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Memorandum 6L-179

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

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SUBJECT: GROUP LEADERS' MEETING, January 3, 1955

To: Group Leaders

From: David R. Brown

Date: January 4, 1955

Present: J. W. Forrester, D. R. Brown, S. H. Dodd, A. P. Kromer,
J. C. Proctor, N. H. Taylor, C. R. Wieser, P. Youtz,
and for Items 9 through 19, J. A. Arnow, P. Brager, S. B. Hibbard,
J. F. Jacobs, H. J. Kirshner, B. E. Morriss, and R. L. Walquist

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Date: 3-15-66	

- Agenda:
1. Philco Negotiations
 2. DDL Staff and Research Assistants
 3. Solid-State Program
 4. General S. R. Mickelsen's Visit
 5. SAGE System and Air Traffic Control
 6. Use of XD-1 for Training
 7. 1954 Cape Cod Demonstrations
 8. Promotions
 9. Telephone and Teletype
 10. Input-Output Equipment for Production FSQ-7's
 11. Justification of Sole Source of Tubes
 12. Increased Memory Capacity for XD-1
 13. Installation and Test Period
 14. Report on XD-1 Tests
 15. Large-Board Display
 16. Fine-Grain Data from South Truro
 17. IBM's Attitude Toward Schedules
 18. Items for Coordination Committee Meeting on January 5
 19. Schedule for Training with XD-1

1. Philco Negotiations

On December 22, 1954, representatives of Groups 14, 24, and 63 discussed the proposed subcontract with Philco in Philadelphia. Philco will submit a proposal for a six-month, phase 1, study contract aimed at improving the surface-barrier transistor for use in digital-computer circuits. The contract will support work in the Research Department and circuit work in the Government and Industrial Division. The six-month contract is expected to cost approximately \$50,000 and be dated January 15, 1955.

2. DDL Staff and Research Assistants

J. W. Forrester has been appointed Lincoln Laboratory coordinator of research assistants in Lexington. An effort will be made to use research assistants more effectively here. J. C. Proctor will discuss the problem with Professor K. L. Wildes and report to J. W. Forrester before January 6, 1955.

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~~CONFIDENTIAL~~3. Solid-State Program

The Lincoln Laboratory Steering Committee will discuss solid-state research at its January 10 meeting. Representatives of Groups 25, 35, 37, and 63 will be present. D. R. Brown will be prepared to speak for Group 63. His comments will emphasize the fact that all of the work in Group 63 has been on materials for high-speed computer memories.

4. General S. R. Mickelsen's Visit

General S. R. Mickelsen, during a visit to the Cape Cod System, discussed the relationship of anti-aircraft and the SAGE System. The Army is interested in having information, not orders, from the SAGE System. The Lincoln Laboratory is preparing written recommendations which call for closer integration of anti-aircraft direction in the SAGE System.

5. SAGE System and Air Traffic Control

A. P. Kromer has received a memorandum from AFCRC on the possible use of the SAGE System for civilian air traffic control. This memorandum requires no action at the present time.

C. R. Wieser pointed out the necessity of correcting an implication in the preliminary draft of the operational plan of the SAGE System, that the SAGE System will be used for all phases of the return-to-base operation. The SAGE System will turn over the control of the aircraft to some other system.

6. Use of XD-1 for Training

The minutes of the Installation Phasing Committee, dated December 7, 1954, state that the final three months of the installation of XD-1 will be used to completely train personnel for the first few subsectors and to partially train crews for future subsectors.

J. W. Degan, Group 38, is also working on training plans using XD-1.

We should not become committed to completely train crews for the first subsectors. Any proposal should be reviewed with ADES.

7. 1954 Cape Cod Demonstrations

Cape Cod demonstrations have almost reached the rate of one per week.

8. Promotions

The following promotions to associate group leader are planned: E. S. Rich, J. A. O'Brien, and J. F. Jacobs.

9. Telephone and Teletype

ADES has agreed to supply any help required here for telephone and teletype problems. H. J. Kirshner should make use of this assistance. It

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is important that AT&T representatives work with XD-1 and carry this experience to subsequent installations.

