

GENERAL SCIENCE

# Security System Harmful

Dr. Vannevar Bush reveals he believes there are two "serious weaknesses" impeding research and development in the defense program of the United States.

*Following are excerpts from testimony by Dr. Vannevar Bush, president of the Carnegie Institution of Washington, to a subcommittee of the House Committee on Government Operations. Although the hearings were held in June, they were made public only last month.*

► "LET ME say first of all that the development of weapons is very closely interlinked with their use; and it is impossible to separate the discussion of their development completely from the way in which they are used in practice.

"I think there are two serious weaknesses today that impede our program of research and development.

"First, the security clearance system as now practiced is, in my opinion, doing great damage to the relations between science and Government, and particularly to the relations between scientists and weapons development.

"Second, it seems to me that we have lost our effectiveness in getting new weapons tested, tried out, produced on an experimental basis, and finally introduced in use. . . ."

Dr. Bush then explained his reasons for believing that there was room for much improvement in the use of the latest scientific advances by the Joint Chiefs of Staff in their planning operations.

## Security System Doing Harm

"Now, let me turn to the other weakness for a moment, and that is the security system.

"I don't need to bore you, certainly, with a detailed recital. I feel that the way in which our security system is working at the present time is driving a wedge between the military and the scientific people of the country, and is doing great harm.

"During the war there was developed a partnership between military men and scientific men. It was not brought about automatically; it is not a thing that occurs readily.

"These men come from different backgrounds, and it is hard for each group to understand the other; but nevertheless, by the end of the war an excellent situation had developed in which there was mutual respect between the two groups and they operated together well.

"It must be remembered that one cannot plan modern war merely from the military standpoint or merely from the scientific standpoint. It takes both types of thinking to produce success.

"That partnership, which was a healthy one at the end of the war, is, in my opinion, now almost destroyed, and one of the primary reasons is the security system.

"Now, I will not go into the Oppenheimer affair. I have written on that subject, and I think I should avoid entirely any question of the operations of the central committee.

"And I will not go into the Monmouth matter. But let me bring to your attention just 1 or 2 small incidents that will show the type of thing that is occurring all about us and that is so trying. . . .

"Now, these instances seem trivial, but they are not. The scientists, generally, that served well, loyally, and vigorously now find that they are being queried, and people are going about asking questions about them.

## Air of Suspicion

"The whole air of suspicion is just not such as to produce good collaboration, the kind of really wholehearted collaboration between military men and the scientific community that we very much need to have for the problems that are ahead of us.

"For we are not at the end of the possible development of weapons. Not all the problems have, by any means, been solved. We hear a great deal about A-bombs and H-bombs; we do not hear as much about biological warfare, but I can assure you gentlemen that I am as deeply concerned about that as a possibility as I am about fission bombs and fusion bombs.

"I can also say to you that the morale of the scientists today as I meet them is low, so low that while they will not refuse to serve, they will serve without enthusiasm and without fruitful inspiration. . . .

". . . We also need to clear up the security matter and get back on firm ground. It is merely a question of how well the scientist group will work.

"There will be no refusal on the part of scientific men to respond when called on. You won't find any strikes, or any such thing. But scientists today are discouraged and downhearted and feel that they are being pushed out, and they are. . . .

"The morale is very low indeed, and it is quite natural that it should be. Let me give you an example. I could give you dozens of examples.

"I met a week ago a man who was a member of the scientific committee that is advisory to the Security Council, and he said to me, 'Well, we have practically

"That's No Eagle"



—Herblock in *The Washington Post and Times Herald*

stopped working. It is quite impossible to accomplish anything in this atmosphere.'

"Now, that is the sort of reaction I would get out of 3 out of 4 scientists today. They go on working, but they feel that they are not welcome, that they are regarded with suspicion, that some of the men who led them during the war are now being questioned and their security and loyalty are in doubt.

"They are like an army without trust in their top leadership or in the political leadership of the country.

"They feel they are part of a group that at the present time is not considered necessary, that they are looked on askance by their neighbors, and they have no enthusiasm, they have no heart for their work.

"I think the basic problem is far deeper than any one move, but I feel that the President's Executive order and the way it has been implemented have been very unfortunate and have increased the seriousness of the situation.

