about 6×10^{-5} mmHg. under the gas inlet of 15 cc/hr.

After these fundamental considerations and experiments, we bombarded beryllium by the deuterium ion beam of 120 μA having energy of about 340 kilovolts and found the production of neutrons equivalent to about 1 gr. Ra+Be neutron source.

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4. The Intensity Distribution of Slow Neutrons in $KMnO_4$ Solutions

The Production of Radioactive Manganese by Irradiation of Neutrons

Kiichi Kimura, Ryutaro Ishiwari, Masakatsu Sakisaka, Isao Kumabe, Sukeaki Yamashita and *Kōzō Miyake*

(K. Kimura Laboratory)

The target of beryllium was bombarded by the 340 Kev deuteron beam accelerated by the high voltage machine of Cockcroft-Walton type. The Be-D neutron source was placed in the center of the water held in a bottle with the diameter and the depth of 29cm and 30cm respectively, and a glass ampoule containing a small quantity of 5% $KMnO_4$ solution was hung at various distances from the source. The distribution of the slow neutron intensity in the water was measured using the induced activity of radioactive manganese Mn^{56} produced in the ampoule, and the NR^2 curve was plotted, where N was the intensity of the neutron flux and R was the distance from the source. The peak of the NR^2 curve was found at R=10cm.

In the same way, the distribution of the slow neutron intensity in the 5% $KMnO_4$ solution and the yield of the radioactive manganese were observed with the small quantity of $KMnO_4$ solutions.

In both cases, the distribution of the slow neutron intensity seemed to be nearly equal. The intensity of Be-D neutrons producod by our machine was equivalent to that of 1gr Ra-Be neutron source. The yield of the radioactive manganese produced from 8 litres of $KMnO_4$ solution during three hours was estimated to be about 1.5μc.

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5. On the Energy Distribution of the Compton Electrons by Co^{60}-γ

Toshio Azuma, Kunihiko Tsumori and *Kiichi Kimura*

(K. Kimura Laboratory)

The energy spectrum of gamma-rays from Co^{60} (1.17 Mev and 1.33 Mev), reported in the preceding issue of this Bulletin (**26**, 63 (1951)), has been fur-