$D = 8.5$ cm and the number of hydrogen atoms per unit volume $h = 2.1 \times 10^{24}$. With these data we would obtain for the number of neutrons with an energy above .82 Mev, i.e., above the maximum of our distribution curve, emerging from our disk per monitor interval

$$N' = 3.7 \times 10^5, \tag{18}$$

i.e., even more than the total number 2.9×10^5 given in equation (17).

An important additional consideration has to be made, however, before deriving the really significant number for the fraction of neutrons above .82 Mev. As discussed in Section 3, our measurements were taken with post discrimination which was adjusted such that the collection of ions for each recorded pulse started when the amplifier was already on. Therefore all recoils produced within a full collection time before the end of the post discrimination were recorded as well as all those following it. The fissions which take place follow the exponential decay lay $e^{-t/\theta}$ of our container as discussed in Section 1, and this decay is completed during the on time of the amplifier. This means that, with a finite collection time T, $e^{T/\theta}$ times more pulses are recorded than would be if collection time were zero. The same remark holds of course for the recording of the fission fragments, which was performed with the identical modulation system as that of the proton recoils. If we call T_1, the collection time for ions in the hydrogen chamber, T_2 that for ions in the fission chamber, one obtains for the fraction of neutrons with energy above .82 Mev, not the ratio of the numbers N and N', given in (17) and (18), but that ratio multiplied with $e^{(T_2 - T_1)/\theta}$. A considerable part of the inaccuracy in our determination lies in this exponential factor. Although the decay time θ (see Section 1, formula 9) has been quite well determined to be 1.8×10^{-3} sec., the collection times T_1 and T_2 are not