"The basic fact is that this country has been going through a wave of hysteria. When people are afraid they do strange things. One of their immediate responses is a tendency to abandon their liberties, they tend to ride roughshod over some of their own fundamental rights.

"We are afraid in this country, and quite rightly so; we should be afraid in the proper sense in a day of H-bombs; we should be afraid, also, of a situation in which we know that Communists have penetrated our defenses. We have traitors in our midst, and there is reason for being afraid of them. But our fear in this country has taken the form of a hysteria in which

we have gone to extremes, and we have disregarded rights.

"We have put all our emphasis on preventing some of our secrets from leaking and no emphasis to speak of upon getting some secrets that might be worth leaking and into this situation came the Executive order, and I think it was poorly drawn, has been poorly interpreted, and has made the situation much worse than it was before."

Science News Letter, November 6, 1954

PUBLIC HEALTH

# Pinpoint Smog Sources

► WITHOUT SHUTTING down oil refineries, other industries and without reducing auto use, high-speed computing machines can pinpoint the sources of smog, research at the National Bureau of Standards has shown.

Dr. Francois N. Frenkiel, a physicist at Johns Hopkins University's Applied Physics Laboratory, Silver Spring, Md., has reported that Standards' electronic computer, SEAC, had been put to work on the Los Angeles smog problem. (See SNL, Oct. 30, p. 279.)

Using actual wind velocity measurements, the machine traced the movement of smoke puffed into the air. Mrs. Luis Marden, a Standards mathematician, supervised the pilot study of the smog problem on the machine.

Although the machine's calculations were made for a past situation, an electronic "brain" could also be used to figure conditions or to predict smog prevalence a few hours in the future.

Shutting down only a few sources for a short time might be sufficient to alleviate the smog hazard.

Refineries, Dr. Frenkiel pointed out, contribute to the smog in a "non-negligible proportion," but so also do cars, filling stations and incinerators. Removing one or more of these sources would "clean the air," Dr. Frenkiel said, but wrong conclusions as to their responsibility in causing the smog might then be reached.

Although the October Los Angeles smog did not threaten to become as dangerous as the London smog of December, 1952, nevertheless it was an unknown health hazard.

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INVENTION

## Color TV Tube Given Patent

► DR. ERNEST O. Lawrence, University of California Nobel Prize physicist, has received patent No. 2,692,532 for his color TV tube, which is being shown in an exhibit dramatizing the growth of electronics.

Science News Letter, November 6, 1954

Present regulations for dealing with the smog situation may no longer be "appropriate," Dr. Frenkiel said.

Although he recommended long-range basic research on the problem, he urged that present knowledge be put to use right away.

"Los Angeles county, which largely owes its livelihood and its high living standards to the existence of many sources of pollution, can find how to live with the sources which are necessary to its comfort without letting them become a health hazard," Dr. Frenkiel predicted.

Science News Letter, November 6, 1954

SURGERY

## Post-Cancer "Milk-Arm" Relieved by Operation

► OPERATIONS WHICH relieve the pain and swelling of "milk-arm" and "milk-leg" were announced by Drs. Lyndon A. Peer, Manouchehr Shahgholi, John C. Walker Jr. and Alvin Mancusi-Ungaro, all of St. Barnabas Hospital, Newark, N. J., at the meeting of the American Society of Plastic and Reconstructive Surgery in Hollywood, Fla.

"Milk-arm" is a swelling of the arm which affects a small percentage of women who have undergone a radical breast operation for cancer. In this radical breast operation, removal of lymph glands of the armpits sometimes blocks drainage of the lymphatics of the arm and forearm. This results in the severe and progressive swelling known medically as lymphedema.

In the operation reported at this meeting, the thickened fibrous tissue surrounding the muscles is removed to allow blocked lymph glands to drain into the body circulation.

Improvement in five cases of "milk-arm" and two cases of "milk-leg" were reported by the Newark group.

"Milk-leg" is a swollen, painful condition of the leg due to the same lymph blockage that produces "milk-arm," although "milk-leg" develops when there has been no cancer operation. "Milk-leg" often starts during a young girl's adolescence.

One of the patients with "milk-leg" who got an "excellent" result from the operation is a 15-year-old girl. The other is an older patient who had the condition in both legs for 15 years.

Science News Letter, November 6, 1954

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