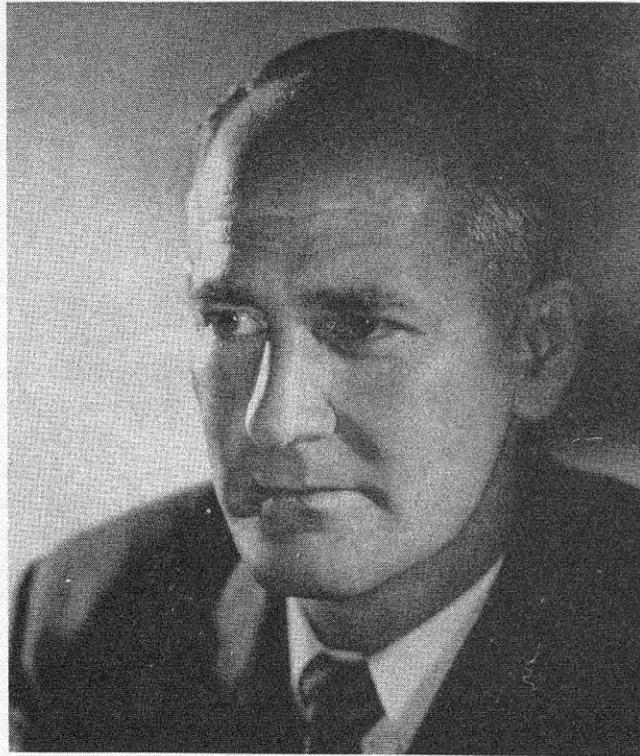


George W. Beadle, Professor of Biology, Chairman of Caltech's Division of Biology and president-elect of the American Association for the Advancement of Science.



SECURITY AND SCIENCE

What's wrong with our present security system—and what can we do about it?

by **GEORGE W. BEADLE**

SECURITY IN THE BROADEST sense, of course, has many meanings—military security of a nation, financial security of the individual, and even evolutionary security of a species. Science is closely related to all of them. But I would like to talk about a very special kind of security; namely, the system that has been devised to prevent scientific and other information of military value from falling into the hands of a potential enemy.

Such a system requires that individuals be assigned varying degrees of security clearance, depending on the value of the information at their disposal. Thus we have clearance for top secret information, clearance for secret, Q clearance, etc. It is this system that I propose to dis-

cuss in terms of a few of the special problems it poses for science and scientists.

My knowledge of security in this sense is limited and I certainly do not claim to be an authority on it. I have been cleared, I have been a witness in an appeal from denial of clearance, and I suppose I've done an average amount of thinking and reading about the subject.

Like many others, I see in our present security system a machine so complex in its operation that, once having been set in motion, it is something almost impossible either to control or stop. And I sense a real danger that it may destroy our way of life if we do not find a means of controlling it.

The Oppenheimer case has brought into the open many of the difficult problems of security clearance. I shall not attempt to review the case here. This has already been done many times by persons much better qualified to do so than I. Some of you have read the transcript of the Atomic Energy Commission (and some say this transcript is itself a significant breach of security). An analysis of the case from a legal standpoint has been made by Professor Harry Kalven of the University of Chicago Law School in the September issue of the *Bulletin of the Atomic Scientists*. Arthur M. Schlesinger of Harvard discusses it in the October *Atlantic*. And many of you have read the account of it by the Alsops in the October *Harpers*. The case is included in Theodore White's article, "U. S. Science: The Troubled Quest," that appeared in the September 16 and 23 numbers of *The Reporter*. The September 25 issue of the British magazine *Nature* carries a long editorial attempting to explain the Oppenheimer case to its readers.

Some glaring inconsistencies

As these accounts point out, there are glaring inconsistencies in the AEC's position. On the one hand the Gray Board found Oppenheimer to have amply proved his loyalty, good judgment, and discretion in his twelve years of atomic energy work. In recommending denial of clearance it emphasized lack of enthusiasm for the H-bomb program. The Commission switched back to associations and behavior, of which it had full knowledge for many years, and charged grave defects in character. As you know, there were vigorous dissenting opinions by Evans of the Gray Board and by Smythe of the Commission—the only two scientists involved.

Aside from the question of great personal injustice to an outstanding physicist who has devoted twelve long years to government work, the Oppenheimer case has had many unpleasant repercussions.

It has split physicists and others into opposed camps and has consumed an incredible amount of time and effort on the part of able persons who might otherwise have used that effort in more constructive ways. The *Nature* editorial points out that only a nation as wealthy in talent as the United States could tolerate such conspicuous and extravagant diversion of its manpower resources.

