Appendix A3

1940 to 1949

1940: The Z2 computer of Zuse becomes the first fully functioning electromechanical computer. (n)

1940 [Jan 8]: Bell Labs Complex Number Calculator operational. (w)

1940: First color television broadcast. (a)

1940 [Sept 11]: Complex Number Calculator demonstrated via a remote terminal at the American Mathematical Association meeting. (w)

1941: Atanasoff and Berry build the first electronic computer (non programmable) called the ABC. (p)

1941 [Dec 5]: Zuse completes the Z3 machine, the world's first fully functional program-automatically controlled electromechanical computer. It had a 64-word memory and computed at 3 seconds per multiplication. (a,e,n,w)

1941: Arnold Fast programs the Z3. (p)

1942 [August]: John Mauchly writes "The Use of High Speed Vacuum Tube Devices for Calculating." (w)

1942: The Colossus computer helps the British crack German codes. (a)

1942: The ABC machine almost operational when work is abandoned because of the war. (w)

1943 [January]: Harvard Mark I operational at IBM Endicott Labs. (w)

1943 [March]: First contracts between U.S. Army and the Moore School for the production of the ENIAC (the Electrical Numerical Integrator and Computer) for use in computing ballistics tables. It weighed thirty tons, occupied as thirty-by-fifty space, contained 18,000 vacuum tubes, used subroutines, and could perform 360 multiplications per second. (a,p,t,w)

1943 [April]: Heath Robinson machine working at Bletchley Park on code-breaking problems. (w)

1943 [May 31]: Construction begins on the ENIAC at the Moore School of Electrical Engineering in Philadelphia. (e,w)

1943 [September]: Bell Labs Relay Interpolator operational. (w)

1943 [December]: Colossus, a British vacuum tube computer, becomes operational at Bletchley Park through the combined efforts of Alan Turing, Tommy Flowers, and M.H.A. Newman. It is considered the first all-electronic calculating device. (e,w)

1943: Project Whirlwind started as an analog flight simulator project at MIT. (w)

1944 [January]: Early thoughts about stored-program computers arise at the Moore School. (w)

1944: Howard Aiken completes the first programmable computer, the Mark I, using punched paper tape for programming, and vacuum tubes and relays to calculate problems. (p)

1944 [May]: Mark I moved from IBM Endicott Labs to Harvard University. (w)

1944 [June]: Bell Labs Model III operational. (w)

1944 [July]: Two accumulators of the ENIAC operational. (w)

1944 [August]: The Harvard Mark I (a.k.a. IBM Automatic Sequence Controlled Calculator [ASCC]), produced by Howard Aiken, is dedicated at Harvard University on August 7, 1944. It would perform at a rate of 6 seconds per multiplication. (a,e)

1944 [September]: John von Neumann visits the ENIAC project for the first time. (w)

1944 [October]: U.S. Army extends the ENIAC contract to cover research on the EDVAC stored-program computer. (w)

1944: IBM produces the Pluggable Sequence Relay Calculator for the U.S. Army. (w)

1944: The word "cybernetics" is named at a meeting in Princeton. (p)

1945 [March]: Bell Labs Model IV operational. (w)

1945: J. Presper Eckert and John Mauchly sign a contract to build the EDVAC (Electronic Discrete Variable Automatic Computer). (e)

1945: By spring of the year, ENIAC is up and running. (e,w)

1945 [June]: John von Neumann introduces the concept of a stored program in a June 30 draft report on the EDVAC design. It is called the "First Draft of a Report on the EDVAC," which described the basic details of a stored-program computer. The breakthrough laid the foundation for the digital computers that since have been built. (a,e,p,t,w)

1945: Zuse developes plankalkul (plan calculus) the first programming language. This was the predecessor of algorithmic programming languages and concepts of logic programming. It was designed to be a chess-playing program. (n)

1945: Zuse's Z4 survives World War II and helps launch postwar development of scientific computers in Germany. (e)

1945 [September]: Working on a prototype of the Mark II, Grace Murray Hopper finds the first computer "bug," logged at 15:45 hours on September 9, 1945, a moth that had caused a relay failure. (a,p,e)

1945 [July]: Vannevar Bush's As We May Think is published in the Atlantic Monthly, foreseeing the use of Hypertext. (a,e)

1945 [fall]: Alan Turing arrives at the National Physical Laboratory. (w)

1945 [late]: Project Whirlwind switched from analog to digital electronics. (w)

1946: ENIAC, designed by J. Presper Eckert and John Mauchly, is unveiled at the University of Pennsylvania on February 14. (e)

1946: Arthur Burks, Herman Goldstine, and John von Neumann write "Preliminary Discussion of the Logical Design of an Electronic Computing Instrument." (e)

1946 [March]: Eckert and Mauchly leave the Moore School to found their own firm, Electronic Control Company. (w)

