

DEPARTMENT OF DEFENSE
APPROPRIATIONS FOR 1970

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

FIRST SESSION

SUBCOMMITTEE ON DEPARTMENT OF DEFENSE APPROPRIATIONS

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PART 6

Budget and Financial Management
Budget for Secretarial Activities
Chemical and Biological Warfare
Defense Installations and Procurement
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Safeguard Ballistic Missile Defense System
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MONDAY, JUNE 9, 1969

CHEMICAL AND BIOLOGICAL WARFARE

WITNESSES

DR. D. M. MACARTHUR, DEPUTY DIRECTOR (RESEARCH AND TECHNOLOGY), D.D.R. & E.
DR. B. HARRIS, DEPUTY ASSISTANT DIRECTOR (CHEMICAL TECHNOLOGY), D.D.R. & E.
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Mr. MAHON. We have before us this afternoon Dr. Donald M. MacArthur. Dr. MacArthur at this point we will place in the record your biographical sketch follows:)

Dr. Donald M. MacArthur was born in Detroit, Mich. in 1931. He received a B. Sc. (Honors) degree from St. Andrews University, Scotland, in 1954, and a Ph. D. in X-ray crystallography from Edinburgh University in 1957.

Afterward Dr. MacArthur taught for a year at the University of Connecticut. In 1958 he joined Meljart, a subsidiary of Westinghouse Air Brake. When he left he was manager of the Chemistry and Life Sciences Research Center. In this position he was responsible for the management and direction of a large number of defense and space programs representing a broad spectrum of disciplines from instrumentation engineering to biology. These programs represented applied research in the physical and life sciences, in addition to development programs in space instrumentation, life support equipment, chemical and biological detection and warning equipment, and the development of large-scale atmospheric diffusion experiments.

In July 1968 he was designated Deputy Director (Research and Technology). Defense Research and Engineering in the Office of the Secretary of Defense.

As Deputy Director (Research and Technology) he is responsible for management of the R&D overall research and technology programs. The programs which he directs cover such diverse fields as rocket and missile propulsion, materials technology, medical and life sciences, social and behavioral sciences, environmental sciences, and chemical technology. He also oversees the 70 R&D in-house laboratories for development of policies, and improved management systems to insure that they are organized most effectively to meet current and future military weapons needs.

INTRODUCTORY REMARKS

Mr. MAHON. I take note of the fact that prior to the beginning of the formal hearing we have had an informal discussion about some of the matters which are to be covered in your presentation.

We are very much interested in all aspects of our defense program. This subcommittee and the Congress has, over a period of years, supported the appropriation of funds for chemical and biological warfare. This has not been a program of great magnitude but it has been a program of considerable significance.

and we have experts who have gone there who are not members of the Department of Defense—and based on a study done for us by Midwest Research Institute of Kansas City where they reviewed 1,500 reports and interviewed 140 experts, they concluded that no starting adverse results were likely to occur.

In addition, recently the U.S. Embassy in Saigon jointly with MACY looked into this matter again with the aid of Dr. Fred Tschirley of the U.S. Department of Agriculture, and came to the same conclusion. However, he did recommend—Dr. Tschirley—that an in-depth study be done after cessation of hostilities to see if there was any long-term permanent effect that hadn't been shown up by all the previous studies.

Mr. Sikes. You can find out the same information by driving along any highway or right-of-way where defoliants are used by power line companies, by telephone companies, by others who want to prevent the growth of underbrush and they have to use it over again every year to keep the underbrush down.

Dr. FLEMING. The Department of Agriculture has plots in Beltsville that are over 10 years old that they have yearly reports on, with no permanent damage.

STOCKPILING

Mr. Sikes. Let's get into the field of stockpiling and then shipments. Tell us about stockpiling, first.

CHEMICAL AGENTS

Dr. MACARTHUR. First of all, taking the chemicals, our stockpile for chemicals is—approximately half mustard and half nerve agents. About one-quarter of this is in weapons—the rest is in bulk. The best intelligence estimates we have indicate the Russian stockpile is 7-10 times ours.

The Chinese stockpile could be as high as—. We don't have any other firm information on stockpiles of any other countries but there have been news accounts that the Egyptians recently did use lethal chemical agents in Yemen.

I just want to emphasize that at the present time we are not producing any chemical agents for stockpiling. Our three plants that had been used in the past are now in a standby status.

We are not producing any biological agents at the present time.

BIOLOGICAL AGENTS

Mr. Sikes. What do you know about the comparative stockpile of Russian biological agents?

Dr. MACARTHUR.

Mr. Sikes. What about incapacitants? Did you include those in your prior figures?

Dr. MACARTHUR. Yes. In fact, the materials I referred to are incapacitants.

As far as the Russians' biological warfare R. & D. is concerned, we don't know too much about that, but we know from the scientific literature that the Russians have published openly on most of the biological

agents that we have ever considered. So, we have to believe they are probably working in the same areas.

SYNTHETIC BIOLOGICAL AGENTS

There are two things about the biological agent field I would like to mention. One is the possibility of technological surprise. Molecular biology is a field that is advancing very rapidly, and eminent biologists believe that within a period of 5 to 10 years it would be possible to produce a synthetic biological agent, an agent that does not naturally exist and for which no natural immunity could have been acquired.

Mr. Sikes. Are you doing any work in that field?

Dr. MACARTHUR. We are not.

Mr. Sikes. Why not? Lack of money or lack of interest?

Dr. MACARTHUR. Certainly not lack of interest. Mr. Sikes. Would you provide for our records information on what would be required, what the advantages of such a program would be, the time and the cost involved?

Dr. MACARTHUR. We will be very happy to.
(The information follows:)

The dramatic progress being made in the field of molecular biology led us to investigate the relevance of this field of science to biological warfare. A small group of experts considered this matter and provided the following observations:

1. All biological agents up to the present time are representatives of naturally occurring disease, and are thus known by scientists throughout the world. They are easily available to qualified scientists for research, either for offensive or defensive purposes.

2. While the next 5 to 10 years, it would probably be possible to make a new live-attenuated microorganism which could differ in certain important respects from any known disease-causing organism. Most important of these is that it might be refractory to the immunological and therapeutic processes upon which we depend to maintain our relative freedom from infectious disease.

3. A research program to explore the feasibility of this could be completed in approximately 5 years at a total cost of \$10 million.

4. It would be very difficult to establish such a program. Molecular biology is a relatively new science. There are not many highly competent scientists in the field, almost all are in university laboratories, and they are generally inadequately supported from sources other than DOD. However, it was considered possible to initiate an advance program through the National Academy of Sciences-National Research Council (NAS-NRC).

The matter was discussed with the NAS-NRC, and tentative plans were made to initiate the program. However, decreasing funds in CIA, growing criticism of the CIA program, and our reluctance to involve the NAS-NRC in such a controversial endeavor have led us to postpone it for the past 2 years.

It is a highly controversial issue, and there are many who believe such research should not be undertaken lest it lead to yet another method of massive killing of large populations. On the other hand, without the sure scientific knowledge that such a weapon is possible, and an understanding of the ways it could be done, there is little that can be done to develop defensive measures. Should an enemy develop it there is little doubt that this is an important area of potential military technological inferiority in which there is no adequate research program.

CROSS-COUNTRY SHIPMENT OF LETHAL AGENTS

Mr. Sikes. Now, let's talk about shipments. There has been a great deal of discussion—most of it hostile—about the proposal to ship certain stocks of nerve gas across country for transporting to a deep