31·23

May 24, 1957

MEMO TO: Mr. G. Blaauw   Mr. J. E. Griffith ✓
          Dr. F. P. Brooks   Mr. B. L. Sarahan
          Dr. W. Buchholz   Mr. D. W. Sweeney
          Mr. E. F. Codd   Mr. W. Wolensky

It is my feeling that no computer which has been produced to date has given adequate consideration to the handling of a relatively large class of operations which are essentially preparatory to the primary task of the computer. While these operations do not necessarily require a large amount of computer time, they always stand as an obstacle to straightforward programming. I am listing some of them below as a check list for determining the effectiveness of the basic computer in these areas.

1. Converting between the code used by an input/output unit and that used within the computer. *ok*

? 2. Compressing new data and instruction words as they flow into the machine from input units. *ok*

3. Arranging data for printing and punching. *ok*

4. Rearranging data from the row by row form in which it is read in from cards and read out to the punch and printer to the character by character form employed within the computer. *? Transposing* *?*

When does one know how much of a routine will be used? 5. Memory to memory transfer within the computer to bring data and instructions in and out of fast memory. *ok*

6. Compacting data in memory so that it will not be necessary to use the 64 bit word on technical problems for which a much smaller word will be adequate. *? ʰ* *ok*

7. Application of the Vidor or similar rules of character recognition to data to permit character recognition to be accomplished without an intervening electronic box for interpretation. *?*

I hope that you will agree with me that all of the above operations and numerous others in the same class must be accomplished in a direct and simple manner with the basic computer if it is to satisfy our future needs.

S. W. Dunwell

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