Edited Extract from: *Department of Defense Annual Report for Fiscal Year 1961*, (Washington, D.C.: USGPO, 1962)

Annual Report of the Secretary of Defense, Operational Forces, pp. 12-13:

Defense Against Ballistic Missile Attack

Many scientific and technological problems remain to be solved in order to achieve adequate warning and active defense systems against ballistic missile attack.

Construction on the three sites for the Ballistic Missile Early Warning System (BMEWS) proceeded as fast as practicable. The first two stations, in Greenland and Alaska, started to operate during the fiscal year, while the third one, in England, will complete the radar net at a later date. Under development is a satellite-borne warning system, the Missile Defense Alarm System (MIDAS), which may increase the warning time provided by BMEWS as well as the reliability of the information received.

Work on the active defense against ballistic missiles is centered on the Army's NIKE-ZEUS program and the DEFENDER project directed by the Advanced Research Projects Agency (ARPA).

The development of NIKE-ZEUS--a solid-fueled missile guided by four radars for search, discrimination, target tracking, and missile tracking-continued under the highest national priority. The major problem confronting the Department remained the question of whether or not to move long lead time items of the NIKE-ZEUS system into the production phase before completion of the development, test, and evaluation phase. The 1961 review concluded that development should continue as fast as possible, but that the decision on production should await further information on the technical feasibility and the over-all effectiveness of this antimissile missile concept.

The DEFENDER project is a series of research studies designed to discover new means for destroying enemy missiles--if possible, long before they approach their target. In view of the importance of this effort, the substantial funds already requested in the fiscal year 1962 budget were further increased as the result of the 1961 review.

Annual Report of the Secretary of the Army, Operations and Training, pp. 70-71:

Development of the NIKE-ZEUS

The NIKE-ZEUS anti-ballistic missile (ABM) system will provide an active means of protecting the population and other national resources of the United States from attack by ballistic missiles. The system is an extension and outgrowth of the present Army surface-to-air missiles and is designed to fulfill the vital national military requirement of providing a ballistic missile defense system to contribute to the overall deterrent posture.

The inter-continental ballistic missile (ICBM) and the submarine-launched ballistic missile (SLBM) remain among the greatest threats to the Nation. The NIKE-

ZEUS is the only anti-ballistic missile (ABM) system under development in the free world at this time. When successfully developed, it will provide, first, an additional capability to deter the threat of a major war; and, secondly, a means of obtaining military and psychological advantages which will accrue to the nation obtaining the first operational anti-ballistic missile (ABM) system.

CINCNORAD (Commander-in-Chief, North American Air Defense Command) has recommended general areas in which NIKE-ZEUS might be deployed. Such deployment awaits the approval of NIKE-ZEUS as an operational weapon system. The research, development; and testing of NIKE-ZEUS are discussed in the Research and Development section of this report.

Annual Report of the Secretary of the Army, Research & Development, pp. 153-155:

Air Defense Systems

NIKE-ZEUS is being developed to provide an effective defense of the continental United States against ballistic missiles. It is the only U.S. weapon under development specifically designed to meet this threat. During the past year a firing test program of the advanced design missile was carried on at the White Sands Missile Range, New Mexico. These tests have provided data to evaluate the launch, propulsion, aerodynamic, and guidance characteristics of the missile and of the associated ground-based control equipment.

Development continued on the high-power radars in the system which will provide the necessary information on incoming small ballistic missiles to permit their intercept by ZEUS missiles. Substantial progress was made in the installation of ZEUS prototype battery equipment at Kwajalein Atoll for system demonstration. Significant advances were made in the techniques which will be employed to discriminate between true enemy missile nose cones and the decoys that might accompany them. A number of these radars with associated computing equipment were installed and tested at several ZEUS test sites. For example, the target tracking radar at Ascension Island tracked, on several occasions, U.S. Air Force inter-continental ballistic missiles (ICBMs) fired from Cape Canaveral on the Atlantic Missile Range.

In the past four years the Department of Defense has allocated about $766 million in Research and Development funds for the development of ZEUS. Included in this total is $22 million which was used to speed development of automatic processes for production of new types of electronic transistors, resistors, and other ZEUS components.

ZEUS progress achieved to date supports the Army's continued confidence in the soundness and ultimate success of the NIKE-ZEUS development program.

Several missiles of advanced design were fired successfully. ZEUS acquisition radar was installed and is under test at White Sands Missile Range, and installation of ZEUS prototype battery equipment for system demonstration was continued at Kwajalein.

Development of the MAULER system continued. MAULER is a completely self-contained, self-propelled air defense guided missile system. All firing elements are contained in a demountable weapon pod which is transported on a tracked chassis of a standard design. MAULER will be able to move with armor and infantry elements of the field Army to provide protection against short-range ballistic missiles as well as low-flying high-performance tactical aircraft. During the year the MAULER transport vehicle was delivered and evaluated, and the first missiles were fired to test the launcher concept and design.

HAWK (Homing-All-the-Way-Killer) is one of the Army's newest air defense missiles to become operational. Its design provides optimum capability against medium and low-flying supersonic aircraft and cruise-type missiles. Developmental work continued to improve HAWK reliability and effectiveness against smaller and higher speed targets. HAWK has demonstrated a technical capability to engage short-range ballistic missiles by destroying HONEST JOHN and LITTLE JOHN tactical field artillery rockets.

Six studies under contracts with industry were begun in the area of Field Army Ballistic Missile Defense System (FABMDS) to determine the feasibility of providing an effective defense of the field army against enemy ballistic missiles and to develop system concepts. These studies were near completion. Initiation of FABMDS development is contingent upon favorable feasibility studies.