Effect on government laboratories

The harm that has been done to government laboratories of science will probably never be fully known. How many scientists who might otherwise have joined the staffs of such laboratories will now choose some alternative?

To an outsider it would seem that the simple and direct solution would have been for AEC to allow Oppenheimer's appointment as consultant to expire, as I believe it would have done in a short time. I can see no reason why a government agency should seek or take

the advice of an individual whose advice it doesn't want. It is a widely held belief that the alternative course was chosen in order to discredit Oppenheimer and strip him of influence in national and international policy matters. This is surely the result, for, as *Nature* points out, it would now be most embarrassing for Britain to even so much as seek his advice. If it is true that this was the primary motive, the case is a flagrant and inexcusable misuse of a security system that is designed to protect military secrets, not to discredit individuals.

The only good I can see that can possibly come of the Oppenheimer case is that it may lead to much needed revisions of the entire security system.

A negative system

The present system is largely a negative one. It says: In case of doubt, classify. In case of doubt, deny clearance. On first thought—and this, I'm afraid, is as far as many laymen go—it makes sense to classify everything and to clear only those about whom there is no derogatory information.

On further thought it becomes obvious that such a system has many serious disadvantages.

An airtight security system may slow down communications among scientists, between scientists and engineers, and between both groups and the military to such an extent that complete stagnation results. This is a serious problem. Allowing reasonable freedom of communication involves a risk of leaks and this risk must be balanced against the gain from more freedom. Many persons who have had experience with the present security system believe we have gone much too far in the negative direction.

Guilt by association

Too tight a security system may lead to too much dependence on that system—a false sense of security. Most of us felt pretty confident that the A-bomb secrets were effectively kept, but we learned to our dismay that this confidence was not justified. A tighter system might have prevented the leaks—one can never be sure of that. The price of a tighter system in reduced progress would have been a very high one.

Too tight a system reduces the number of competent scientists who can be used in classified work. Most laymen do not appreciate how large a factor this can be. Once the principle of guilt by association is admitted, we are all vulnerable. Those who defend Oppenheimer are potential security risks under an extreme system. Once the principle of lack of enthusiasm or faulty judgment is admitted as a basis of denial of clearance—and this the Gray Board did admit—the going gets even rougher. You and I disagree violently in our judgment as to the military value of a scientific development or a policy. I testify that your judgment is bad. You are equally certain that mine is no good. The result can easily be no clearance for either of us.

A basic difficulty with security clearance as now practiced is that it violates the basic principles of justice in a free society. It assumes that one is a poor security risk until every shred of doubt is removed—and there is usually no adequate opportunity to remove that doubt.

Such a system should be tolerated only in connection with military devices, policies, and plans of the most critical kind.

How can the system be improved?

There should be much more careful consideration of the question as to what kinds of information should be classified. The areas in which classification is practiced should be reduced to the barest minimum, particularly in times of peace. For example, AEC employs many biologists in its laboratories. Most of them do work that could perfectly well be unclassified. Yet, these laboratories in many cases are located "behind the fence"—in classified areas.

There is no doubt but that some very able scientists have refused to advise AEC, not because they believe they could not pass security clearance, but because they feel that the whole procedure is so unnecessary in the area in which their advice is sought. The system is so rigid that AEC cannot employ a scientist as a consultant without the full clearance process, even in areas like general genetics, where there is no need whatever for clearance. In many respects this is as unreasonable as requiring full security clearance for a man who digs a post hole for the AEC security fence. It is obvious that reduction in the amount of classified material to a level consistent with genuine military security would go a long way toward solving problems of this kind and would greatly reduce the number of persons requiring clearance.

Derogatory information

The clearance procedure for individuals should be modified drastically. The criteria by which information is evaluated should be clarified. As an example, I know of instances of denial of clearance where the following kinds of information were regarded as significantly derogatory:

1. Past membership in the AAAS. (The American Association for the Advancement of Science has 40,000 scientist members.)

2. The fact that a man's brother learned Russian 10 years earlier. (Most universities teach Russian to large numbers of individuals.)

3. Receipt of an information bulletin from the Soviet Embassy that was sent unsolicited to large numbers of persons—a publication much like the one our government now circulates in Russia, or did until recently.

No one with intellectual curiosity can be a good security risk under such a system carried to its limit.

Or let me cite another example of evidence taken in a hearing which I attended as a witness. I was asked, "Do you believe A (an associate and friend of long standing) is a Communist?"

My answer was, "No."

Evidence

—and Conclusion

"Do you believe your friend A is a Communist?"

"No."

"Did you know B?"

"Yes."

"Did you know he was a Communist?"

"No."

"Then how do you know A is not?"

Conclusion: A is not a good security risk.

"Did you know B?"

"Yes."

