

~~CONFIDENTIAL~~

UNCLASSIFIED 1

Memorandum L-35

Page 1 of 5

Digital Computer Laboratory
 Massachusetts Institute of Technology
 Cambridge, Massachusetts

CLASSIFICATION CHANGED TO:	
Auth:	DD854
By:	RLE
Date:	3-15-60

SUBJECT: GROUP LEADERS' MEETING, March 31, 1952

To: Group Leaders

From: David R. Brown

Date: April 2, 1952

Attending were: J. W. Forrester, C. W. Adams, D. R. Brown, S. H. Dodd,
 R. R. Everett, H. Fahnstock, N. H. Taylor, C. R. Wieser,
 P. Youtz

Norman Taylor called attention to an error in the minutes of the first meeting on Page 2 of Memorandum L-34. The third line of paragraph three should read ". . .by not using the Whirlwind I people this would be January 1, 1958."

The following agenda were suggested:

1. The third shift for Whirlwind I
2. Methods of speeding up the program other than adding men to the staff
3. Responsibilities in magnetic work
4. Indoctrination program

1. Third Shift

S. H. Dodd stated that since the third shift for Whirlwind I is just starting this week, it is too early to discuss any problems. It looks as though the third shift will be all right. At present, we have three men on the shift. Art Curtiss is in charge with Everett Emerson and a technician. Curtiss will leave after five weeks, leaving the two to carry on normal operations. The plan is to schedule four hours per day per shift for applications, the balance of the shift to be on E. S. Row. Transfer characteristics of the storage tubes will be taken. The third shift provides an opportunity to improve the operation of E. S. Row. Some routine work on margins is also planned. The third shift starts Tuesday morning and runs through Saturday morning, finishing at 7:30 or 8:00 Saturday morning. J. A. O'Brien will work Saturday. Saturday evening will be spent on power supply work. O'Brien will then have the computer on Sunday. No operation is planned for Sunday morning or night or Monday morning. Installation is now done on Tuesday morning. The reason for moving installation to Tuesday is that low margins are most often encountered when the computer is first turned on. This means that more trouble-shooting is done on Monday morning. Moving the installation day will avoid compounding the trouble. Henceforth, Tuesdays should be avoided for demonstrations and shows. Monday is also a poor day, particularly the morning.

CONFIDENTIAL INFORMATION

~~CONFIDENTIAL~~

UNCLASSIFIED

~~CONFIDENTIAL UNCLASSIFIED~~

Memorandum L-35

Page 2 of 5

Work for C. W. Adams' group has been scheduled for the third shift rather than work for C. R. Wieser's group. However, this schedule is not fixed.

Forrester remarked that Mr. B. W. Pollard of Ferranti, Ltd. says that no storage tubes have been replaced in the Ferranti computer since July and that only three adjustments have been made.

Dodd commented that E. S. Row is relatively new and troubles are still difficult to track down. Applications people don't know the machine well enough, and the systems engineers can't readily determine what trouble an applications man is having. The storage tubes seem to be program sensitive. They may work on a test program and not on an applications program and vice versa. The margins in E. S. Row drift.

2. Methods of Speeding Up the Program Other Than Adding Men to the Staff

Brown stated that our objective is to increase the productivity of the project and this can be done in other ways than adding new staff. It is certainly necessary in order to do the job in the time allowed to increase the staff. We have many jobs to do and we must do them in parallel if we are to do them in time. We must simultaneously work on magnetic-core memories, magnetic-core flip-flops, magnetic-core gates, carrier-operated magnetic cores, ferroelectric elements, etc. However, the expansion of the staff creates many problems and is likely to turn up bottlenecks in unexpected places; such as, an inadequate stockroom or insufficient secretarial help. Two specific examples that can be mentioned are: 1) a shop requisition was two days in going from the originator to the machine shop, 2) an urgently needed panel was held up for three days in the electronics shop because the wrong part had been sent from the stockroom. Now that we are doing new development work, there will be an increased need for breadboards and rush construction jobs. This is not the type of construction the electronics shop is now set up to do for Whirlwind I. This situation can be improved by having technicians assigned to and working directly with the engineers.

Fahnestock replied that machine shop requisitions can be by-passed for small jobs. The electronics shop is being speeded up, having a man assigned to see that correct items are sent from the stockroom. The direct assignment of technicians to engineers is urged.

Forrester remarked that the administrative part of the lab is set up to serve the engineers.

Dodd suggested that time schedules might be used to better correlate the work.

Fahnestock remarked that P. Youtz gets a great deal of assistance from his secretaries and that others might do something along this line.

Youtz replied that he had to train his secretaries, explaining to them the objectives and how we wish to operate. Considerable time must be

~~CONFIDENTIAL UNCLASSIFIED~~

~~CONFIDENTIAL~~ UNCLASSIFIED

Memorandum L-35

Page 3 of 5

spent in this training.

Forrester remarked that we have to have some sort of time schedule. We have prepared some time schedules showing the most significant dates but more detailed time schedules broken down into components are also useful.

Fahnestock suggested that we make a schedule of when we have to make decisions.

Taylor replied that many of our target dates are of a matter of opinion. It is too early and the staff too new to apply rigid time schedules.

Forrester suggested that Taylor prepare two time schedules:
1) Take December, 1954, as the final date and apportion the time in the best manner. It may turn out that this time schedule will specify the machine we can build. 2) Prepare a second time schedule allowing enough time for each phase of the development of an ideal machine. This is the machine we would like to build.

