

1. Early types

This section includes a survey of the earliest tubes, from the Great War up to approximately 1930, to show the evolution of bulbs and electrode shapes together with the evolution of performances in the years. We can observe how the superior performance tubes appeared around WWII and later derive from studies on very early prototypes.

Some of the early tubes are of the ‘soft’ type, with small amount of gas inside. This, because the poor vacuum techniques used by some glass blowers, resulted in increased radio wave sensitivity, when the tube was biased very close to ionization.

No attempt was made to add rare types, each sample just shown as reference to better illustrate the evolution of a particular family in the following years. Often electrodes were loosely supported by glass arbors. Enough spacing was left to allow vibration and bendings of the plate through the tube life.

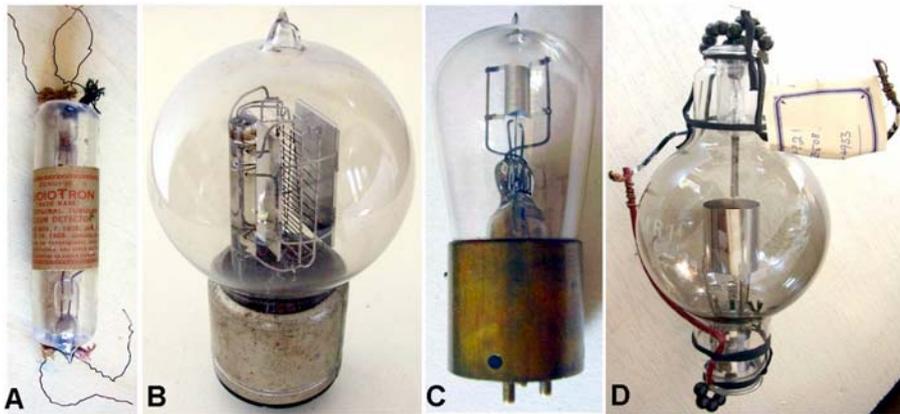


Fig. 1.1 – Early tubes in production during the Great War, 1915-1918. From left, an Audiotron, general purpose detector or amplifier, a VT-2 military transmitting triode, a GE TB1 Kenotron, probably the first ruggedized tube for airborne operation, and a MR1 high-power rectifier, in use by British Royal Navy.



Fig. 1.2 – Tipped bulbs were in use in the first half of the 1920s. Early types for AC operation were sometimes characterized by heater connection from the top, to facilitate the cabling in the upgrade of old battery sets. The third tube from left is one beautiful WWI British transmitting type, shown close to a WE VT-1 of the same years.

Of special interest we find the very early ruggedized tubes developed for military applications during the Great War, about 1915 to 1918.



Fig. 1.3 - American military tubes used during WWI. One of the early triode made by General Electric for Navy and Signal Corps, the CG-1162 / VT-14, was modified with four plate supporting tabs to better withstand shocks and vibrations. The same structure was used in the TB1 diode. Western Electric used frame grids, ribbed plates and a glass arbor to stiffen its military tubes.



Fig. 1.4 - Other interesting vacuum tubes which can be dated around 1920, the Philips D-II triode (1921-1922), the Telefunken RS19 transmitting triode (about 1919) and the British MOV VT30 power triode (1922).

Even some quite common gaseous rectifiers, as the '[Type B](#)' are in this survey because of their role in the story of a leading electronic manufacturer, Raytheon.

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