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Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

CLASSIFICATION AND CONTROL:
Auth: <i>DD234</i>
By: <i>AK</i>
Date: <i>3-15-60</i>

SUBJECT: GROUP LEADERS' MEETING, November 2, 1953

To: Group Leaders

From: David R. Brown

Date: November 4, 1953

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

- Agenda:
1. Travel
 2. IBM Deferments
 3. Security
 4. Magnetic Memory in WWI
 5. IBM Time Schedules
 6. Receiving-Tube Program
 7. January Salary Increases
 8. October 29 Demonstration
 9. Steering Committee Visit to IBM
 10. Speed and Logical Organization of AN/FSQ-7
 11. Drum and Display System
 12. Colorado Springs Meeting During the Week of November 2
 13. Movie
 14. Core-Testing Program

1. Travel

Insurance arranged by MIT provides coverage for employees driving their own cars on laboratory business. If any case were to arise, we would have to prove that the driver was on Institute business. Our present travel authorization form should be modified to indicate: (1) date on which the applicant fills out the form, (2) the date of the Group Leader's approval, and (3) the mode of transportation. If a private automobile is to be used for the trip, this should be noted.

2. IBM Deferments

By appeal to the State Selective Service Appeal Board, IBM has obtained a deferment for L. Walters until March 1954. IBM's policy on deferment requests is similar to MIT's. All requests for deferment must be approved through the Director of Engineering in the New York Office.

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3. Security

Proctor's investigation of the system for keeping track of classified documents has discovered that responsibility in the Lincoln Laboratory has recently been transferred from the Director's Office to the Security Office. Details concerning the system used in the Lincoln Laboratory are expected soon.

4. Magnetic Memory In WWI

The magnetic-core memory in WWI has been moved to its permanent location. Critical timing, causing parity alarms due to minor voltage fluctuations, has been eliminated. A critical dependence of the output waveshape on supply voltage has been eliminated. Margins in bank A have been increased 30 percent, except for plane B-13. This plane appears to be inferior and will probably be replaced. Preliminary work on bank B has indicated that a number of planes there may require better cores. A replacement for bank B may be required.

Groups 62 and 63 should keep well informed on the magnetic memory in WWI. Work there has a direct bearing on the selection of cores for AN/FSQ-7 and on the memory circuit design. The cores in bank A are the same as those to be used in FSQ-7. The cores in bank B are obsolete. If more than a few cores in bank B require replacement, an entirely new bank will have to be constructed from FSQ-7 type cores.

Although bank A and FSQ-7 use the same type core, bank A is driven directly from vacuum-tube plates and FSQ-7 is to have a pulse transformer drive. Preliminary tests of the transformer drive have indicated that performance will be satisfactory. An improved transformer design is being manufactured by Sprague. Complete tests are expected to begin about December 1 on the MTC II memory.

5. IBM Time Schedules

Dodd discussed time schedules at High Street on October 28 and 29. The framework for the production schedules appears to be satisfactory, but insufficient detail is presented. The overall time schedules for the FSQ-7 program presented in E-562 need to be revised and reissued. These schedules will be reviewed on November 4 and 5 at High Street with R. Whitehorse, K. Olsen, and P. Gray.

The time schedules should show time for development of test equipment, preliminary mock-ups, etc. Several mock-ups of the control console and maintenance console will probably be required. The time schedules should also allow for comments by outside parties on different parts of the design.

Some delays can be accepted now to insure better design. However, we need more facts to know how much delay is being introduced.

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Correct information concerning technical decisions made at MIT should be placed in the hands of the senior engineers at High Street to prevent confusion and groundless rumors. A shortage of senior engineers at IBM prevents their participating in important discussions here. Unfortunately, the telephone connection to Poughkeepsie is not satisfactory. Proctor will see Professor Tucker to see if the situation can be improved. Conference phones with boosters should be provided.

