

6SJ7 voltage amplifier, whereas with the usual modulation it would be of the order of the pulse size itself.

The output of the voltage amplifier, which is set to give pulses of approximately 10 to 50 volts, is fed to a discriminator modulated in the same way but opposite in phase to the one just described. This discriminator suppresses the remainder of the fast-neutron pulse. At the same time the pulses are shortened to a time constant of $2 \cdot 10^{-3}$ sec. After passing through an additional amplifier stage (necessary since the discrimination cannot be performed at the grids of the recording thyratrons) the channel again branches and leads to two separate inverter tubes which restore the pulses to their original height and positive sign. One channel leads to a single thyatron and recording device, recording all the pulses above a certain height, depending on the bias setting of the thyatron. This integral counter served as an additional monitor since its bias is left constant during a measurement.

The other channel leads to a so-called selector, similar in construction to the one described by Roberts⁹⁾. The selector consists of a pair of slightly differently biased thyratrons; their bias can be varied without changing this difference. Pulses actuating none or both thyratrons are not recorded; only those are recorded which actuate only the thyatron with the lower bias. This is accomplished by feeding the output pulses of the self-quenching thyratrons to the primaries of two transformers whose secondaries are connected in series but opposite in phase. If both thyratrons are actuated the difference of the two pulses appears across the two secondaries. This difference can be quite high but is of very short duration since, due to the finite ascending time of

9) Arthur Roberts, Rev. Sci. Instruments 11, 44, 1940