Organizing Scientists To Meet a National Emergency

While we continue to strive for a world at peace, we shall have reason to protect ourselves against a sudden attack as long as the cold war continues. Most experts feel that a future war would be sudden and swift and that it would provide us with little time for preparation. How then can America meet such an emergency? It is clear that we must maintain our traditional "minute-man" philosophy and that each one must do his part to defend the nation. Each one of us must carry on his usual civilian functions, but at the same time he must be trained to take his part within a matter of hours in support of the national defense.

Because of the threat of hydrogen bombs, guided missiles, bacteriological warfare, and other highly technical super-weapons, the scientists must play a major role in any future war. They would be used in many capacities, for example (i) to guide the civil defense; (ii) to maintain industrial production (*1*); (iii) to assist the military in tactical operations; (iv) to serve as operational research observers; (v) to invent radically new types of weapons and improve older ones; and (vi) to perform scientific counterintelligence. Each scientist and technologist has a very specific area of proficiency that he has developed through years of specialized training. If scientists and technologists are to be used to the best possible advantage in national defense, each one must be assigned to a special emergency function, and steps must be taken to train him for the job that he would assume in time of danger. At the present time there is so much emphasis on military research that in time of emergency there would be little need to augment the existing number of scientists working on weapons.

However, the fact that a large number of scientists are now associated with military research and development programs does not mean that these scientists are ready to tackle emergency assignments. How many of these scientists would know, for example, what percentage of radioactive cobalt would make water unsafe for drinking? As a matter of fact, how many would be able to tell that the radioactivity of the water was caused by cobalt? How many of the men associated with our present civilian defense agencies could detect the presence of deadly plutonium deposits whose alpha particles do not affect a standard Geiger counter? How many of our civilian defense personnel could identify a virus, tell whether it is harmful to human beings, animals, or plants, and determine the proper countermeasures? Our state of utter unpreparedness makes me shudder. And when I am told by a high official of the Department of Defense that there is no need for further preparation, I feel called upon to present my point of view to the public (*2*).

As a possible mode of implementation, I suggest that a civilian-directed scientists corps be set up within the Department of Defense as soon as possible to organize the scientists of the country to prepare us for an emergency. By the term *scientist* I naturally mean to include all research engineers and technologists. The Secretary of Defense would determine by operational analysis studies how many scientists would be needed to perform each type of function. With the help of the National Academy of Sciences, echelons of personnel could be established so that each individual scientist would be assigned to a specific emergency job.

Once this assignment had been made and accepted on a voluntary basis, the problem of training and preparing the scientist to perform his emergency assignment would begin. Each individual might be expected to spend 1 or 2 weeks a year working full time with other members of his division; to take specialized training courses at the level of university graduate schools; and to participate whenever possible in monthly or bimonthly evening lectures on appropriate scientific military topics (*3*). The scientists corps would have no need for the stringent physical requirements of the armed services, for an older man or a man with physical defects might still function efficiently as a scientist. A few scientists might wish to make a career out of scientific corps work, and there would definitely be need for such men to comprise a permanent skeleton organization. In order to assist in this training program, there is need for (i) good textbooks (at an advanced level) on theory and practice in each of the areas of interest; (ii) graduate and correspondence courses having appropriate subject matter, and (iii) a postgraduate university of scientific technology.

It would be desirable from many standpoints for the scientists corps to be a branch of the Department of Defense but completely distinct from the Army, Navy, and Air Force. At the present time there are a number of such specialist corps within the military establishment: the Corps of Engineers, Signal Corps, Medical Corps, Dental Corps, Veterinary Corps, Chemical Corps, and so forth. However, it might be better for the scientists corps to have a setup more nearly like that of the Coast Guard, which is half-civilian in character. The Coast Guard is a branch of the Department of the Treasury; its employees have civil service ratings, but at the same time they are members of the Naval Reserve. Thus the Coast Guard can function in peacetime as a purely civilian organization, but in time of emergency it can become as military as the occasion demands. In any case, the scientists should be able to work without the constraints of a military organization, and yet they should be accorded the privileges and treatment of officers. Individuals within the scientists corps could be designated as scientist I, II, III, and so forth, to indicate their status and to serve as a guide to their equivalent military rank. During World War II, the OSRD was amazingly successful in organizing the scientists to assist in the national defense, and I hope that the scientists corps would have many of the characteristics of the OSRD. Members of the scientists corps could be assigned to work with military units, and the scientists corps would endeavor to help the Army, Navy, and Air Force (*4*).

