Computers

National Museum of Computing

in the 1960s

Brian Jeremiah describes his early career in IT (or Cybernetics, as it was then called)

1. **Sandwich Course – 1958 to 1962**
   On a four-year works-based Sandwich course, in Production Engineering, I was employed by Samuel Fox, a subsidiary of United Steel Companies, and spent half my time in the works at Stocksbridge and the other half as a student at Loughborough.

2. **Production Control - 1962**
   My first appointment was in the Production Control Department, at Samuel Fox. It gave me sufficient knowledge of the steel-works at Stocksbridge ready for my secondment to Cybor House, in Sheffield.

3. **Operational Research & Cybernetics – 1962 to 1966**

Fluidr

   At Cybor House I joined a team to simulate parts of the Stocksbridge steel-works, in particular to provide the link necessary to get actual data from the works.

   This was my introduction to a digital computer. It was a valve-based Ferranti Pegasus, with four magnetic tape units. It used about 40 kilowatts and needed air-conditioning to disperse the heat generated.

   My mentor was Dr Keith Tocher (Toch) who had previously built a computer when at Imperial College, London. He created the 'General Simulation Program' (GSP). This was an early compiler system. GSP was used to model the Stocksbridge billet mill and to test a variety of scheduling rules. It helped determine the use of the soaking pits and whether the mill would benefit from another crane.

   Typically, the model took about two hours to compile and was followed by an examination of the generated machine code and subsequent tweaking of the code. One cold night the air-conditioning failed partway through compilation. It was completed successfully with both the front door and the French-windows wide open allowing an icy draft to keep everything cool.

4. **Traveling Scholarship – 1964**
   My United Steels Travelling Scholarship was titled "To investigate computer applications with a particular bias towards production and process control". It took place in North America over 7½ months. The scholarship covered visits to:-
   - Computer installations in steelworks.
   - All the major computer manufacturers.

- A number of Universities.
- Interesting applications outside the Steel Industry including Toronto's 'Traffic Control Scheme' and American Airlines Seat Reservation Scheme.

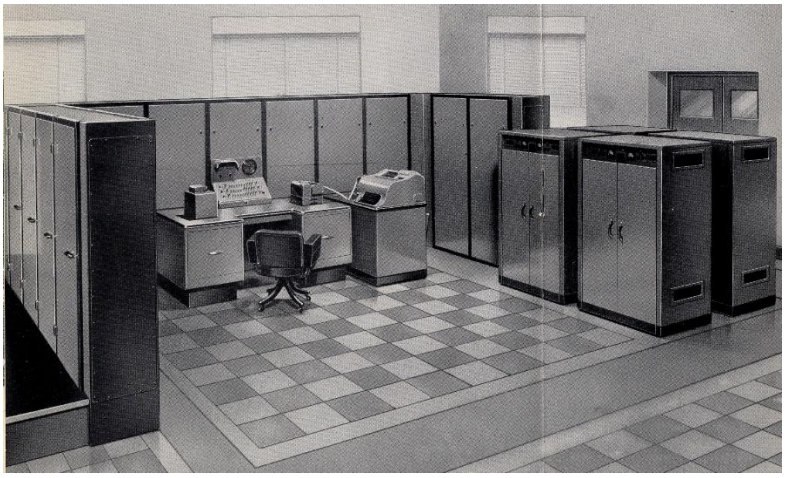
All the details were written up in a hefty report which I still have.

5. **Systems Analysis – 1966 to 1969**
   I returned to Stocksbridge, in 1966, prior to the installation of an ICL1904E. It was bought to deal with most of the administrative systems. In addition, and with help from ICL, it was used to develop and commission an on-line order-entry system. Orders were initially input in the Commercial Department before being dealt with by metallurgist and then on to Production Control. In those days the Visual Display Unit (VDU) had to be relatively close to its computer. Production Control was almost too far away. I was surprised to have to use a formula that included the speed of light to demonstrate that it was just possible.

6. **Computer Manager – 1969 to 1973**
   Late in 1969 I was back in Cybor House where an ICL 1905F had been installed. This is where a full range of 'Standard Systems' were developed for use in a significant number of British Steel works. Those without computers were served by remote job terminals driven from the ICL 1905F. It used GPO land-lines at 12 bits per second!

7. **Business Systems Advisor - 1973 to 1976**
   British Steels Overseas Division gained an advisory contract for the first phase of a new steelworks to be built on the Pacific Coast in Mexico. I was seconded for three years to advise on the full range of business systems necessary to commission and then operate the plant.

Warwick Gibbons *remembers computing at Sheffield University 50 Years Ago*



Eric Foxley

In 1967 the University of Sheffield updated its computer system. Up to 1967 it relied on a hybrid valve/semiconductor-diode based Ferranti Mercury computer that had 1024×40-bits of core memory, equivalent to RAM, and four 4096×40-bit drums, equivalent to today's hard drives. Programs were written in Mercury Autocode, an early high-level programming language. The computer could execute a pretty limited number of program steps so programs had to be broken down into smaller sections. The programs were entered on 8-hole paper tape and intermediate data was punched out on paper tape. The intermediate data was then cut off, spliced onto the next programme segment and so on until the whole program was complete, a pretty tedious and time-consuming process.

Computer Conservation Society

The University then upgraded to an ICL 1907 semiconductor-based computer with 32 k - 24-bit words of memory. Nobody could imagine how it would be possible to write a program so big. The computer occupied a large part of the seventh floor of the Hicks Building. Programs could be written in Fortran, Algol and Cobol, much more powerful high-level languages, with the first two being used for scientific and engineering work and the last for business analysis. Programs were entered as batch jobs on 80 column punched cards with results usually being returned as printout the following day.

Today a typical smartphone has 4 GB of core memory, forty thousand times bigger than the ICL of fifty years ago.

Jenny Emby describes an encounter with a mainframe computer

In 1969 I started in the small operational research department of a huge publishing firm in London. The staff were still using comptometers so access to a real computer was a novelty. I think I was the only one who used it.

The computer was based at Chelsea Technical College. We had a special room with a 'throne' where one would sit and telephone the computer and then leave the phone off the hook – an early form of dial-up networking. Coding was in an early form of BASIC (I think!) with all the data listed at the end of the program. Input was in punched tape and the monitor was monochrome of course.

Results could be printed out. Often, they were somebody else's results …... I remember getting some calculations about tanks and shells and wondering if they were water butts or munitions. Security was non-existent.

At the end of the session a message would appear telling you how much computing time and connection time you had used and how much it had cost.

I did some work on costing of magazines, balancing editorial costs against advertising income and we took the results round to the various magazine editors. The mostly grizzled editors scoffed at our reports and told us they didn't need our input: their years of experience were sufficient.

This was about the time Neil Armstrong set foot on the Moon. Experience wouldn't have helped that project. Computers certainly did.

Carol Lawton remembers a predecessor of the Word Processor

My 1960's memories are of being a temp typist while I was a student in London. One of my placements was with a large typewriter company which was just developing what they called a "miniputer" which could be used in an office. They wanted to write a marketing brochure advertising this exciting development. Because I was studying English, they asked if I would have a go at a draft. I refused, on the grounds that I was only being paid as a copy typist. When I got on the bus to go home, I was approached by a stranger who asked if I knew anything about a miniature computer the firm was rumoured to be developing. Again, I refused to co-operate but found it entertaining that industrial espionage should be focused on this technology.