

### **Elliott Brothers (London) Ltd. and Elliott-Automation.**

The Elliott Instrument Company was founded in 1804. By the 1870s, telegraph equipment and electrical equipment were added to the company's products. Naval instrumentation became an area of increasing importance from about 1900, the company working with the Admiralty to develop *Fire Control* (ie gunnery control) electro-mechanical analogue computers. Elliott Brothers (London) Ltd. provided fire-control equipment to the Royal Navy from 1908 until shortly after the end of the Second World War.

By 1946 the company's main factory at Lewisham in south London had become a technological backwater. Although still skilled in manufacturing electro-mechanical equipment and precision electrical instrumentation, it had been bypassed by the huge war-time flow of government contracts for radar and allied electronic equipment. Compared with firms such as Ferranti Ltd., there was practically no electronic activity at Elliott's Lewisham factory. The company actually traded at a loss between 1946 and 1951.

Somewhat surprisingly, fresh discussions between the Admiralty and Elliott Brothers (London) Ltd. started in 1946, with the objective of persuading the company to host a new research team whose prime objective was to work on an advanced digital electronic Fire Control system and target-tracking radar. The Admiralty leased to the company a redundant factory at Borehamwood in Hertfordshire. This became known as Elliott's Borehamwood Research Laboratory. It was at Borehamwood that a team of specially-recruited young scientists and engineers designed and built several secret digital computers for various classified projects.

In 1950 Elliott's Borehamwood team began to look for civil applications for their digital techniques. With funding from the National Research Development Corporation the Elliott 400 series of computers was born. Between 1956 and 1967 Elliotts made an arrangement with the National Cash Register Co. Ltd. (NCR), whereby NCR became responsible for marketing Elliott computers to the commercial data-processing sector. Sometimes the Elliott 405 computer is described in contemporary pamphlets as the National Elliott 405.

Meanwhile, Elliotts realised that digital computers were becoming robust and cheap enough to be used for looking after all sorts of manufacturing processes. The word *Automation* was used to describe this trend. The company name was changed to Elliott-Automation in 1957. In 1961 Elliotts made 50 percent (by number, not by value) of all the new computers sold in the UK that year, many of these being destined for industrial process control. The avionics market also began to blossom and Elliott airborne computers, produced at Rochester, were increasingly in demand.

Unfortunately the company's underlying finances had weakened by the mid-1960s and in the spring of 1967 a merger was arranged with the English Electric Company. By the autumn of 1968 GEC took over the merged English Electric/Elliott-Automation organisation and the mainstream computing sections were passed to International Computers Ltd. (ICL). GEC retained the military and process-control computing sections, which eventually became part of BAE Systems.

The Elliott computers featured on the *Our Computer Heritage* site are:

<b>Group</b>	<b>Computers</b>	<b>Dates first working</b>	<b>Relative size</b>	<b>Initial target applications</b>
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<b>E1</b>	152 Nicholas 153	1950 1952 1954	Medium Small Large	Defence (naval gunnery) Defence (ballistics) Defence (direction finding)
<b>E2</b>	401, 402 403 405	1953 1955 1956	Small Large Medium/large	General Defence (missiles) Commercial data processing
<b>E3</b>	800 series 503	1957 1962	Small Large	General & automation General
<b>E4</b>	502	1963	Large	Defence (radar)
<b>E5</b>	900 series	1963	Small	Defence & automation
<b>E6</b>	4100 series	1965	Medium	General

The Elliott computers not specifically covered in the *Our Computer Heritage* project are the ARCH series of process control machines of the 1960s. ARCH (the *Articulated Control Hierarchy*) was designed as a modular system of standard analogue and digital sub-units sharing a common bus. The digital sections were usually standard Elliott 800 or 900 series computers. The idea was that tailor-made ARCH on-line installations could be configured to suit the particular industrial process(es) being controlled. The Panellit 609 was an Elliott 803 computer packaged for process control applications and marketed via a licencing arrangement with the Panellit Corporation of Skokie, Chicago.

For further reading, see: *Moving Targets - Elliott-Automation and the dawn of the computer age in Britain, 1947 – 67*. S H Lavington. Published in 2011 by Springer, ISBN 978-1-84882-932-9.