Through the medium of the scientists corps, it

should be possible to develop a satisfactory solution for the obligations that young scientists, engineers, and technologists owe to the national defense and are now imposed upon them by the Selective Service System. Within the universities, I would hope that the R.O.T.C. would expand its excellent curriculum to include a branch designed to train young scientists, as scientists, in the sorts of military technology that they should know in order to be of service in time of emergency. If such scientist training courses cannot be set up within the framework of the R.O.T.C., then it would be desirable for the scientists corps to organize such a program parallel to the present R.O.T.C. program. On the basis of enrollment in such a program, the young scientist could ask his local draft board for temporary deferment. Furthermore, this specialized R.O.T.C. training would qualify the student on graduation for a commission as second lieutenant or ensign, and he would be assigned for a 2-year period to such duty as the scientists corps directs.

The scientists corps might assign him to a specialized training course in a university, leading toward an advanced degree, or it might assign him to duty in a military base, depending on whatever appears to be in the best interest of the country. In any case, the scientist would be assigned some specific emergency function, and he would be required to prepare himself accordingly.

Thus, instead of asking for draft deferment, exemption, and release from patriotic obligations for our scientists, we seek their better utilization. As a matter of fact, the scientists of the country have no argument at the present time with the Selective Service System, which has attempted to carry out the mandates of the people in a democratic fashion. Instead, the scientists are worried about the malassignments of many of the technically trained personnel after their induction (*5*). The principal difficulty that prevents the proper utilization of technically trained draftees is that most government laboratories, including those operated by the Army, Navy, and Air Force, are strictly civilian and have no provision for supervising, disciplining, and housing enlisted personnel.

For example, a scientist inductee cannot at the present time be sent to Los Alamos to work on atomic or hydrogen bombs. If, however, the Armed Forces could order some of its scientist inductees and reserve officers to work in a civilian capacity in government laboratories or to take courses of specialized training within our universities, these men would be able to strengthen the military potential far more than they could if they were assigned such jobs as driving dump trucks, standing guard duty, or doing "squads left." At the same time that the Army, Navy, and Air Force are hiring large numbers of civilian scientists to man their laboratories, they are wasting the scientific potentials of many of the men who come within their jurisdiction. We simply do not have the technically trained manpower to waste in this manner when we are trying to set up an adequate system of national defense.

President Eisenhower's plan that 100,000 specially qualified young men be inducted each year for 6 months of active training followed by 9 years of service in the reserves should fit in very well with my proposal. The scientists corps would serve as the reserve unit for these men. The Eisenhower plan would be even more ideal if it were possible to break up the 6-month period of active duty into two 3-month summer periods, in which case there would not be any interference with the young man's educational program.

I do not feel competent to discuss the organizational details of the scientists corps. A high-level joint civilian-military committee should be set up to determine such matters. A great many conflicting interests must be considered, and especially the overlapping of the scientists corps with existing agencies. However, if the serious need for the preparation of our scientific manpower to meet a national emergency is recognized, a high-level civilian-military committee can certainly discover the best ways and means for accomplishing this objective. Our national security depends upon its success.

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References and Notes

1. Since strategic bombing will play a major role in a future war, and since our country as well as the enemy's will be the victim of such attacks, the maintenance of industrial production may be the key to our survival. The improvising of processes when the usual materials are not available, and the rebuilding of industrial plants, would become extremely important in such a emergency.
2. This article is based on an address presented 10 Feb. 1955 at the Military-Industrial Conference of the Society of American Military Engineers, Chicago, Ill.
3. The present bimonthly meetings of the technical Reserve Officers units are of the right type. However, such meetings should be improved in character by providing funds for visiting speakers, by distributing motion pictures of new military scientific developments, and by making a real effort to establish interesting programs.
4. The problems of scientists working within a military organization are nicely summarized in the Riehlman Report of the Military Operations Subcommittee of the House Government Operations Committee and are very clearly stated by Lloyd V. Berkner in Appendix J of that report [House Rept. 2618 (4 Aug. 1954)].
5. The military services are making an effort to determine the specialized training of inductees and officers and give them a suitable assignment. However, the military organizations are so complicated that it is difficult to pass the information regarding a particular individual's qualifications to a particular military group that happens to need an individual with a specialized training. Maj. Gen. Leslie E. Simon, assistant chief of Army Ordnance, deserves a great deal of credit for making a serious effort to place technically qualified inductees in the proper positions in the laboratories and arsenals under his jurisdiction. Each month he prepares and distributes a mimeographed list of all of the technically trained inductees that he hears about. Groups having need for particular individuals make a check mark on this list and return it to Simon. He then makes a serious effort to have these persons transferred to the appropriate positions at the end of their basic training. However, Simon has difficulty in learning of the existence of these individuals. The Office of Naval Research is doing an excellent job placing technically trained reserve Naval officers in appropriate jobs. I also understand that Maj. Gen. William N. Creasey is doing a very good job in the placement of chemists and chemical engineers in the Chemical Corps. Individual efforts such as these should be encouraged.

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