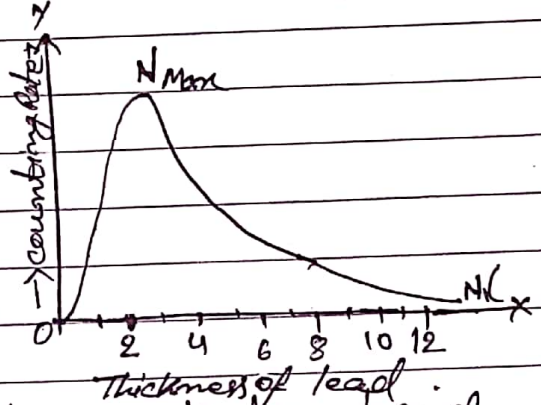


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B.Sc DII
IV 'C'

Rossi Curve →

In 1932 Rossi studied the number of cosmic ray showers as a function of the thickness of the shower producing material. He plotted the counting rate ~~again~~ against the thickness of the ~~lead~~ lead plate and a curve of the form in fig. This curve is called shower producing curve or Rossi curve or Rossi transition curve and is found to have a typical characteristic. Such a curve represents the showers produced by primaries of all energies and a particular type of the coincident counters. N_0 is the counting rate for zero thickness of the lead plate. ~~that is in the observer~~ The shower rate first increases rapidly as the thickness of lead is increased and shows a max (N_{max}) around a thickness of about 1.5 cms. This indicates that with increasing thickness there are either more showers or the showers have more particles originating in the lead, which by the increase in its size help the shower producing agency to do its work efficiently. After that increase in the thickness of lead, the counting rate decreases at first sharply and then slowly. The general decrease is ~~found~~ ~~to~~ be due to the absorption of shower producing agency by the increasing thickness of lead beyond the optimum ~~size~~ size and showers are generated. The initial rapid decrease upto 10 cms of lead



is followed by a very slow continuous decrease. This indicates that the shower producing agency must be particle or photon and roughly consists of two parts -

(a) A highly observable "Soft" component.

(b) A very penetrating "Hard" component.

For great thickness of lead, the counting rate does not fall to zero or even to its value N_0 but settles down at a higher rate N_1 , which decreases very slowly. This shows that a few new showers-producing are being formed continuously in a thick lead layer by some very penetrating primary agency.

Rohr curve throws light also on the 'soft' component of cosmic ray. A greater majority of showers are produced by the soft component.

This result he inferred that the three ~~count~~ counters were affected by two or more secondary particles produced simultaneously by a single cosmic ray as it penetrated the lead plate.