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CONFIDENTIAL SECURITY INFORMATION

351/91	Trip Report, IH	A Customer Education Class //781
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- 1. Identification of Trip:
 - (a) International Business Machines, Laboratory Annex,
 - (b) Poughkeepsie, New York
 - (c) 25 to 29 August 1952
 - (d) Familiarization with Electronic Data Processing Machine, Type 701.
- 2. Representatives:

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- AFSA: Mr. W. E. May, 351 Mr. W. J. Lawless, 22 Mr. J. P. Hyduke, 221
- 3. (a) Subjects Discussed:

Purpose of the trip was to attend IHA Customer Education Class #781, the first of a series designed to familiarize customer representatives with new equipments. Approximately five hours daily for four days were devoted to formal classroom sessions, at which engineering construction, programming aids, mathematical formulation and allied topics were discussed. Most of the papers discussed were reproduced and given to the class at the opening session. The last class session was devoted to the presentation of several papers by customer representatives from Atomic Energy Commission, General Electric and Boeing Aircraft on data processing and shorthand coding. This was followed by a general discussion on auxiliary equipment, such as card-to-tape and tape-to-printer devices which seem to be desirable from the point of view of most customers. The machine was available for customer operation each evening until midnight, and was in operation all night long on Thursday, since most of those present were scheduled to leave on Friday.

(b) Observations:

(1) Classroom sessions were well prepared and conducted, thanks to the efforts of Dr. C. C. Hurd, Head of the Applied Science Group. Each customer group was given an operator's manual, installation manual, a working notebook, and a set of all utility programs so far prepared. These include programs for conversion, output

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printing, tracing, loading, and other functions. They are especially useful because punched cards are the only type of input for which provision is made. This is not entirely satisfactory, as became quite evident when card-feed trouble caused the schedule of machine operation by the customers to be thrown almost completely out of gear. For example, the AFSA representatives were scheduled for 5:40 pm, Thursday, but were not able to operate the machine until 1:30 an the following day.

(2) The machine as a whole seems to be functioning very well. There appears to be little trouble in the electrostatic storage (which is 1024 words in the engineering model), and the four magnetic tape units operate satisfactorily. There is some question as to the need for other orders, such as an extract order, whose function can only be accomplished by a combination of several other orders. Nor is this need restricted to our own operations, as evidenced in informal discussions with other customer representatives. IEM would probably be willing to include special features, for a price, but just what they would be and how much they would cost remains an open question.

(3) Some interesting comments were made concerning programming. Many of the installations planning to rent the 701 are at present using one or more 604, or CPC assemblages. For example, the AEC at Los Alamos has 110 people coding problems for the 60h, and is adding to its staff at the rate of two or three each week. A number of the representatives indicated that they either had or were in the process of hiring sizable staffs to do the coding. In most cases, this means that a relatively snall group prepares the problems in symbolic or shorthand coding, and a separate group performs the actual detailed coding necessary to prepare the programs for the machines. This procedure seems to be satisfactory for those whose problems are mathematical throughout, since the individual programs usually involve numerical solutions of equations of various kinds. However, it is my personal opinion that it would be extremely difficult, if feasible at all, to code symbolically a problem in cryptanalysis and to expect someone else with perhaps only a smattering of cryptanalytic training to complete the job. This, plus the usual difficulties in hiring, is the main reason why acquiring and training good programmers for cryptologic problems is a difficult one.

(b) A basic question which has arisen deserves some thought. If the 701 is being considered as an interim device pending the completion of ATLAS II, the delivery date of both equipments becomes a matter of some concern, as does the rental figure. On the basis of present information, it appears that both equipments are scheduled for delivery in August 1953. Insofar as the 701 is concerned, this date is subject to change pending representations by AFSA before the National Production Authority. There are a number of aircraft

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Trip Report, IIM Customer Education Class #781

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companies preceding AFSA on the delivery list, which was arranged presumably on a first-come-first-served basis. The best estimate for an expedited delivery date would probably be February or March 1953, leaving an interim period of six or seven months. Assuming only one shift operation, which would not be the case according to 22, six months' operation would cost about \$105,600, based on the monthly rental rate of \$17,600. This seems like a sizable sum of money for interim operation, particularly when one considers that the Agency has one computer operating full time and another almost ready for operational use.

(5) I do not known what the attitude of the Office of Operations may be on this question; however, it is noteworthy that Mr. Lawless broached the subject to me during the week at IHM, and <u>expressed</u> considerable doubt as to the advisability of proceeding with the current arrangement.

William E. May

WILLIAM E. MAY Head, Program Procedures Section

Copies furnished: 35M 35 302C 03T 301C (2) 00T

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