

Dumont

Allen B. Du Mont — an American engineer who developed the first commercially available oscilloscopes.

ALLEN BALCON DU MONT was born in 1901, which makes him one of the first of our pioneers of electronics to be wholly a product of the 20th Century. His engineering career started in 1924 when, as a freshly appointed graduate, he joined the Westinghouse Lamp Corporation in Bloomfield, New Jersey, as an engineer in the development laboratory. Since the invention of the triode tube (Audion) by Lee De Forest, many of the large electrical firms who had interests in both communications and in electric light had used their technical knowledge of lamp construction (particularly the use of tungsten filaments sealed into glass) to manufacture tubes. The Westinghouse plant was one which had been partly converted to tube manufacture and, in 1924, the great radio boom started when RCA pioneered the use of radio as an entertainment medium. Du Mont, like so many engineers in the field at that time, found himself in at the start of something big. He transferred to the radio tube division at Bloomfield and started to apply mass production techniques to tube manufacture. Mass production was only just beginning to make a mark on car production (thanks to the work of Henry Ford) and its use on articles which were thought of as delicate scientific instruments was unheard of. In parallel with this effort, he also started to develop the first large-scale test equipment for radio tubes, the forerunners of our modern test rigs.

The results of this truly engineering, as distinct from scientific, effort was felt all over the USA. An engineer, it is sometimes said, is one who can make for a penny what any fool could make for a dollar. Du Mont's work raised the production of the Bloomfield works to a staggering 50 thousand tubes of all types per day. This remarkable achievement established the young Du Mont as a production engineer of the first calibre and in 1928 he became Chief Engineer of the De Forest Radio Co. in Passmore, NJ, where his task was to modernise the plant and improve its productivity. This was no small job, because the Passmore plant was the 'oldest' radio tube manufacturing plant in the world; having been set up by Lee De Forest to manufacture the first ever triode radio tubes — it was full of relatively old equipment.

Du Mont gave the De Forest plant the same thorough attention he had devoted to the Westinghouse factory but then turned his mind back to research, since he was convinced that the key to success in radio was continual research and development. He had been fascinated by the patents of Charles Jenkins, one of the US pioneers of TV in the '20s. Jenkins, like Nipkow in the 1870's and Baird in the '20s, used electromechanical methods (involving rotating mirror drums) which produced very low-definition pictures. Du Mont set up a sound and vision system in 1930 but came to the conclusion that such a system could not possibly provide pictures comparable to film movies. Unlike others at the time, he was convinced that nothing else but comparability with the movies would be good enough for public use and that only a fully-electronic system could provide the quality of picture needed. This remarkably logical conclusion led him to the most important step of his life.

In 1931, on his 30th birthday, Allen Du Mont set up his own business. The Allen B. Du Mont Laboratories existed to pursue a new technology — that of the Cathode-ray Tube — as far as was possible.

*Pioneers of
Electronics
Series*



A DuMont oscilloscope, the 304 H.

At the time, the cathode-ray tube was a fragile piece of experimental glassware, a curiosity with few applications. Its design, in fact, had hardly changed since it was invented by Braun at the turn of the century. It would be hard to imagine anyone better suited to convert this primitive piece of glass plumbing into a piece of modern mass-produced scientific equipment and Allen Du Mont flung himself into his self-appointed task with relish. He re-thought the design and construction of the cathode-ray tube with the same energy and thoroughness as he had shown in the Westinghouse plant. He not only improved the primitive design of the tube, he also devised methods of production which were still in use for making experimental storage tubes in 1956. Seeing that no one else in the States was better equipped to make use of the new tubes, he went on to design his own oscilloscope, and built another production line for that.

The Du Mont oscilloscope was a landmark in the history of electronic instruments. It was the first truly commercially-available oscilloscope and was snapped up by laboratories all over the world. It had a good stable timebase, a Y-amplifier with a previously unheard of bandwidth of nearly 1 MHz and it was rugged and dependable. It was to prove, in fact, to be the most significant product of the Du Mont Laboratories, far outshining anything else, and in World War II the Du Mont oscilloscope was chosen by all three military services.

Meanwhile, however, Du Mont's work on the oscilloscope was financing TV receiver techniques. He was following closely the work of Zworykin at RCA, convinced that this line was going to result in the all-electronic TV system he had dreamed of. Zworykin, in the USA, and Schoenberg's team at EMI in England, both came up with the same answer — identical systems — in 1936 and Du Mont was able to manufacture TV receivers and offer them for sale to the public in 1937.

The glory was short-lived, however, because TV development was frozen by the outbreak of war. The Du Mont laboratories were turned over to the manufacture of radar tubes and other electronic equipment, while the production of

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