SIXTY YEARS OF GROWTH IN COMPUTING AND DATA PROCESSING CAPABILITY

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SIXTY YEARS OF GROWTH IN COMPUTING AND DATA PROCESSING CAPABILITY

Computing and data processing capability has developed spectacularly over the last 60 years.

Figure 1 shows the single address speed of a number of representative machines at particular points in time. The appropriateness of including present electronic data processing machines and early tabulating equipment in the same graph might be raised and likened to comparing apples and oranges. However, both were included to cover as long a period of evolution as possible. The index of speed used for the tabulating equipment was the time necessary for one counter wheel to perform a single addition.

Figure 1 displays the remarkable increase -- 1 to 1,000,000 -- that has taken place and while any single point may be argued, the over-all picture is clearly one of tremendous growth.

There is no agreed standard for demonstrations of this sort. Unresolved problems exist in both the selection and measurement of appropriate parameters.

This investigation has used single address speed as one index. An alternate parameter that was considered was the time required to do a predetermined problem. It was not used since data was not available and it was not feasible to generate the required information for the present review.

The selection of single address speed as a criterion of growth may introduce some bias into the results because some of the machines in the sample were designed to perform different functions rapidly, with consequent degradations in speed. If that is the case, then an adjustment could be introduced.

Figure 2 is a picture of the time phased development of speed and storage capacity. Storage capacity was measured using the character as an index, character being defined as the total number of bits in directly addressable storage divided by six. In this review, the concentration was entirely on electronic data processing machines, and some further selection was made in order to show only machines representative of particular points in time. In most cases, the addition of increments of speed and storage capacity did not take place simultaneously, at least until 1960 when the move is to the STRETCH/LARC era. These two machines may be representative of a completely new era which has been achieved through some major engineering breakthrough such as, perhaps, transition to solid state. It might also be that before 1960 the development of speed and capacity were mutually dependent and thus the reason for the growth of first one and then the other.

