

this sweep was calculated from the values of R and C required to make the event to be measured occur at the instantaneous zero sweep voltage, i.e., on the screen at the place of the undeflected beam. Such a setting is independent of the oscillograph characteristics (amplification and non-linearity) except for the position of the undeflected beam which, before the measurements were taken, was always set to a cross hair by means of a permanent magnet. Phase checking was very frequently done during a measurement. In order to be independent of possible spurious time lags between arc and target current, the phase of the latter was checked by feeding the voltage drop produced by the target current across a resistance of several tenths of a megohm.

The various suitable time values of the events were determined experimentally. Particularly the most important time difference between end of target current and start of measuring interval was set so as to give only very small γ -ray background without having to sacrifice too much intensity (see section 1). The length of the post discriminator interval however had to be determined experimentally rather accurately, since the exact value of the collection time was not known, and also because an additional lag was introduced by the long time constant of the differential selector output. This determination was performed in the following way. At a certain setting of the differential selector bias the counting rate was taken while the setting of start and end of arc, end of post discriminator and end of discriminator interval were kept constant and the start of the discriminator interval was moved towards the arc. If the collection time were zero the counting rate should stay constant, since all the extra pulses starting during the post discrimination are not recorded. With a finite collection time however the counting rate should increase or decrease monotonically depending on the nature of the pulse-distribution curve, as the post discriminator start moves towards the arc.