beam to enter the detector. The change amounted only to narrowing and lengthening the accelerating slits and placing the accelerators closer together.

The apparatus was tested by looking for the ionization of argon by potassium ions previously observed and reported.[1] The ionization of the argon was so intense that it was estimated conservatively that an effect one-one hundredth as large could certainly have been observed.

The argon was removed and the tube filled with mercury vapor at suitable pressure (10^{-2} to 10^{-1} mm) by closing off the tube with a mercury cut-off and heating the whole tube and cut-off to the proper temperature as given in the *International Critical Tables* for mercury vapor pressures. No ionization of the mercury was observed at all by potassium ions of energies up to 300 electron volts. The result is surprising in view of the fact that ionization of mercury by sodium ions had previously been observed.[2] It now appears as if the ionization by sodium ions if it really exists is the result of a purely fortuitous interaction which can occur between Na^+ and Hg. The work is being checked.

The senior writer wishes to express his indebtedness to Professor R. T. Birge and Professor Leonard B. Loeb for the privilege of working in the physics laboratory of the University of California.

ROBERT N. VARNEY

New York University,
University Heights.

MILTON E. GARDNER
A. C. COLE

University of California,
Berkeley, California,
August 16, 1937.

[1] R. N. Varney, Phys. Rev. **47**, 483 (1935).
[2] Varney and Cole, Phys. Rev. **50**, 261 (1936).

Disintegration of Boron by Deuterons

In a previous experiment, Bonner and Brubaker[1] investigated the neutrons from the disintegration of boron by 0.9 MV deuterons. From the measurement of the energies of recoil protons it was shown that there were neutron lines at 4.35, 6.35, 9.1 and 13.2 MV. When recoil helium nuclei were used to measure the neutron energies, the same lines were observed with the possible exception of the one at 13.2 MV. At that time it was suggested that the absence of high energy recoils might be due to the fact that 13 MV neutrons do not make elastic head-on collision with helium nuclei. The present experiment has been done to clear up the question as to whether the expected high energy helium recoils are missing.

3500 pairs of stereoscopic pictures were taken when boron was bombarded with 0.9 MV deuterons. For this series of pictures the cloud chamber was filled with helium at a pressure of 10.5 atmospheres. The energy distribution of the recoils in the forward direction ($0-10°$) indicated neutron lines with energies of about 4.3, 6.3, 9.1 and 13.2 MV, the last three having relative intensities of 1, 3, and 1, respectively. Thus it seems certain that 13 MV neutrons do make elastic collisions with helium nuclei.

The relative intensity of the 13.2 MV line (as compared to the 9.1 MV group) appears somewhat weaker when detected with recoil helium nuclei than with recoil protons. If this small effect is not due to experimental error it may be due to a difference in the variation of the collision cross section with energy for helium and hydrogen nuclei.

W. E. STEPHENS
T. W. BONNER

Kellogg Radiation Laboratory,
California Institute of Technology,
Pasadena, California,
August 4, 1937.

[1] Bonner and Brubaker, Phys. Rev. **50**, 308 (1936).

Errata: Magnetic Quadrupole Field and Energy in Cubic and Hexagonal Crystals

(Phys. Rev. **44**, 38 (1933))

and

Magnetic Interaction and Resultant Anisotropy in Strained Ferromagnetic Crystals

(Phys. Rev. **52**, 18, (1937))

In analyzing the effects of strain on magnetic interaction in crystals I have had occasion to recompute S_{40}, a coefficient fixing the magnitude of so-called quadrupole energy terms,[1] and have discovered a mistake, made in 1933, in reducing correct lattice sums of fourth-order zonal harmonics to the form chosen for publication. The mistake does not affect any conclusion yet based upon the erroneous values since the resulting discrepancies lie within the present accuracy of measurements. The following are the changes that should be made in the interest of accuracy.

In Phys. Rev. **44**, 38–42 (1933) in the last paragraph on page 40 write $A_0'=(21/2)R_c$ and $A'=-(105/4)R_c$ for $A_0=(21/2)NR_c$ and $A=-(105/4)NR_c$. In Table III on page 41 the last two entries in the last column should be -1.77512 and -4.30040 instead of -1.77562 and -4.11336.

In Phys. Rev. **52**, 18–30 (1937), in Table II on page 21, the values of S_{40} under "Body-Centered Cubic" and "Face-Centered Cubic" should be -3.10646 and -7.52569 instead of -3.10734 and -7.19838. In Table III, part 1, and in Table IV, the "First Anisotropy Coefficient" (quadrupole part) should be multiplied by 0.99972 for body-centered crystals, by 1.04547 for face-centered crystals, and K_1 changed as necessary to correspond.

L. W. MCKEEHAN

Sloane Physics Laboratory,
Yale University,
New Haven, Connecticut,
August 5, 1937.

[1] For an explanation of this notation see Phys. Rev. **52**, 18–30 (1937).