

Edward Arthur Newman

Born April 27, 1918, London, England; died August 7, 1993, Surrey, England; computer engineer responsible for significant implementation contributions to the ACE system designed by Alan Turing, and later for work in pattern recognition.

Education: BSc, physics, University College, London, 1940.

Professional Experience: Masteradio, 1940-1941; EMI Research Laboratories 1941-1947; National Physical Laboratory, 1947-1983.

After graduating in physics at University College, London, Newman spent some time doing postgraduate research and a short period at Masteradio before joining EMI Research Laboratories in 1941. There he worked with the legendary genius of electronics, A.D. Blumlein, on radar including the airborne system H2S. Newman was noted for cycling to Worcestershire where the test flights were carried out. On one of these flights Blumlein and some of his colleagues were killed in a crash.

After World War II, EMI resumed the development of television and the pulse technology from radar proved invaluable. Newman developed advanced circuits for improved cameras that served BBC television for many years. His advice on circuits was much sought after and his ability in lateral thinking is remembered.

Newman moved to the National Physical Laboratory in 1947 to join the project initiated by Alan Turing to build ACE, one of the world's first electronic computers. The engineering of these machines was a puzzle in which there were no guidelines and precious little relevant experience. A "test assembly" was then being built, using dubious electronic designs. Newman was quick to point out their faults, in strong terms, and how to do it better.

He seized the initiative and rapidly translated designs from television and radar into digital circuits. Nothing at the time could match them. This one contribution was a main reason that the ACE project began, at last, to flourish. Together with a colleague from EMI, David Clayden, he made the memory work-the first step towards a complete machine. Newman also produced a new logical design for the machine's central control which was probably the biggest single advance over Turing's original design.¹

When the machine building ended there was a change of direction in the group, under the leadership of A.M. Uttley (an unsung pioneer of neural networks). Newman undertook to lead the work on pattern recognition and he demonstrated multispeaker recognition of words and phrases, culminating in successful tests for use by military helicopter pilots who needed a "third hand" to set instruments. Newman had an abiding interest in understanding the human brain and kept in touch with Alan Turing who was at Manchester University and was fascinated by this problem. Using the new computer technology to try to understand the brain was a bold and imaginative step, although ahead of its time. Newman had a novel idea about dreaming-that it is a process of reviewing and tidying the short-term memory.

¹ See also the biography of Harry Huskey

Those early computers were intended for scientific and engineering calculations, and using them for office work, administration, or commerce seemed farfetched; indeed it was a very difficult transition to make. With characteristic vigor Newman set out to make “office automation” a reality. His collaboration with Michael Wright culminated in an influential report for the (UK) Treasury that stimulated the use of computers in Whitehall. The subsequent leaders in the government use of computers all came to the National Physical Laboratory for their training. The practical effect of this second pioneering effort by Newman was immense.

During the late 1960s and early 1970s, NPL provided the technical leadership for a large government sponsorship scheme called the Advanced Computer Technology Project. Newman chaired the committee, which vetted new proposals.

Newman was a stimulating colleague, around whom there was always argument and discussion. It is notable that in all his main achievements, there were close collaborators who could develop his ideas and pass them on.

BIBLIOGRAPHY

Biographical

Davies, Donald, “Edward Newman,” *The London Times*, Aug. 17, 1993.¹

UPDATES

¹ Written by Donald Davies, but published anonymously.