6. Receiving-Tube Program

P. Ycutz, H. B. Frost, and R. Fallows are now working on the tube program. S. Twicken and a research assistant will assist them in setting up the specifications. J. Goetz' group at Plant 2 will be asked to carry out routine work.

RCA has indicated a desire to participate in the 5965 program. They would like \$25,000 to improve the 5965 and an order for 2,000 tubes at \$7.60 each. RCA would be asked to work on the 7AK7 also.

RCA has indicated a willingness to work on the Charactron. Convair does not appear to be interested in the Charactron as a tube development; but would prefer to concentrate on circuit and systems development.

7. January Salary Increases

Names of those who should receive special consideration for salary increases, together with a brief write-up of each case, should be submitted for internal use. This will be discussed at the Group Leaders' Meeting on November 16.

8. October 29 Demonstration

Comments on the October 29 demonstration of the Cape Cod system indicated that more discussion of the relationship of the Cape Cod system to the Transition System is desirable. More information should be presented on the charts, and additional photographs of the radars and similar equipment should be provided. A simulated interception ran smoothly until a breakdown occurred. This breakdown occurred because of some spurious signals introduced on the auxiliary drum during marginal checking. The marginal checking procedure for the drum is being revised so that this will not happen again. The next demonstration will take place November 5 and the following one on Friday, November 13.

A different system will be required for showing the Cape Cod system to Lincoln Laboratory personnel. Between 50 and 100 people might be present for a briefing on the system, with visits to the operations room arranged for small groups on an appointment basis. These small groups would have guides so that they would not interfere with regular operation.

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FSQ-7 design engineers working on parts of the system such as display should enlist as operators and spend some time working with the equipment in the Cape Cod system. They should become familiar with the present major problems. Close coordination should be maintained among C. Corderman, D. Israel, R. Mork, and R. vonBuelow.

9. Steering Committee Visit to IBM

The Steering Committee plans to visit Poughkeepsie on Friday, November 6. The morning will be spent at High Street where a brief summary of the work there will be presented. The afternoon will be spent viewing various activities in Poughkeepsie including the 701 production area, the 604 assembly line, semi-conductor work, customer engineering department, the tube laboratory, and others.

10. Speed and Logical Organization of AN/FSQ-7

Taylor pointed out that the assignment of instructions to one memory bank and numbers to the other would permit an overlap of memory accesses and a consequent reduction in the operation cycle time to 10 microseconds. This would cause a slight complication in the control. A 50-percent increase in speed might be obtained for an additional 100 tubes. This would be a flexible system so that the assignment of both instructions and numbers to the same memory bank would also be possible. Some programming of correlation will be undertaken to determine whether or not this overlap would be desirable.

11. Drum and Display System

Estimates of the storage capacity needed for the FSQ-7 range from 44,000 to 100,000 words. Better estimates are needed. The question will be discussed when Everett returns. In the meantime, Taylor will discuss the possibility of increased drum storage capacity with M. Astrahan and R. Crago.

12. Colorado Springs Meeting During the Week of November 2

Meetings at Colorado Springs during the week of November 2 are being held to lay down the test program for the Cape Cod system for the period up to 1957. Topics discussed in TM-20 and L-113 are being reviewed. J. Hanson will be present.

13. Movie

R. Nelson will maintain liaison with W. P. Vogel who is now making a movie of the transition system. He may want some shots of the IBM work at High Street. Taylor should see Nelson to advise him on this.

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14. Core-Testing Program

Brown visited Poughkeepsie on October 29 to discuss the core-testing program. Additional core-testing facilities are being set up at Plant 2. Sample testing and lot evaluation is to be done by J. Goetz' group with 100-percent testing to be done partly by production people in Plant 2 and partly at High Street. All the necessary equipment should be available by November 15, but additional time will be required to put the equipment into operation and train personnel.

Signed

David R. Brown

David R. Brown
Secretary

DRB/jk

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