IEEE Milestone: Development of the First Laser Printer, 1971-1976

The raster scan laser printer based on office copier technology paved the way for small computers to be used as a personal machine for office use and for the laser printer to be used for volume printing of per person customized output for business use. It moved computer printing from slow mechanical impact printers with a very limited character set to non-impact printing of arbitrary bit-mapped page images on user-friendly cut sheet office paper.

Before the laser printer, computer printing was a slow mechanical process.
The traditional printer for small computers and individual use had been the teletype machine or similar impact oriented character printers. Larger computers used fan-fold chain printers that were single font, character oriented machines oriented to data processing.
Starkweather received active resistance to his idea[(1)] and had to move from New York State to Palo Alto to continue to work on his concept. Once he had a working print engine[(2)(3)] he had to build an open air laser link to hook the printer to the computer data source[(4)] which was in a different building.[(5)(6)]

This invention started the era of high-speed printer both in the enterprise and consumer markets.
IBM developed a large high speed laser printer in the same time frame but that program was oriented towards data processing output on fanfold paper.[(7)]

The initial volume use of the Starkweather's SLOT (Scanning Laser Output Terminal) was as the printer (on a networked basis) for all office documents at the PARC facility proving its utility for multiple styled fonts and graphics use. This set the quality standard for office printing in the 1980s.

When networked Alto personal computers proliferated in other Xerox locations and a few external sites there was a need for additional laser printers at those sites. In 1976[(8)] Starkweather refined his adaptation of the underlying copier and his laser head design into a field conversion kit for the Xerox 7000[(9)] to produce what became known as the "Dover"[(10)(11)] of which there were about 35 built.

The SLOT/Dover also became the technical foundation for the 2 page per second[(12)] Xerox 9700 product, introduced in July of 1977. As a production printer[(13)] for big

business it would become one of Xerox's best-selling products. In fact, the original laser printer made billions of dollars for Xerox, the most commercially profitable product to come out of the PARC facility."
Smaller laser printers, including those from other manufacturers allowed individuals to readily print computer files, which greatly enhanced social communications.

References

(1) Creation Myth, Pgs 8,9

(2) GKS Oral Hist., Pg 21

(3) SLOT

(4) Fumbling, Pgs 101, 102

(5) Creation Myth, Pg 8

(6) GKS Oral His., Pgs 24, 25

(7) ibid., Pg 31

(8) Dover Artifact Details

(9) Looking down at Dover laser head

(10) ibid., Dover, doors open

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(12) GKS - High Speed Laser Printing Systems, Pg 344

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