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Memorandum 6L-170

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Division 6 - Lincoln Laboratory  
Massachusetts Institute of Technology  
Lexington 73, Massachusetts

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Auth: <u>DDJ</u>
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Date: <u>3-15-60</u>

SUBJECT: GROUP LEADERS' MEETING, OCTOBER 25, 1954

To: Group Leaders

From: David R. Brown

Date: October 26, 1954

Present: J. W. Forrester, D. R. Brown, S. H. Dodd, R. R. Everett,  
A. P. Kromer, J. C. Proctor, N. H. Taylor, and C. R. Wieser

1. Future Meetings

J. W. Forrester plans to be in Colorado Springs during the week of October 25.

On the morning of October 26 representatives of the Air Force, including ADC, RADC, CRC, JPO, and ADES will meet to prepare an equipment list for the direction center, exclusive of electronics. ADC is to purchase these items with fiscal 1956 funds.

Also on October 26 M. M. Astrahan plans to visit J. V. Harrington at the Lincoln Laboratory to discuss IBM's relationship with Division 2. N. H. Taylor will call J. M. Coombs to see if this meeting can be cancelled.

A meeting in Poughkeepsie is to be held on October 27 to discuss the 8 month installation period. The Air Force, ADES, IBM, and MIT will be represented at the meeting. The meeting should result in an active program to do the necessary planning for smooth installation of production FSQ-7's. XD-1 installation and operation will be an important consideration in this planning.

Also on October 27 a group of 15 Lincoln Laboratory staff members are to visit IBM Research Laboratories in Poughkeepsie to become acquainted with IBM's commercial advanced development work. This will include such things as the transistorized 60h. A tour is planned for the morning to be followed by informal discussions during the afternoon.

C. F. McElwain and G. A. Cullen are scheduled to visit Lincoln Laboratory on October 28.

2. Layout of Production Direction Centers

The revised plans for production direction centers have been reviewed with Air Installations and ADES representatives. ADC is the next organization to review these plans. ADC's comments on the plans will be reviewed at a meeting to be held on October 29 at the Joint Project Office.

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3. Delivery and Engineering Scheduled at IBM

In discussing the change to fine-grain data in the production FSQ-7 system, N. H. Taylor learned from J. M. Coombs and R. Crago that High Street feels that this change will necessitate an appreciable delay in the production time schedule.

The introduction of necessary design changes should not change the production time schedule. Changes similar to the introduction of fine-grain data have been expected as a part of the job to be done. No delay in the production time schedule can be accepted. N. H. Taylor will discuss this problem with C. F. McElwain. If necessary the problem will be brought to the attention of the IBM management in New York.

The FSQ-7 display job has been transferred from Endicott back to Poughkeepsie.

High Street is planning on subcontracting a portion of the AN/FSQ-7 engineering. The firms being considered include Philco, RCA, Westinghouse, and Melpar. The possibility of Western Electric doing some FSQ-7 engineering on the ADES contract was suggested.

4. Division 6 Advanced Development

An advanced development program is planned to design a system to do the same type of job as that done by AN/FSQ-7. The system must be more reliable and more easily maintained. It must also be more easily transported and set up. The capability of being transported from place to place in a truck or operating on an aircraft carrier are desirable but not necessary advantages. The system capabilities, number of inputs, etc., can be somewhat less than those of FSQ-7, but the same types and the same proportions of types might be assumed. The development program will plan the design and the construction of an experimental model of the system. This system will include most, if not all, of the central computer but not all of the radar, displays, etc., which would be a part of the final system. An attempt will be made to improve the system in two ways. First, an improvement in the overall system design will be attempted by taking a fresh approach to the problem. Second, new and improved components and techniques will be attempted. The first step in the development of the new components and techniques will be the construction of an experimental system like the old five-digit multiplier, using the most promising components and techniques available at the present time.

A magnetic-core memory is assumed. The admissibility of the tubes now required to drive the memory is a point requiring study. The advantages to be gained by the large-scale use of transistors and/or cores in the rest of the system are so tremendous that their use should be planned even though a reduction in the capability of the first experimental system would result. The extent to which tubes, transistors, or cores will be used cannot be forecast. However, the number of tubes in the final system must be relatively small. For some time parallel development of transistor and magnetic-core techniques should be pursued.

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This is visualized as a two-to-four year program. The specifications for the system and a more detailed time schedule have been planned for January 1, 1955. Some postponement of this date may be necessary, possibly until April 1, 1955.

The advanced development program will be carried out in Group 63, under the guidance of a Steering Committee composed of J. W. Forrester, R. R. Everett, D. R. Brown, S. H. Dodd, W. K. Linvill, and N. H. Taylor. The advanced development program will initially have four sections: a System Design Section under N. L. Daggett, a New Components and Circuits Section under T. H. Meisling, a Memory Section under W. N. Papien, and a Systems Planning Section under K. H. Olsen. A Display Section may be added at a later date. The New Components and Circuits Section under T. H. Meisling will be split into two subsections, one on transistor circuits under D. J. Eckl and another on magnetic-core circuits under E. U. Cohler. Liaison must be maintained with the IBM advanced development effort and other Lincoln Laboratory groups such as Groups 24 and 35. Support from outside organizations such as Magnetics, Inc. and Texas Instruments will also be available.

The Memory Section in Group 62 and Logical Design Section in Group 64 will transfer to Group 63.

#### 5. Division 6 Space

A plan for the rearrangement of offices in Groups 62 and 64 has been accomplished to bring about a more efficient and equitable distribution of space. The plan calls for centralized Group 62 and Group 64 offices on the second floor of Building B, next to the cross-building corridor.

Signed

*David R. Brown*  
 David R. Brown  
 Secretary

DFB/jg

cc: A. P. Kromer  
 W. K. Linvill

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