probably lies in the difference in the absolute values taken for reference in converting the relative cross sections into absolute ones.

A more detailed report is now in press and will soon appear in the *Scientific Papers of the Institute of Physical and Chemical Research* (Tokyo).

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Radioactive $_{21}Sc^{41}$, $_{18}A^{35}$ and $_{16}S^{31}$

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THE production of these Wigner-type nuclei has already been reported.[1] Energy measurements of the emitted positrons have now been completed by means of a cloud chamber with air and alcohol vapor at atmospheric pressure.

Targets were held in the beam and then placed in a holder which could be swung up to a thin window on the side of the cloud chamber. A picture was taken within two seconds after the sample was removed from the beam. The cyclotron was on only during the actual bombardments which varied from 0.5 to 5 seconds, depending on the sample used. Only one photograph was made for each bombardment, and four bombardments were made per minute. To eliminate the influence of longer periods induced in the samples, six samples were used successively.

The half-life for $_{21}Sc^{41}$ was reported as 0.87 ± 0.03 second.[1] Figure 1 shows the spectrum for the positrons observed from the reaction $_{20}Ca^{40}(d,n)_{21}Sc^{41}$. The magnetic field used was 1276 oersteds; the observed ρ maximum was 142 mm. The upper energy limit obtained for the $_{21}Sc^{41}$ positrons is 4.94 ± 0.07 Mev.

The maximum energy of the positrons and the half-life of A^{35} and S^{31} have been recently also reported by the Princeton group.[2] Their value of 3.2 ± 0.02 seconds for the half-life and 3.85 ± 0.07 Mev for the upper limit of the positrons for S^{31} are in good agreement with our values, 3.18 ± 0.04 seconds[1, 3] and 3.87 ± 0.15 Mev, respectively.

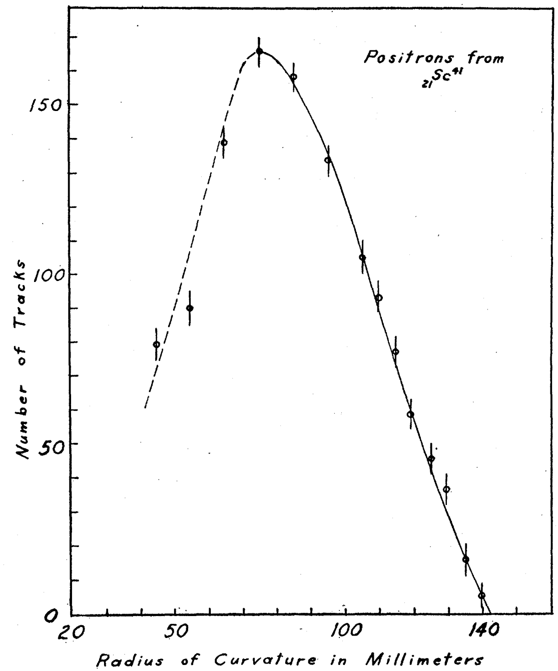

Fig. 1. Positrons from Sc^{41}. Maximum energy 4.94 ± 0.07 Mev, half-life 0.87 ± 0.03 second.

For A^{35} the value of 2.2 ± 0.2 seconds for the half-life and 4.38 ± 0.07 Mev for the maximum positron energy, obtained at Princeton are to be compared with our values of 1.91 seconds and 4.41 ± 0.09 Mev.[1, 3] Since the half-life for A^{35} did not agree with the Princeton results, this period was remeasured with greater accuracy giving 1.88 ± 0.04 seconds. Because of the high energy of the positrons from all of these isotopes, it has been possible to place suitable filters between the samples and the counter so that practically pure periods were obtained.

All of these results are in good agreement with calculated values.[2]

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