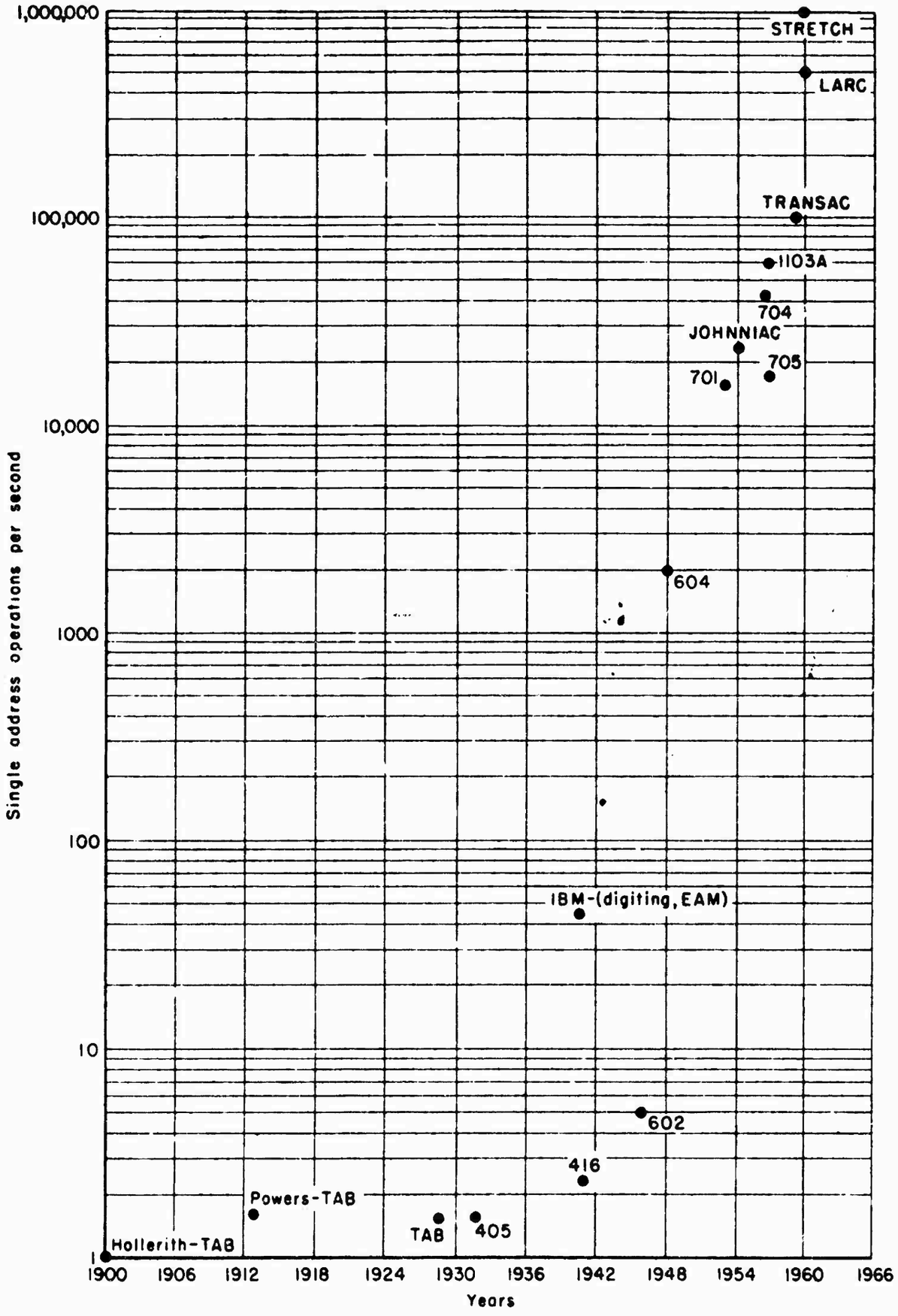

Fig. 1 — Growth in computer speed 1900 thru 1960

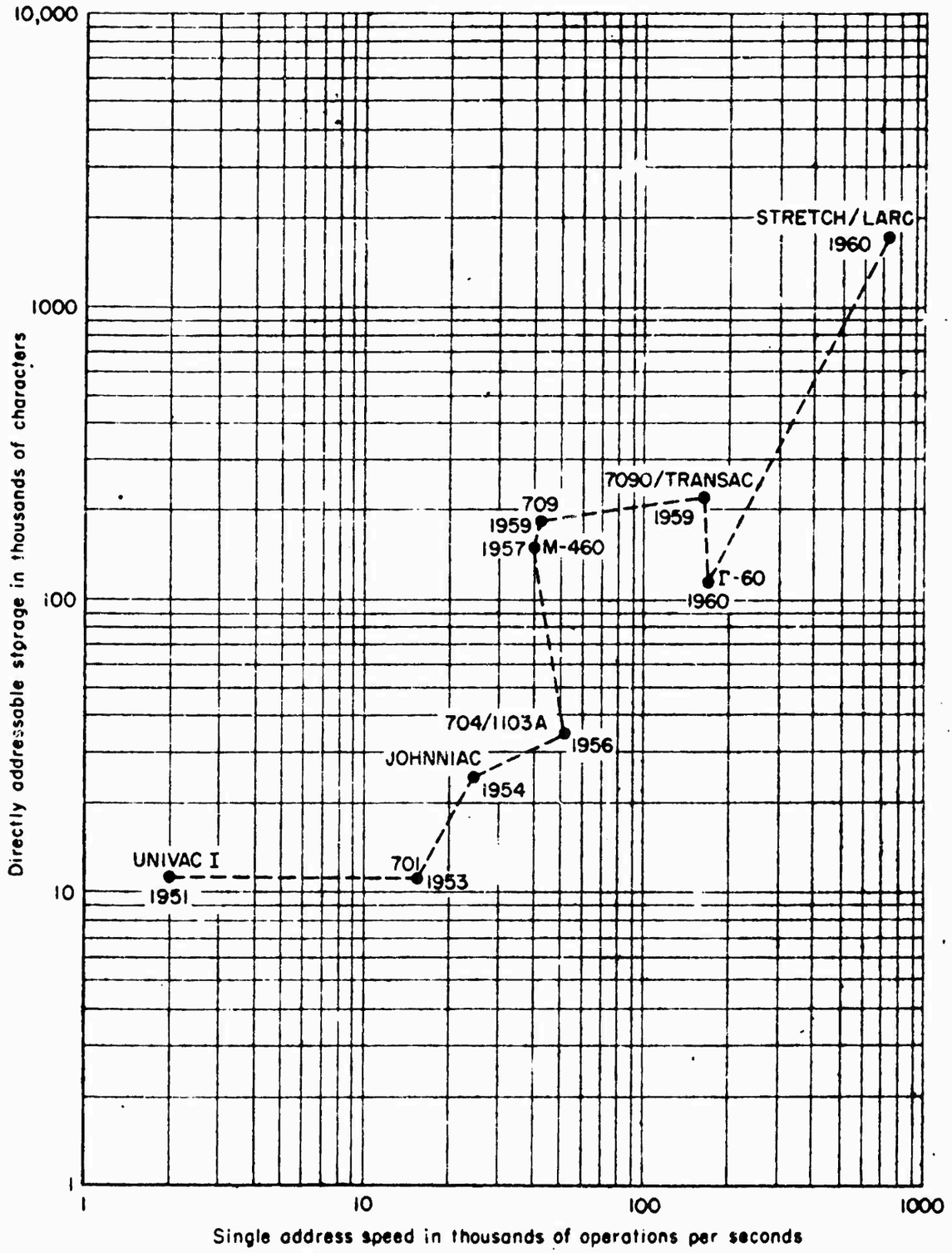

Fig. 2—Development of speed vs storage in EDPMS 1951–1960