Everett remarked that he believes that we can make time schedules.

Forrester stated that we certainly should be able to figure out when the decisions have to be made.

Forrester continued with some comments on the budget for fiscal 1952. This budget is in the clear, but it is still in transit through various red-tape departments. The cash status of Project Lincoln is poor. At the moment, there is an embargo on purchases for items which are not for immediate use and any item costing more than \$1,000 is very carefully scrutinized. Many purchase orders are being held up. A surplus of funds may exist at the end of the year. A solution for the year 1953 is not at hand. The budget must be passed by Congress, approved by the Budget Bureau, etc.

Brown asked if this will affect the General Ceramics contract.

Fahnestock replied by stating that we hope to push the contract through.

3. Responsibilities in Magnetic Work

Taylor stated that there were three groups. First, the Memory Group under Bill Papian. He has about nine men including technicians and they have a well defined program to build a 1,024-digit memory. The second group is at the moment without a leader. This group, called the Magnetic-Circuit Group, is to investigate the use of magnetic materials in parts other than the memory. Five new men are in this group. W. K. Linvill heads a committee studying magnetic circuits, which includes these five men.

Brown stated that the third group is responsible for obtaining magnetic materials for use by the other two groups. This involves liaison with those who synthesize the materials. General Ceramics has done very well

~~CONFIDENTIAL~~ UNCLASSIFIED

~~CONFIDENTIAL UNCLASSIFIED~~

Memorandum L-35

Page 4 of 5

in developing materials for us by purely empirical methods. The Laboratory for Insulation Research is preparing to synthesize ferrites and back up the General Ceramics program by more fundamental studies. We are supporting the work in the Laboratory of Insulation Research and have two staff members. J. H. Baldrich is a chemist working in the ceramics group and H. D. Neuman is an electronic engineer working in the measurements group. The work in the lab here includes studying the applications of magnetic materials and learning what characteristics are desired and what tests are necessary in order to evaluate a material for a particular application. The group also has set up equipment for making tests on new materials. J. McCusker, R. A. Pacl and W. Ogden are now conducting these tests. The group is also interested in ferroelectric material for possible computer application and is keeping its eyes open for any promising new element. Dudley Buck, besides handling much of the liaison with the Laboratory for Insulation Research, is working on ferroelectric material.

Forrester asked if the work with Laboratory for Insulation Research is going all right.

Brown replied that our contact with Professor von Hippel has been rather limited. The ceramics group is going very well and has delivered some samples similar to General Ceramics' body MF-666.

4. Indoctrination Program

Taylor began the discussion by saying that when we interview applicants we tell them that they will not be assigned immediately, but will be free to look around and pick out the type of work they like best. This is a very attractive proposition to many of the younger men. We certainly do need to tell a new man what a computer is, how it works, the importance of reliability, the place of circuit work, etc. The present program is inadequate and too specialized. We will have a large influx of new men in June and an indoctrination program should be set up.

Wieser has had a successful indoctrination program for his work and made the following comments. Someone must be in charge of the program to make the arrangements. We must realize that the program will take considerable time. We should prepare agenda and get lecturers from different groups, including one lecture on the history of the project. New people do not know what the overall program is and it is difficult to present this because of security regulations. At least the Lincoln Organization can be explained. We should have a reading list which goes with each lecture. Don't go too fast; two hours per day is sufficient. Follow up the program by consulting individuals at periodical intervals, weeks and even months after the indoctrination program, to find out what the course lacked and how it should be improved. The content of the course will change. Some men will want something specific and concrete. The men could study some part of Whirlwind I in detail to get this concrete experience.

Taylor remarked that in the case of two new research assistants, four months were required for these men to appreciate the problem facing them.

~~CONFIDENTIAL UNCLASSIFIED~~

~~CONFIDENTIAL~~

UNCLASSIFIED

Memorandum L-35

Page 5 of 5

Forrester then asked if our Personnel Office should set up a program for all new staff. This might be a very short program.

A general discussion followed during which many suggestions were made and many questions arose. All agreed that a general program to tell the new men some of the basic facts about computers and the objectives of the lab was very important. One question was: Should a central and general indoctrination program be established and/or should more specialized and intensive programs be undertaken by the different groups?

Adams suggested a rather long (eight-week) program might operate on a continuous basis and cover introductory material of all groups and a man could then enter this program at any time and go to work when he has found something interesting. He might attend the entire program before deciding what to do. In any event, each man would attend one cycle and some could be assigned to specific groups earlier than others.

After some time, all seem to be agreed that some central program is desirable. Perhaps the length of time a man spends in the indoctrination program will depend upon the individual man. It is important, however, that our good men get a good general introduction to computers, even the men who know when they come here exactly what they will do.

Taylor stated that some one should be assigned to get a central program underway as soon as possible.

Fahnestock stated that we had two choices, a good experienced engineer or someone who would just schedule the program.

Youtz suggested that R. R. Rathbone be given the job.

Forrester suggested R. J. Horn or T. L. Hilton.

Youtz emphasized that the man should be a good teacher.

Taylor suggested R. A. Nelson would be better than R. J. Horn or T. L. Hilton.

Taylor remarked that the job has a high priority and that it should be a full-time job for whoever is assigned.

Forrester concluded the meeting by saying that he and Fahnestock would consult and assign someone to do the job.

Signed

*David R. Brown*David R. Brown
Secretary

DRB/jk

~~CONFIDENTIAL~~

UNCLASSIFIED