The electric field acting on the iron ion is taken to be due to the octahedron of water molecules surrounding the ion and is, therefore, of predominantly cubic symmetry. The single energy level of the ${}^6S$ state of the normal ion splits,[3] under the influence of the crystalline field, into two levels, one doubly degenerate, the other quadruply degenerate. The expected relative intensities and positions in oersteds of the absorption lines are shown in Table I for the three orientations used in these measurements. δ is the level separation, or zero-field splitting in cm^{-1}, and g is the effective g value of the paramagnetic ion.

The patterns for the three orientations differ only in the separation of the side peaks from the central maximum. The side peaks are resolved from the central peak only in the (100) orientation of the diluted salts, although here, too, the overlapping of lines is appreciable. The theoretical spectra shown in the figure are those obtained with $\delta = 0.032$ cm^{-1}; this value of δ was chosen to give the best fit between the weighted mean of the side peaks in the theoretical spectrum and the observed side peaks of the (100) orientation. Because of the overlapping of the lines and their unknown shapes this value is approximate.

The curves for the (111) and (110) orientations are not inconsistent with this choice of δ. Although it is impossible to assign a value to the splitting for the undiluted salt, it appears that there is very little change in the splitting with changes in dilution.

The position of the central peak is the same for all curves and corresponds to $g = 1.99 \pm 0.01$.

A rough graphical analysis of the observed pattern made on the assumption of a Gaussian line shape and a constant line width for all resonances in a given orientation does not yield agreement with the theoretical intensities, the intensity of the observed central peak being relatively too strong.

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** Deceased October 8, 1949.

[1] Whitmer, Weidner, Hsiang, and Weiss, Phys. Rev. **74**, 1478 (1948).

[2] Bagguley, Bleaney, Griffiths, Penrose, and Plumpton, Proc. Phys. Soc. **61**, 551 (1948).

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Energy for Diffusion by Direct Interchange

H. B. Huntington
Physics Department, Rensselaer Polytechnic Institute, Troy, New York
AND
Frederick Seitz
Physics Department, University of Illinois, Urbana, Illinois
October 17, 1949

We are much indebted to Professor Zener for calling our attention to an error in the value given in our paper[1] for the electrostatic energy associated with the saddle-point configuration (Fig. 2A in reference 1) for direct-interchange diffusion in copper. The original value was 11 ev. On recalculation the energy for the same configuration turns out to be 4.8 ev.

Besides the electrostatic term there is an increase in the energy of this configuration associated with the closed shell repulsion of the ion cores. This has been estimated to be 6.2 ev on the basis of a repulsive potential of exponential form with parameters chosen to fit with the known elastic constants of copper. It is admittedly a severe extrapolation to use the elastic data to calculate the interaction energy of copper ions at distances of approach as close as those occurring in this configuration. We decided to re-examine also this part of the direct interchange calculation to find out to what extent the result had been prejudiced by the choice of an exponential repulsion. Recent measurements on the compressibility of copper have been reported by Bridgman[2] for pressures up to 30,000 kg/cm^2. They can be interpreted to give a variation of bulk modulus of 7.8×10^{10} dy/cm^2 for one percent change in volume. This turns out to be only about 20 percent more than the value obtained from the fourth term in the expansion of the exponential potential. While the closeness of this agreement may be some extent fortuitious, the general validity of the original approach appears to be substantiated. If one constructs a cubic expression for the potential, using the same constant term as in the expansion of the exponential and evaluating the other coefficients from the elastic constants and the high pressure data, one obtains for the energy of repulsion for the saddle-point about 5.5 ev against 6.2 as previously quoted.

Within the limits of this calculation, the results indicate that direct interchange is ruled out for the self-diffusion of copper by energetic considerations.

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[1] H. B. Hungtington and Frederick Seitz, Phys. Rev. **61**, 315 (1942).

[2] P. W. Bridgman, Proc. Am. Acad. Arts Sci. **77**, 198 (1949).

Erratum: The Equation of State of Gaseous He^3

[Phys. Rev. 76, 998 (1949)]

J. van Kranendonk, K. Compaan, and J. de Boer
Institute for Theoretical Physics, University of Amsterdam, Amsterdam, Netherlands

In consequence of an unfortunate misunderstanding this letter has been printed with the following errors:

The formula (1) for B should read:

$$\text{“}\, B = -\frac{N}{2\pi^2}\left(\frac{h^2}{\pi m\kappa T}\right)^{5/2} \int_0^\infty \sum_l (2l+1)\delta_l \eta_l(k) \exp\left(-\frac{\hbar^2 k^2}{m\kappa T}\right) k dk + N\left(\frac{h^2}{\pi m\kappa T}\right)^{3/2} \sum_n \sum_l (2l+1)\delta_l (e^{-E_{nl}/\kappa T} - 1) + \frac{N}{32}\left(\frac{h^2}{\pi m\kappa T}\right)^{3/2},$$

where $\delta_l = \frac{1}{2} - (-1)^l \frac{1}{4}$.”

The last sentence in the lines following the equation should read: “*The influence of the statistics*, i.e., of the symmetry character of the wave functions is reflected, firstly in the last term which is positive for F.D. statistics and negative for B.E. statistics, and secondly in the value of δ_l which transforms into $\frac{1}{2} + (-1)^l \frac{1}{4}$ in the case of B.E. statistics.”

The table should be corrected as follows:

T	He^3 B.T$^{3/2}$	He^4 B.T$^{3/2}$
0.51	−107	−388
1.02	−205	−401
2.04	−331	−477
3.07	−412	−543
4.09	−469	−592
5.11	−511	−625
6.13	−541	−644
7.15	−561	−654

“The contribution of the last term of (1) to $BT^{3/2}$ is constant and equal to 45.5 cm^3 degree $^{3/2}$/mole. A detailed account of these calculations will appear shortly in *Physica*.”

On the Magnetic Moments of Sn^{115}, Cd^{111}, Cd^{113}, Pt^{195}, and Hg^{199} *

W. G. Proctor and F. C. Yu
Department of Physics, Stanford University, Stanford, California
October 13, 1949

Using the nuclear induction spectrometer described in an earlier letter,[1] the magnetic moments of Sn^{115}, Cd^{111}, Cd^{113}, Pt^{195}, and Hg^{199} have been measured, in good agreement with these results from hyperfine structure measurements: $\mu(\text{Sn}^{115}) = -0.89\mu_N$;[2] $\mu(\text{Cd}^{111}) = -0.65\mu_N$;[3] $\mu(\text{Cd}^{113}) = -0.65\mu_N$;[3] $\mu(\text{Pt}^{195}) = 0.6\mu_N$;[4] $\mu(\text{Hg}^{199}) = 0.547\mu_N$.[5] Resonance amplitudes were consistent with a spin of $\frac{1}{2}$, as obtained by hyperfine structure ob-