10. Input-Output Equipment for Production FSQ-7's

In a letter from D. Ross to B. E. Morriss, dated December 15, 1954, IBM requests specific information on input-output equipment for the first two production FSQ-7's to be used as a basis for planning and cost estimates. Some questions, including the number of input lines, have not been resolved.

Although IBM has been informed through meetings and telephone calls of the status of their request for information, no written acknowledgment has been sent, even though the information was requested by December 31, 1954. Such a request should not go without acknowledgment. B. E. Morriss will prepare an acknowledgment on January 3 stating when we will have the answers to the different questions asked. A. P. Kromer will find out about the official status of any information which is transmitted to IBM, indicating what organizations have approved the information. In some cases it will be necessary for Lincoln Laboratory to estimate requirements or specifications in areas where it cannot have final authority. Information sent to IBM should be clear, positive, and definite. When information requires ADES or ADC approval, the status of that approval should be clearly indicated. In reply to IBM's request of December 15, the best available information will be forwarded to IBM by January 15, 1955.

11. Justification of Sole Source of Tubes

N. H. Taylor, at the request of the Air Force Procurement Officer, is preparing a justification for IBM's orders for tubes for FSQ-7. This justification includes the background, the necessity for the quantities being ordered, and the reasons for sole sources. A. P. Kromer will forward this letter to the Air Force, sending a copy to IBM.

12. Increased Memory Capacity for XD-1

Memorandum 6M-3248 by H. H. Seward states that at least 24,000 more storage registers are required for FSQ-7. Several solutions are possible. They include: (1) a 128 x 128 core memory, (2) a double-density drum, (3) a double-diameter drum, and (4) an additional, separate drum system. This additional storage capacity will be required for prototypes and production machines.

Representatives of Group 61 and the Systems Office will make a study of the situation, consolidating what information we now have. The problem will be stated at the January 5 meeting of the Joint MIT-IBM Coordination Committee.

13. Installation and Test Period

The main committee on FSQ-7 installation and test will meet on January 4 to hear subcommittee reports. The subcommittee reports will include manpower requests, time schedules, number of shifts, etc. Preliminary reports indicate that eight months are not adequate.

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A conclusion that more than eight months are required may not be acceptable. J. W. Forrester will hear a preliminary report from K. E. McVicar before he presents his report at the committee meeting.

14. Report on XD-1 Tests

The tests to determine the condition of XD-1 proposed at the Group Leaders' Meeting, December 27, were run in Poughkeepsie on December 28 and 29. Results of the test indicate that XD-1 is in satisfactory condition for shipment to Lexington. The results are probably better than had been expected. Margins are very good. The major trouble is due to poor solder connections in the base pins of a particular tube type. This will be remedied as soon as replacement tubes are available.

15. Large-Board Display

F. Rodgers is now responsible for the large-board display for the combat operation center. This will be a manual system using transparent Poloroid film. Poloroid's interest in supplying the film is crucial to the program.

16. Fine-Grain Data from South Truro

No new information is available on when fine-grain data will be available from South Truro.

17. IBM's Attitude Towards Schedules

Some reluctance has been noted on the part of IBM to discuss technical planning and time scheduling with MIT representatives. Three specific instances were noted. While IBM's attitude might be reasonable in one or two of these cases, the general attitude is sufficiently prevalent to warrant more investigation and discussion of the problem.

18. Items for Coordination Committee Meeting on January 5

The following items are suggested for consideration at the January 5 meeting of the Joint MIT-IBM Coordination Committee:

1. Building F responsibility
2. large-board display
3. subcontractor for FSQ-7 engineering
4. increased memory capacity

19. Schedule for Training with XD-1

S. B. Hibbard is preparing plans to train crews for SAGE System subsectors using XD-1. Two-hour training periods with XD-1 are recommended.

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A total of 63 periods extending over an 8-to-10 week interval will be required to train a complete complement for a subsector. Any one man will have 16 to 18 periods, including cross training. This training is scheduled for the end of 1956 and early 1957 and will be accompanied by classroom exercises. The crews for the first three or four subsectors would be trained with XD-1.

Rand Corporation training studies may be helpful. Their advice should be sought.

Signed David R. Brown
David R. Brown
Secretary

DRB/jg

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

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