This is true only if the shape of the absorption wave-length curve is the same on the short wave-length side of the K absorption limit as it is on the long wave-length side.

For low atomic number fluorescing bodies, e.g., copper, a fraction of the incident beam λ' will be scattered rather than absorbed photoelectrically, i.e., in the equation $\mu=\tau+\sigma$ the σ is not negligible. This presumably causes the ionization current measurement i'' of the fluorescence beam λ'' to be too low. This would cause the values of w_K to be too small, which may account for the recomputed measurements of w_K lying below the values given by other authors.

Also if the incident beam λ' is not of uniform intensity along its cross section or if fluorescence radiation from the diaphragm is present it may be that by reducing the area of the beam such that the ratio of areas $S'/S''=0.003305$ that the intensity of the beam is not cut down in the same ratio.

Though the corrections proposed do not remove the maximum value of w_K for molybdenum, they do make the decrease of w_K with atomic number smaller than previously.

R. J. Stephenson

Ryerson Physical Laboratory,
University of Chicago,
April 24, 1934.

Comments on Letter of A. J. Stephenson

The recalculation of the writer's results on fluorescence x-ray yields by Dr. Stephenson is, I believe, of importance, and properly done. It does not seem right, however, to place too much emphasis on the values reported by Martin[1] for selenium, bromine and iodine. These were not experimentally determined by Martin himself, as were his other values, but were calculated by him from the work of Barkla[2] and Beatty,[3] done some years previously. The possible source of error mentioned by Dr. Stephenson as arising from the absorption-curve not being the same on both sides of the absorption-limit would have very little effect on the elements nearer to barium, but might easily affect those much lighter. If this is so, then the work of Locher[4] on argon, neon and oxygen may be seriously affected. The value of the ratio $S'/S''=0.003305$ was not taken from measurements of the diaphragm apertures, but was found by employing several diaphragms of intermediate sizes and measuring the ratios of ionization-currents using them. Incidentally, the value was within two percent of that obtained by taking the ratio of the areas.

Donald K. Berkey

Canajoharie, New York,
May 19, 1934.

[1] L. H. Martin, Proc. Roy. Soc. **A115**, 420 (1927).
[2] Barkla and Philpot, Phil. Mag. **25**, 849 (1923).
[3] Beatty, Proc. Roy. Soc., **A85**, 329 (1911).
[4] Locher, Phys. Rev. **40**, 484 (1932).

Penetrating Power of Asymmetric Component of Cosmic Radiation

A study of the asymmetric component of cosmic radiation was undertaken in collaboration with Drs. Millikan, Bowen and Neher for the primary purpose of determining whether the particles responsible for this East-West effect are in the main secondaries formed within the atmosphere or electrons (+ and −) entering the earth's magnetic field from outside.

The studies were made by the "coincidence counting" method, employing instruments previously described[1] with the modification that the stand built to hold the Geiger counters was also equipped to hold lead blocks with a total thickness of 30 cm in the solid angle determined by the counters. With this arrangement studies were made at Mexico City, elevation 7250 feet, geomagnetic latitude 29°N reckoned from a corrected north magnetic pole at 78° 30′; at Arequipa, Peru, elevation 7750 feet, magnetic latitude 3°S, and at Cailloma, Peru, elevation 14,350 feet, magnetic latitude 2°S. Observations were made by rotating the counter arrangement about a vertical axis at intervals of 90 minutes, alternately east and west of the magnetic meridian. Alternate days the apparatus was operated with and without lead in front of the counters. The ratio of the counting rates, West/East, with and without lead is given in Table I.

Table I. *Counting rates, with and without lead, West/East.*

Geomag. lat.	Elev. ft.	Zenith angle	W/E, no lead	W/E, 30 cm Pb
29° N	7,250	45°	1.091±0.014	1.060±0.016
3° S	7,750	15	1.06 ± .02	1.00 ± .03
		30	1.095± .02	1.02 ± .03
		45	1.138± .014	1.09 ± .016
		60	1.120± .02	1.05 ± .03
2° S	14,350	50	1.16 ± .03	1.09 ± .03

The counting rates observed without lead are in good agreement with those reported by Johnson[2] in the same latitudes. It is evident from the data that the introduction of lead produces a marked decrease in the "west excess."

In order to determine the amount of this decrease as a function of the thickness of lead, a run was made with various thicknesses. These results are presented in Table II. The observations were made at Mexico City, zenith angle 45°, and represent about 12,000 coincidences.

[1] S. A. Korff, Phys. Rev. **44**, 515 (1933).
[2] T. H. Johnson, Phys. Rev. **43**, 834 (1933); Alvarez, Phys. Rev. **43**, 835 (1933).