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Memorandum
L-45

Page 1 of 2

Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

CLASSIFIED BY:	
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Date:	3-15-60

SUBJECT: CONDENSED SUMMARY OF FY54

Reference: L-33 FY54 Budget for Proposal for Division VI

To: M. M. Hubbard

From: J. W. Forrester and R. R. Everett

Date: June 10, 1952

There are two principal objectives of Division 6 of Project Lincoln. The first, known as the Cape Cod System, is a joint effort of Division 6 and Division 2. The Cape Cod System will be built, operated, and evaluated as a model of a complete air defense system. The system is based on the use of a large number of small radar sets with a high-speed digital computer (whirlwind I of the Digital Computer Laboratory) to process the radar data and control interceptors. The second objective of Division 6 is to design and build a high-speed digital computer (whirlwind II) which will have the characteristics desired for a future operational air defense system.

The work which we hope to accomplish in these two fields between July 1953 and June 1954 is outlined briefly in the following paragraphs.

In the Cape Cod System, the Division 6 responsibility is for the air defense center planning, automatic information processing (including data screening and automatic tracking), the computation of control orders for weapons, and the provision of the digital equipment necessary in the air defense center. This necessarily includes study and analysis of the behavior and objectives of an air defense system.

Three groups in Division 6 are working on the Cape Cod System. Group 61 is in charge of systems planning and field experiments. The analysis sections that have been planning, and operating the system during FY53 will continue in FY54 to perform actual operation and

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~~CONFIDENTIAL~~Memorandum
L-45

Page Two

flight tests with the Cape Cod installation. The Cape Cod System will be a proving ground for the study of digital control in air defense. FY54 will be the year in which the use of Cape Cod as a whole will be started and the year in which the Cape Cod System should make its greatest contribution in supplying information and guidance for the design and operation of the first military digital air defense system. Although multiple radar inputs to Whirlwind I should be installed by the Spring of 1953, very substantial additions in the form of special terminal equipment for displaying Ground Observer Corps data, flight plan data and so forth will still be needed and will involve large amounts of engineering and construction during FY54. This addition of equipment and the operation and maintenance of the Whirlwind I computer are the responsibility of Groups 64 and 65.

The second principal responsibility of Division 6, which is carried on by Groups 62 and 63, is the development of a digital computer and associated terminal equipment, having the characteristics required for an operational air defense system. Existing digital computers are suitable for studying the digital control of air defense but do not have the characteristics required for a military installation. By the end of FY53, the general nature and basic components for an air defense computer should have been selected. Actual design of the machine, production of drawings and the building of most parts is expected to take place in FY54. Also during FY54, the Laboratory should work closely with a manufacturer for the training of his personnel and for making preparations to place the air defense computer in production as soon as the model has been proven. Since the new machine is expected to depend on a new type of magnetic storage system, a substantial fraction of the work on this new machine will be devoted to developing suitable magnetic materials having the required performance.

Signed: 
J. W. ForresterSigned: 
R. R. Everett

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