"Did you know he was a Communist?"

"No."

"Then how do you know A is not?"

Of course I couldn't *know* with certainty.

Conclusion: A is not a good security risk.

I'm glad to say that after two years and the expenditure of much time and money on the part of A and his friends, he was cleared. But by that time he didn't want the job for which clearance was requested.

More emphasis needs to be given to positive evidence. In judging the Oppenheimer case many of us would have given more weight than did AEC to 12 years of faithful, loyal, and effective service to the nation—12 years with no slightest evidence of a disloyal act or of even a misplaced classified document.

There is another trend involving security clearance that in some respects gives even more cause for concern than those I've mentioned. This is the extension of security clearance to unclassified areas. Although it is a matter of public record that this has now been done by some government agencies, relatively little publicity has been given to the practice.

The facts are these. The U. S. Public Health Service now checks FBI files for derogatory information about

principal investigators who will direct unclassified research under USPHS grants to universities.

There is no disclosure of the details of the procedure. No open statement of criteria by which derogatory information is evaluated has been made, and there is no opportunity on the part of the individual to explain the circumstances or answer the charges. To indicate the absurd kinds of situations such a practice can lead to, I can cite the case of a well-known scientist who, while holding security clearance for secret information with one agency, had an unclassified USPHS grant withdrawn because of derogatory information that was holding up a security clearance for top secret work with a third government agency.

A harmless policy?

If one does not think carefully about the implications of such a policy, it may seem harmless enough.

Those responsible for the expenditure of government funds should be persons of character, integrity, loyalty and discretion, shouldn't they?

Certainly. But is it necessary that a man be a good security risk in order to work on blood proteins, for example?

Let's say he has relatives behind the Iron Curtain. This fact might be a valid reason for denial of security clearance, but it is not a valid reason for denying him a grant to study blood proteins.

There are many valid grounds for denial of security clearance that transcend loyalty, good character, integrity, and discretion. Of course, the degree to which an individual has these qualities of character must be established. But is it a proper function of government to do this when classified work is not involved?

The institution and the individual

USPHS grants for work in colleges and universities are made to institutions, not to individual scientists. Therefore the responsibility for determining that the investigator is a person of good character should rest with the institution. The institution can do a better job of determining this fact than any government agency.

Unfortunately, persons outside the academic community do not know with what care the qualifications of prospective faculty members are examined. Characteristically, this procedure involves letters of recommendation from individuals in academic life who know the candidate personally and who are in turn known personally by those who evaluate the recommendations. Usually personal interviews are arranged. Unless the person being appointed is well established in his field and therefore well known professionally and personally, there is a trial appointment of one to five years during which a person is under close and careful scrutiny of his colleagues, not only in regard to professional competence, but also with respect to character, personality, decent behavior, and good judgment.

The danger of a mistake, of course, still exists but it is small. And if a mistake is made, the harm that can be done is usually not great. It is true, political views are not often directly investigated and conformity in opinion is not required. But this does not mean that disloyalty and subversion are tolerated or should be.

The universities' responsibility

Not only should universities be conscientious about determining the qualifications of staff members, but they should insist on assuming this responsibility in all areas of non-classified work.

The assumption of this task by government agencies is an invasion of the rights of university faculties, administrations, and boards of trustees. It should be resisted with vigor. Universities must insist that they can, and DO, do the job adequately.

Now that I have alleged that the entire security system needs overhauling—a need widely recognized among scientists in government laboratories as well as outside—what do we do about it? And what do we do about the problem created by the extension of security clearance techniques to unclassified work in universities?

On the latter point, there is almost unanimous agreement among scientists, including a high proportion of the professional and administrative staffs of USPHS itself.

Attempts have been and are being made to solve this problem quietly behind the scenes in Washington. The offending policy apparently comes directly from the Secretary of Health, Education, and Welfare, Oveta Culp Hobby—at least she has publicly acknowledged responsibility for it. But she seems resistant to all appeals to reason.

I hope Secretary Hobby will eventually undergo a change of heart. But even though this would solve the immediate USPHS problem, it would not be a final solution.

It's everybody's problem

I believe what is necessary for intelligent handling of all security problems of the kind I am talking about is clear thinking on the part of all parties concerned.

In the universities, this process should start with individuals. It is our responsibility as faculty members to understand the problem in all its implications. The same is true for administrators and trustees.

We must all realize that denying the existence of the problem or otherwise evading responsibility will not solve it—and might even delay its solution.

If, after study and reflection, we still believe that our present security system needs revision, our next logical step is to make the public and members of Congress understand the reasons for our opinion. In short, we must do everything possible—individually and collectively—to create wider areas of understanding on this fundamental problem.