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Memorandum 6L-171

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Massachusetts Institute of Technology
Lexington 73, Massachusetts

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SUBJECT: GROUP LEADERS' MEETING, NOVEMBER 8, 1954

To: Group Leaders

From: David R. Brown

Date: November 10, 1954

Present: J. W. Forrester, D. R. Brown, S. H. Dodd, R. R. Everett,
J. F. Jacobs (for Item 2), A. P. Kromer, B. E. Morriss (for
Item 2), W. Ogden (for Item 10), J. C. Proctor, N. B. Taylor,
H. Wainwright (for Item 9), C. R. Wieser, and P. Youtz

- Agenda:
1. Proposed Weekly SAGE System Bulletin
 2. Installation and Test of Production AN/FSQ-7's
 3. Development Engineering Program Proposed by IBM
 4. AT&T Proposal for DDT and DDR
 5. Committee on Communication
 6. Subcontractor for AN/FSQ-7 Engineering
 7. Philco Transistor Development
 8. Delivery Date for AN/FSQ-7(XD-1)
 9. Building F
 10. Status of MTC
 11. Visitor Sign-In Procedure
 12. Division 6 Mechanical Engineering Service
 13. Division 6 Space

1. Proposed Weekly SAGE System Bulletin

In Colorado Springs during the week of October 25, J. W. Forrester became aware of the need for a weekly Lincoln Laboratory bulletin on the SAGE system to be written for the benefit of ADC, but primarily for groups other than Colonel O. T. Halley's. The bulletin would also be sent to AMC, the Pentagon, and IBM management. It would be written for those just outside the present flow of information.

S. D. Hibbard will be responsible for the first issues. He will collect contributions from various Lincoln Laboratory staff members. A. P. Kromer will discuss the bulletin with ADES and the JPO.

2. Installation and Test of Production AN/FSQ-7's

A meeting is to be held on November 8 in New York to discuss the 8-month installation and test program. Lincoln Laboratory will be represented by A. P. Kromer, J. A. Arnow, P. Brager, K. E. McVicar, B. E. Morriss, and C. R. Whelan. The chairman of the committee to plan the installation and test program should be an ADES representative. Strong ADES participation in this program will be of considerable assistance in the future. J. W. Forrester

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considered. IBM expects to have the subcontract signed by January 1, 1955.

MIT believes that a subcontract of the type proposed by IBM will require considerable additional liaison and will be of doubtful value to the FSQ-7 program. The possibility of additional manpower being put on the job by IBM should be seriously considered.

The FSQ-7 prototype power supplies were designed and constructed by General Electric. Since that time IBM has changed the specifications and asked for bids from four companies, including General Electric and Westinghouse. There is some possibility that the Westinghouse bid will be less than the GE bid. MIT will recommend that production power supplies be made by the same company which made the power supplies for the prototype.

Apparently no production for the AN/FSQ-7 display is being planned.

7. Philco Transistor Development

A group from the Lincoln Laboratory visited Philco on October 28 and 29. Three aspects of Philco's work were discussed: semiconductor physics, the manufacture of surface barrier transistors, and the application of surface barrier transistors to digital computer circuits.

Surface barrier transistors are now produced in a semiautomatic pilot production plant at the rate of approximately 100 transistors per day. These transistors have a cutoff frequencies of greater than 25 megacycles and a maximum collector voltage rating of -4.5 volts. Philco has discovered that the characteristics of these transistors are such that when operated grounded emitter, the output of one stage (the collector) can be connected directly to the input of another stage (the base). This permits the design of very simple computer circuits. A high speed flip-flop has only four components--two transistors and two resistors. Philco engineers are designing a 20-bit IAS type machine which will have in its arithmetic and control elements 3,000 transistors, 1,000 resistors, and 100 condensers. Addition time is expected to be two to three microseconds and multiplication time 40 microseconds.

These techniques appear to be very promising. Fifty surface barrier transistors have been received here and some of Philco's circuits have been successfully duplicated. Close cooperation with Philco will be maintained. Some Lincoln Laboratory support for Philco's work in this area may be desirable.

8. Delivery Date for AN/FSQ-7(XD-1)

Shipment of the central part of XD-1 by January 1 appears possible. Six weeks are available to tie the various parts together, test the system, and ship. If the system is to be tested with the drums in Foughkeepsie, the shipping date would have to be delayed to March 1. IBM has several

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proposals for correcting the cabling difficulty. These proposals include the use of a new set of plug-in units, the use of cable decoupling, or various combinations of these measures.

9. Building F

Unofficial estimates indicate that Building F will be tight on November 18. The first area to be completed is the west side of the first floor. The following is the schedule for the completion for various aspects of the job in that area: sheet rock, November 26; expanded metal, December 15; heating, December 15; painting, January 15; linoleum, January 20; air conditioning will be installed in February. If this schedule is maintained, the first equipment could be installed in February. Power supplies, however, could be put in as soon as the building is tight. This schedule will be discussed with the building contractor on November 9.

10. Status of MTC

MTC has been operating on two shifts for the past two weeks, devoting most of its time to engineering tests of equipment. Some time has been scheduled for use by Group 61 for simulation studies. More application time will be available on MTC and every effort will be made to make sure that the computer will function.

11. Visitors Sign-In Procedure

The absence of an explicit and detailed statement of the Lincoln Laboratory visitor sign-in procedure has led to some awkward situations. J. W. Forrester will ask at the Steering Committee if the employees handbook, including such things as the visitors sign-in procedure, can be brought up to date and reissued.

12. Division 6 Mechanical Engineering Service

Loren Prentice will be added to the Group 60 mechanical engineering section as an engineering aid. Ralph Witthus will be made foreman of the Division 6 Model Shop.

13. Division 6 Space

A re-arrangement of offices in Groups 62 and 64 is now taking place to bring together staff members who must work together. This re-arrangement necessitates double moves for some personnel.

Signed

*David R. Brown*David R. Brown
Secretary

DRB/jg

cc: A. P. Kromen
W. K. Linville~~CONFIDENTIAL~~

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