOLAS WADE

# Defense Research: The Names Are Changed to Protect the Innocent

"The influence of the military has skewed the direction of research at Stanford and it is the faculty's responsibility to restore the integrity of the process of discovering truth." So concludes a study by Stanford students of the role of the Department of Defense (DOD) in the university.

Prepared under the auspices of the Stanford Workshop on Political and Social Issues (SWOPSI), the report stirred up some predictable storms when it was released last December.* Although no official action has been taken, the report has provoked a hail of memos among faculty, SWOPSI policy-makers, and the student researchers.

What the SWOPSI students had uncovered was a Janus-faced stratagem devised by DOD to protect its university research program. DOD-sponsored research has been a target of criticism at Stanford and other well-known schools for the last several years. But since the 1969 congressional attempt to reduce the dependence of university scientists on DOD, known as the Mansfield amendment, critics have assumed that the issue was dead. SWOPSI, however, found it quite alive.

Under the present system, DOD continues to fund a great deal of basic research, even projects for which military applications are at best remote; DOD can also justify all contracts through an elaborate system of accounting, which ties even the most fundamental work to a specific, military objective; and, finally DOD, as a matter of policy, discourages scientists from stating military uses for their research.

The SWOPSI report listed the 100-odd DOD research contracts at Stanford, which, it said, stood at $14 million in February 1971, or 25 percent of all contracts and grants. The students listed the scientific descriptions of the work, names of the investigators, and the financial histories for almost all the contracts. But most important, they gained access to the statements of military relevance, which DOD draws up in-house, for each research contract at Stanford. These are about a paragraph long, are stored in the Defense Documentation Center (DDC), and are rarely seen even by the scientists whose work is described. Keyed to a series of coded numbers, the statements link the research to specific technical and strategic military needs. The SWOPSI team showed the DDC statements to the Stanford principal investigators, invited their comments, and printed the whole package.

The result is interesting reading. The DDC statements justify the research in one way, and the principal investigators often tell a totally different tale. The military departments stake out whole fields of scientific endeavor as necessary to avert war or minimize its consequences. On the other hand, the professors point out to the SWOPSI students that their work will control pollution, improve traffic on local freeways, and increase love for others. Other frequent justifications are the intellectual challenge of the work and the training of graduate students. One professor even says, "I do not flatter myself that any of my work has ever specifically been applied to anything. . . ."

A contract with R. Pantell in electrical engineering with Office of Naval Research "High-power broadly tunable laser action in the ultraviolet spectrum." (The DDC title is different: "Weaponry—lasers for increased damage effectiveness.") It is described in the DDC statement thus:

> Damage mechanisms allowed by laser weapons is under intense investigation. However, it is known that within a range of frequencies the amount of damage for a given power increases with frequency. The highest frequency, shortest wavelength, is thus desirable. . . .

However, Pantell stated that the ultraviolet lasers are

> sorely needed in the areas of medicine, long distance communication, and high energy physics research. . . . Ultraviolet

* The report is titled "DOD Sponsored Research at Stanford" and comes in two volumes. Available from SWOPSI, Room 590A, Old Union, Stanford, Calif. 94305 ($8). SWOPSI is an umbrella program which permits students to study a wide variety of topics.