(γ, p) REACTION IN Co

(Abstract of preceding paper)

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In our present paper, which is a continuation of [2], we have used the nuclear emulsion method to measure the energy and angular distribution of photoprotons from cobalt, irradiated by γ -photons from Li (p, γ) reaction ($E_\gamma = 17.6$ and 14.8 MeV). The experimental arrangement has already been described in [2].

For the measurement of the energy distribution of photoprotons we chose two plates, the results being worked up for both plates separately (Figs. 1 and 2). The measured energy distribution agrees with relation (1) (Fig. 3), which is derived from the evaporation theory. We can thus assume that all protons are produced by evaporation. We used relation (1) for estimating the temperature of the nucleus and got the value $\Theta = 0.74 \pm 0.16$ MeV. For excitation levels E_β^* of the ^{56}Fe nucleus the values 6.75, 6.4, 5.90, 5.47, 4.98, 4.35, 3.50, and 3.20 MeV were found.

The measured angular distribution (Fig. 4) can be approximately described by the empirical relation (2). The angular distribution found does not satisfy any relation which is current in photonuclear reactions. Its interpretation is made still more difficult by the fact that according to the energy distribution we could assume the usual reaction mechanism, i. e. evaporation, that leads to isotropic angular distribution.

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