

Question No. 15. What other work is NASA's Office of Technology Utilization funding which is related to national problems such as crime?

a. How does NASA assure that it is not duplicating work sponsored by the Department of Justice or a similar agency?

b. What is the rationale behind such grants or contracts—what does NASA expect to achieve?

c. Do you believe that NASA could make such grants or contracts if it were not specifically authorized through its technology utilization program to accelerate the spin-off of the space program?

Response. Section 102 (c) (4) of the Space Act directs that NASA "shall conduct long range studies of the potential benefits to be gained from, the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes." We are anxious to increase and extend efforts to transfer, where applicable, space developed technology to the solution of social problems, but only working with or through other agencies. For example, arrangements have been made for the Midwest Research Institute, one of the NASA-sponsored regional dissemination centers, to provide data to the Office of Atmospheric Water Resources of the Bureau of Reclamation which might assist in the solution of problems in the area of weather modification. We are also cooperating in various ways with, among others, the Atomic Energy Commission, the Department of Defense, the Department of Health, Education, and Welfare, and the Department of Agriculture. Working in this manner, there should be no duplication with other agencies.

There are no NASA grants or contracts which relate specifically to crime as such. The work done for IACP was done under existing contracts designed to bring about broad dissemination of new technology. NASA also supported a grant to the American Association for the Advancement of Science for studies on how a large program like the space program affects the economy. One of the published works resulting from this grant was a book called "Social Indicators" which did contain a discussion of the Uniform Crime Reports compiled by the FBI, citing them as an example of the need for improved and comprehensive information reporting systems.

NASA recognizes that useful products of research and technology historically have gained application outside of the place of origin. This would be expected to happen in time even if NASA had no technology utilization program. We feel that this process should be aided and expedited, and that aerospace technology can be brought to bear on many pressing social problems, for the benefit of all mankind. We believe that this historical tendency for specific inventions and developments to adapt themselves to society's needs has been recognized at several points in the Space Act as well as in annual Authorization Acts. Specific authorization for technology utilization does make possible grants or contracts designed to broaden and accelerate the dissemination of our technology.

Mr. DADDARIO. We will now hear from Dr. Pickering and get the point of view of a laboratory director.

Dr. Pickering.

Dr. PICKERING. Mr. Chairman, I should like to read to you a statement.

(Dr. Pickering's biography follows:)

DR. WILLIAM H. PICKERING

William H. Pickering has been director of the Jet Propulsion Laboratory of the California Institute of Technology since 1954. As such, he has been responsible for the programs which resulted in Explorer I, the first U.S. artificial satellite, Pioneer IV, the first successful U.S. cislunar space probe, the Mariner flights to Venus in 1962 and 1967 and to Mars in 1964-65, the Ranger lunar photographic missions in 1964-65 and the Surveyor lunar landings of 1966-67.

Dr. Pickering was born in Wellington, New Zealand, but immigrated to California as a young man to attend the California Institute of Technology. There he obtained both bachelors and masters degrees in electrical engineering and a Ph. D. in physics, became a member of the faculty, and worked under Nobel Laureate Robert A. Millikan in a world-wide program of high-altitude cosmic-ray research. During World War II, he conducted applied research in electronics at Cal Tech, MIT, and other laboratories. In July 1944, he organized the electronics effort at JPL to support guided-missile research and development. He