

Brief History of the Marconi Research Centre

Marconi's Wireless Telegraph and Signal Company was set up in London in 1897 and in 1898 acquired land for a factory in Chelmsford. In the early years of the company much of the research work was conducted by Marconi himself but in 1912 a Research Department was formally constituted under C.S. Franklin in a small building near to the Hall Street works.

After the First World War the company expanded into a number of new areas with the result that several small research teams were established on sites distributed around Chelmsford. In 1937 building began on the Great Baddow Laboratory and throughout 1938 staff were brought in from the other sites as new areas were made available for occupation. Under the direction of J.G. Robb, work was carried out on audio research, propagation, low noise receivers, radio direction finding, television and specialist component studies, the latter including quartz crystal development and gas discharge devices. Most of these were of potential importance in wartime and it was not surprising that very soon after the commencement of hostilities in 1939 the laboratories disappeared under camouflage netting and came under the control of the fighting services.

In 1946 the Marconi Company was acquired by the English Electric Company (EE) and this brought Dr. Eric Eastwood to the Research Labs in 1948, as Deputy to R.J. Kemp. His first major task was a study of the UK ground radar defence system carried out on behalf of the RAF. Most of his recommendations were accepted by the Air Ministry and much of the redesign and manufacture was entrusted to what later became the Radar Division.

The advent of the transistor in 1948 revolutionised the electronics industry and, by 1951, Eastwood had established a semi-conductor research laboratory which began to grow germanium crystals and study doping techniques. By the late 1950's the semi-conductor lab. had extended its skills to the uses of silicon and gallium arsenide.

Major expansion in activities at the Labs took place during the 1950's and a new 2-storey building was completed in 1958. This meant that the Director had at his disposal a considerable technical force, probably unrivalled in the UK in terms of its breadth of experience and capability. Now lead by Eric Eastwood, the labs were often approached when new national projects, demanding outstanding technical capabilities, were being considered.

In 1965 a major re-organisation of the Marconi Company took place. Radar development, which had been absorbed into the research laboratories under Eastwood's direction, were devolved again to the Radar Division, it becoming responsible for its own development but calling upon the central laboratories for research. Technical Managers from the research labs were transferred out to set up Microelectronics, Space, Radar and Automation Divisions. Thus the size, composition and terms of reference of the laboratories were considerably changed, with the main emphasis thereafter being on research and on the provision of certain specialised services, notably the electrical design of antennas.

Following the transfer of the entire semi-conductor team to the Microelectronics Division a small team composed almost entirely from newly recruited graduates was set up under the direction of D.W.G. Byatt to study materials other than silicon. By 1967 work was in progress on III-V semi-conductor materials, on chalcogenide glasses and on liquid crystal displays. Over several years many displays were made against specific requirements, often for the MOD but also for Marconi Divisions and for civil customers. A particular strength was built up in high intensity light emitting diodes arranged in configurations to meet an operational need, a good example being the display of data from a runway approach radar in an airfield control tower where the ambient light level is often very high. A prototype system was successfully installed at Gatwick Airport in 1972.

The Microcircuit Assembly Techniques (MAT) Laboratory was also set up in 1965. Its initial purpose was to carry out research into interconnection techniques appropriate to the microelectronic packages which were now becoming commonplace in electronic circuitry. Amongst the techniques studied were printed circuit boards, "thin" evaporated films and "thick" printed films, soldering, welding and electro-deposition.

In 1968 the merger of the General Electric and English Electric Valve Companies brought the two previously competing research laboratories at Wembley and Baddow into partnership. The link became even closer in 1985 when GEC Research Limited was launched under the direction of Dr. John Williams, drawing together as one company the Marconi Research Centre, Hirst Research Centre and the two GEC Engineering Research Centres at Whetstone and Stafford.

Although successful as an enterprise the decision was taken in 1988 to dissolve GEC Research and the Marconi Research Centre became primarily the central applied research and development resource to the GEC-Marconi Companies. These companies offer challenges for the application of technology and inventiveness from microcircuits to warships; from infra-red sensors to surveillance radar; from hand-held communications to earth-observing satellites; from micro-manipulation to control of the world's latest civil transport system.

1992 has again seen a change in the management of the Marconi Research Centre. With the formation of Marconi Radar and Control Systems Limited, and the decision to erect a new building to house part of the Radar Division on the Great Baddow site, the Centre will now report to the Director of the Radar Division, MRCSL, but this will not affect the independence of the Research laboratories.

The wide experience and expertise of the skilled MRC employees is unique within GEC and enables the most flexible and inventive solutions for the benefit and competitive advantage of all GEC Companies.