Pass out Handouts

I'll pass out Flash Drives at the break this morning – your handout shows what's on it. It's a 1 GB drive with about 30 MB on it – the 30 MB might fit on about 15 reels of 1960s magnetic tape. (2 TB on 1 million reels) Look at the Map on the back of the "Flash Drive Contents" page: Berkeley Marina to Computer History Museum. I'll explain Museum Archives later.

This afternoon at the Museum we're going to meet a volunteer named Paul McJones. You can Google his name to find some articles that he wrote and other information about him. He is a member of the Museum's "Software Collection Committee" and he has specialized on collecting historical Fortran software. For a while between about 2002 and 2006 he worked on a search for a listing of the original IBM 704 Fortran compiler code. His report is on the flash drive. Paul started the search with a call to John Backus, who had led the group that created the compiler. Paul had worked for Backus on some unrelated projects during the 1970s..

Before 1950, computers were "one of a kind" Giant Brains. (Mention Babbage, Turing, Zuse). UNIVAC was an early exception. The first UNIVAC was delivered to the Census Bureau in 1952, and that Nov it predicted Eisenhower's defeat of Adlai Stevenson in the presidential election. A total of 46 UNIVAC computer systems were sold for more than a million dollars each.

The IBM 704, first sold in 1955, was the first computer that sold more than 100 machines – at least among "scientific" computers – which might be defined as having built-in floating point arithmetic, and the first Fortran compiler was created for it in the mid 1950s.

Paul McJones never found a listing of the original Fortran compiler code that ran on the 704, but he found a Nov 1954 report of "preliminary Fortran specs" for the 704, and later the Smithsonian sent him a 1960 listing of the compiler code for "Fortran II" on the IBM 709. So that's a glimpse of when Fortran got started.

Fortran *standardization* began in Aug 1962, soon after the standardization agencies ANSI and CBEMA responded to requests for programming language standards. Martin Greenfield of Honeywell was the first chairman of X3.4.3. See "Early Fortran Standardization" excerpt in the handout, and a full description is on the flash drive in a file called "The Fortran Story Retold".

By 1962 IBM was selling 709's with Fortran II. Other computer manufacturers and users were developing similar software – one list includes Honeywell, Philco, Westinghouse, UNIVAC, and Sandia) – and four years later in Mar 1966 the Fortran Standards Committee produced a standard based on IBM's Fortran II called Basic Fortran and another called Fortran 66 based on IBM's Fortran IV (for 7090, I think).

The Fortran Committee thought its work was done when their standards were approved in 1966, but it was recalled late in 1967, partly at the request of Betty Holberton at the National Bureau of Standards, to produce a more formal document that could serve as a Federal Standard.

Frank Engel was chairman from Sep 1970 through development of Fortran 77.

During the six years of work on of Fortran 77, "structured programming" became an issue (inspired by Edsger Dykstra's entreaty that the program text sequence should bear a definite relationship to the computer's time sequence) and the "Block IF" construct [Walt Brainard?] was added.

By 1974 I was a programming supervisor at the Berkeley Rad Lab, beginning to use Fortran. Interest in program structure led me to join X3J3 Committee in Feb 1976.