1946 [March]: John von Neumann begins to set up a computer project at the Institute for Advanced Study at Princeton. (a,w)

1946 [spring]: Alan Turing publishes a report on his design for ACE (Automatic Computing Engine), featuring random extraction of information. (e,w)

1946 [May]: Jim Wilkinson joins Turing at the National Physical Laboratory. (w)

1946 [May]: M.V. Wilkes sees a copy of the "First Draft of a Report on the EDVAC." (w)

1946 [June]: J. Bigelow joins von Neumann and Goldstine at the IAS project. (w)

1946 [July]: Computer Laboratory is founded at Manchester University via a grant from the Royal Society. (w)

1946 [July]: Bell Labs Model V operational. (w)

1946 [July]: Moore School lectures -- a turning point in the spread of information about the electronic digital computer. (w)

1946 [August]: Maurice V. Wilkes considers the construction of a computer (the EDSAC) at Cambridge. (w)

1946 [September]: F.C. Williams and T. Kilburn join the computer project at Manchester University. (w)

1946: Herman Goldstine invents flowcharts. (a)

1946 [late]: F.C. Williams applies for a patent on his electrostatic memory tube. (w)

1947 [January]: Harry Huskey arrives at the National Physical Laboratory. (w)

1947 {March]: The delay-line memory for the EDVAC is working at the Moore School. (w)

1947 [June]: The electronics for the IAS machine is redesigned to the "new look" versions. (w)

1947 [July]: Howard Aiken and his team complete the Harvard Mark II, which becomes operational. (e,w)

1947 [October]: A contract for the BINAC is placed with the Electronic Control Company by Northrup Aviation. (w)

1947 [December]: The Electronic Control Company is refounded as the Eckert-Mauchly Computer Corporation. (a,w)

1947 [late]: F.C. Williams has a working model of his memory system. (w)

1947: Construction starts on the EDSAC at Cambridge. (w)

1947: The ENIAC is converted into an elementary stored-program computer via the use of function tables. (w)

1947 [December]: On December 23, Bell Labs management is informed by John Bardeen and Walter Brattain that along with William Shockley they have developed the first transistor. (a,e)

1947-48: The magnetic drum memory is introduced as a data storage device for computers. (e)

1948 [January]: A.D. Booth has working the magnetic drum memory. (w)

1948 [January]: The SSEC (Selective Sequence Electronic Calculator), using both electronics and relays, is dedicated on January 24 by IBM at its World Headquarters in New York. (e,w)

1948 [April]: The selectron is abandoned as the IAS machine memory device in favor of Williams' electrostatic memory tube. (w)

1948: Claude Shannon publishes "A Mathematical Theory of Communication," formulating the modern understanding of the communication process. (e)

1948 [June]: On June 21, the Manchester Mark I, or "baby" machine, prototype computer has limited operation as the first stored-program digital computer. It used vacuum tube, or valve, circuits. It could do 800 multiplications per second. (a,e,w)

1948: Richard Hamming devises a way to find and correct errors in blocks of data. The Hamming code is subsequently used in computer and telephone switching systems. (e)

1948 [September]: Alan Turing joins the computer project at Manchester University. (w)

1948 [late]: The SEAC is started at the National Bureau of Standards. (w)

1948: A contract is drawn up between Eckert-Mauchly Computers and the U.S. Census Bureau for the production of the UNIVAC. (w)

1948: IBM produces the 604 multiplying punch that is based on vacuum tube technology. (w)

1949 [January]: The SWAC is started at the National Bureau of Standards' Institute for Numerical Analysis. (w)

1949 [early]: Construction is started on Pilot ACE at the National Physical Institute. (w)

1949 [May]: The EDSAC (Electronic Delayed Storage Automatic Computer), a stored-program computer built by Maurice Wilkes at Cambridge University, England, runs its first program and performs its first calculation on May 6. (a,e,w)

1949: Short Order Code, developed by John Mauchly, is thought to be the first high-level programming language. (e)

1949: Konrad Zuse founds the computer company Zuse KG at Neukirchen building a line of Z computers using valves [vacuum tubes] and later transistors. (n)

1949: Alan Turing sends letter to the London Times on artificial intelligence. (a)

1949 [August]: Construction is started on LEO I, a copy of the EDSAC. (w)

1949 [August]: The relocation loader is added to the "initial orders" of the EDSAC. (w)

1949 [September]: The Harvard Mark III becomes operational. (w)

1949 [September]: The BINACis delivered to Northrup Aviation by Eckert-Mauchly Computer Corporation. (w)

1949 [October]: The Manchester University computer, the Manchester Baby, is fully operational. (w)

1949 [summer]: The Whirlwind computer, constructed under the leadership of Jay Forrester at MIT to be the first real-time computer, is unveiled during the third quarter. It contained 5,000 vacuum tubes. (e)   <<< Is this correct??? >>>