found that energies of five of eight γ-rays in the spectrum of Fe^{56} are proportional to small integers. This appears to be so also for several light nuclei. In B^{10} there is a set of levels with energy ratios 1:3:5 and isotopic spin $T=0$; the state at 1.74 Mev, with $T=1$ does not fit into this scheme.[8] It may be that several series of lines exist in the spectrum of a nucleus as in that of an atom, and that the levels of each series are multiples of a different energy. The data for B^{11} indicate integral relations also, as has recently been pointed out.[9] They do not, however, justify a hypothesis of integral relations among *all* the observed states of this nucleus. The possibility that integral relations appear for other physical quantities has also been put forward.[10]

I am grateful to Professor E. P. Wigner for his advice and encouragement.

[8] Wigner, Ajzenberg, and T. Lauritsen (private communications).

[9] P. J. Grant, Proc. Phys. Soc. (London) **A65**, 150 (1952).
[10] E. E. Witmer, Phys. Rev. **86**, 618 (1952).

PHYSICAL REVIEW VOLUME 91, NUMBER 2 JULY 15, 1953

The Half-Life of Co^{60}

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(Received March 30, 1953)

A new determination of the half-life of Co^{60} yields the value 5.21 ± 0.04 years.

RECENTLY Lockett and Thomas[1] published a value for the half-life of Co^{60} of 4.95 ± 0.04 year. This differs markedly from the results of previous measurements,[2,3] most of which lie between 5.2 and 5.3 years. In view of this discrepancy, the value obtained to date from measurements in progress in this Laboratory may be of interest.

The half-life of Co^{60} is being determined by comparing the ionization produced in an ionization chamber of high stability[4] by the gamma-radiation from a 100-mC Co^{60} source with that produced by the gamma-radiation from a radium source of about the same strength. The comparison with radium is made in order to eliminate the effects of any long-range variations in the response of the measuring apparatus. Measurements made at intervals of 6 to 12 months for the past three years show no observable deviation from a simple exponential decay. A least-squares analysis of the data leads to a value for the half-life of

$$T_{\frac{1}{2}}=5.21\pm0.04 \text{ years},$$

where the standard deviation has been calculated from the known reproducibility of measurements made with this apparatus over long periods of time.

The above figure disagrees with the new value found by Lockett and Thomas, but agrees well with what appears to be the most precise of the earlier determinations: the value of 5.27 ± 0.07 years found by Tobailem.[3]

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[1] E. E. Lockett and R. H. Thomas, Nucleonics **11**, No. 3, 14 (1953).
[2] J. J. Livingood and G. T. Seaborg, Phys. Rev. **60**, 913 (1941); E. Segrè and C. E. Wiegand, Phys. Rev. **75**, 39 (1949); G. L. Brownell and C. J. Maletskos, Phys. Rev. **80**, 1102 (1950); W. K. Sinclair and A. F. Holloway, Nature **167**, 365 (1951).
[3] J. Tobailem, Compt. rend. **233**, 1360 (1951).
[4] G. C. Laurence, Can. J. Research **7**, 103 (1932).