News of Science

Hard Look at Missile Programs

The current inquiry of the Senate Preparedness Investigating Subcommittee is showing how difficulties arise in our missile programs because the new developments in science and weaponry do not fit readily into the present land-sea-air division of the armed services. The difficulties that are resulting from a separate Army, Navy, and Air Force include interservice rivalry, overlapping programs, and an involved superstructure of command. The subcommittee recessed on 17 December 1957, but on 6 January 1958 it will continue its efforts to find out what is wrong in the Department of Defense and what can be done about it.

So far testimony before the subcommittee, as well as the suggestions received from approximately 100 experts interviewed by the subcommittee's staff, shows that money alone is not the answer to the Soviet challenge. Something in the way of a new organizational set-up is also needed. Under the present system, the missile programs are spread among the three military services, with loose supervision by the Department of Defense. Although the power of William H. Holaday, director of guided missiles, was recently increased, it appears from the testimony that he does not exert fundamental control over the programs in the individual services.

Sentiment in favor of installing a missile chief who in fact does have full control seems to be growing in Congress. Senator Lyndon Johnson, Democrat of Texas and chairman of the subcommittee, said that the chief fault in the missile programs was the failure in the Pentagon to make "hard, firm decisions at high levels." He added that Neil H. McElroy, Secretary of Defense, should find an authoritative man for the job.

Testimony before the subcommittee also touched on the problems of outer space. Werner von Braun, civilian chief of the Army's ballistic missile program, urged the creation of a national space agency with an annual budget of about $1.5 billion. The new agency, Von Braun said, could undertake a 5-year program "to have a man orbiting the earth on a returnable basis" and a 10-year program for a manned space station. Both Von Braun and his military commander, Major General John S. Medaris, testified that their work on the 200-mile Redstone missile and the 1500-mile Jupiter was hampered by insufficient funds and by lack of a central missile authority.

AAAS-Anne Frankel Rosenthal Award

Roy Hertz, chief of the endocrinology branch, National Cancer Institute, has received the 1957 AAAS-Anne Frankel Rosenthal Memorial Award for Cancer Research, which consists of $1000 that is provided by the Richard and Hinda Rosenthal Foundation. The award was presented during the recent meeting of the AAAS in Indianapolis, Ind.

For the past decade Hertz and his colleagues have been concerned with the endocrine factors involved in normal and cancerous growth. Their studies have been directed at both a basic and applied clinical level. In 1947 Hertz showed that hormone-dependent organs such as the breast and uterus require for their growth specific dietary factors such as folic acid. He further demonstrated the complete inhibition of such hormone-induced growth by administering folic acid or purine antagonists. These antagonists are so similar in chemical composition to corresponding dietary or metabolic factors that they prevent the normal growth function of these essential substances.

More recently, in collaboration with M. C. Li and D. M. Bergenstal, this knowledge of interference with abnormal tissue growth has been effectively applied in the treatment of a rare but highly malignant tumor of the uterus, namely choriocarcinoma. This tumor arises during or after pregnancy from the organ which would normally develop into the placenta. In women with choriocarcinoma this organ has turned into a malignant tumor which grows rapidly through the uterus and then spreads to the lungs and brain. It usually kills the patient in less than a year.

In 15 women afflicted with this rare condition, the application of an especially devised intensive regimen of treatment with a folic acid antagonist, methotrexate, has led to apparently complete suppression of the disease in five patients and almost complete suppression in five others. These ten women are now restored to normal living and have been entirely free of symptoms for periods ranging from 3 months to 2 years. Three of the group of 15 are still under treatment and two died during early phases of attempted treatment of their far-advanced disease. The full value of this treatment remains to be determined, but it is already entirely clear that patients with this type of malignancy can be markedly improved with the folic antagonists.

Hertz, in collaboration with William W. Tullner, has also developed the first nonhormonal drug capable of suppressing the output of cortisone and related hormones by the adrenal gland and by tumors arising in this vital organ. This inhibitory substance is called Amphenone. Amphenone is now used in patients suffering either from adrenal enlargement or from adrenal cancer in order to suppress the disorders produced by excessive adrenal hormones. These disorders, which are similar to those resulting from excessive cortisone administration, include diabetes, high blood pressure, acne, and mental abnormalities. However, this hormonal suppression is not accompanied by any restraining effect on the adrenal cancer. Moreover, the toxic side effects of Amphenone are such as to limit its practical usefulness to highly selected cases.

Pay Up for Some Government Scientists

On 10 December the U.S. Government's Civil Service Commission announced pay increases for some 48,000 Government physical scientists and engineers. The increases, which will be made before the end of December, were necessitated, according to the commission, because "of evidence that the Government is unable to obtain critically needed scientists and engineers in sufficient supply at present rates."

The increases will not be across the board, but will be achieved by bringing all scientists in each grade to the top salary for that grade; those already receiving the top salary will get no increase. For those whose pay will rise, the increase will range from $135 to $1080 a year. Employees in grades from GS 9 to 17 will be paid the maximum salaries for their grades, as follows: 9, $6250; 10, $6725; 11, $7465; 12, $8645; 13, $10,065; 14, $11,395; 15, $12,690; 16, $13,760; 17, $14,835. The highest grade, GS 18, remains at $16,000, the top salary for a classified employee.

The raises apply to physical scientists —physicists, chemists, geophysicists, and so on—and to biochemists, but not to