ther observed by using Aluminum as a radiator of the secondary electrons. The geometrical arrangement of apparatus was the same as those described in the previous report. The experimental results obtained are shown in the following table. The photo-electrons disappeared in the case of Al-radiator.

Table I. Energy Spectrum of Gamma-Rays from Co^{60}

Energy ($H\rho$)	Counts/Min.	
	Pb-Radiator (39 mg/cm^2. 14mmϕ)	Al-Radiator (1 mm thick. 14 mmϕ)
557	212	214
1113	254	305
1670	505	814
2226	1082	1652
2783	2138	2804
3339	3406	4312
3896	4655	6156
4173	4846-(Compton-peak)	6424-(Compton-peak)
4452	4712	6174
4730	4008	5004
4898	3282	4272
5009	8636	3316
5120	3816-(Photo-peak)	2422
5231	2298	1524
5342	2292	1212
5565	1414	416
5676	1636	322
5787	1805-(Photo-peak)	306
5898	1354	292
6010	1066	284
6122	622	264

We found that the method of Richardson-Kurie (Phys. Rev. **50**, 999 (1936)) was also applicable to the analysis of the energy distribution of the Compton electrons which was detected by the lens coil spectrometer. The Compton electrons suffered both the angular distribution determined by the Klein-Nishina formula and the energy straggling calculated by the White-Millington formula (Proc. Roy. Soc. Lond. **120**A, 701 (1928)). The results of the numerial evaluations were shown in table II, taking the peak value of 1.17 Mev.

Table II. Counting Ratio near the Compton Peak.

Energy ($H\rho$)	4000	4100	4200	4300	4400	4500	4550
Counting Rate	915	1095	1270	1050	905	695	350

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6. On the Backscattering of the β-Rays of P^{32}

Toshio Azuma, Hiroshi Nakamura, Isao Kumabe, Kunihiko Tsumori, and *Sakae Shimizu*

(K. Kimura Laboratory)

The amounts of the backscattering of the β-rays of P^{32} were reported in the preceding issue of this Bulletin (**26**, 65. (1951)). In order to analyse the spectrum of the backscattered β-rays more closely, we have measured it by means of the lens coil spectrometer with or without the backscatterer of Pb. The experimental results obtained are shown in the following table.

Table 1. Spectrum of Backscattering.

Energy ($H\rho$)	Counts/Min.		Conuting Rate of Backscattering	
	without Pb	with Pb	Experimental	Theoretical
3060	216±11	336±17	24.0±3.4	26.60
3339	340±12	362±18	24.4±2.4	29.06
3617	264±13	378±19	22.8±2.3	31.19
3896	290±15	392±20	20.0±2.0	30.51
4173	294±15	380±19	17.2±1.7	27.51
4452	296±15	370±19	14.8±1.5	25.39
4730	290±15	354±18	12.8±1.3	21.30
5009	272±14	328±17	10.0±1.0	18.72
5286	256±13	294±15	8.8±0.8	15.64
5565	232±12	270±14	7.7±0.7	12.34
5843	200±10	236±12	5.6±0.6	9.58

To analyse the shape of the backscattered β-spectrum we have tried the theoretical consideration as follows. We assumed many thin layers below the surface of the scatterer, each parallel to it, and these thin layers constitute many surfaces. We also assumed that the β-rays of P^{32} were composed of many monochromatic β-particles. We selected the value of each thin layer as 10 mg/cm^2 and the value of each monochromatic energy interval as $\frac{v}{c}=0.064$. The amount of the energy straggling of the monochromatic β-particls suffered in the thin layer could be calculated by the White-Millington formula (Proc. Roy. Soc. Lond. **120**A, 701. (1928)), and that due to the surface scattering was calculated by the Mott's equation (Proc. Roy. Soc. Lond. **124**A, 425. (1929)) considering the scattered angle of this instrument. The shape of the spectrum of the scattered β-rays could be estimated as the superposed curve of each monochromatic β-ray suffering the effects of the surface scattering on the surfaces and the energy straggling in the thin layers. The results of the numerical evaluation and the experimental values are shown in Table 1.

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7. On the Nuclear Reaction of $_7N^{14}$ by Low Energy Neutrons. (III)

Kiichi Kimura, Ryutaro Ishiwari, Kazunori Yuasa,
Sukeaki Yamashita and *Kōzō Miyake*

(K. Kimura Laboratory)

As we previously reported (Rep. Inst. Chem. Res., Kyoto Univ., **19**, 19 (1949) Mem. Coll. Sci., Kyoto Univ., A **26**, 151 (1950)), we measured the total ioniza-