An attempt to use an a.c. method of measuring the flux through the pick-up coil brought to light a curious coincidence. The increasing conductivity of the lead, and the corresponding increase in eddy currents as the temperature was lowered, reduced the 60 cycle a.c. voltage induced in the pick-up coil just above the transition temperature to only 10 percent above its value just below the transition. This made the transition difficult to detect by use of a.c., although it was clearly marked in the d.c. ballistic measurement.

[1] W. V. Houston and C. F. Squire, Science 109, 439 (1949); Wexler and Corak have just communicated to us results in agreement with our present observations.

The Microwave Spectra of CD₃Cl and CD₃I*

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IN order to obtain further microwave data to make possible the complete solution of the structure of methyl chloride and methyl iodide, preliminary investigations have been made of the pure rotational transitions $J=0 \to 1$ for CD₃Cl and $J=1 \to 2$ for CD₃I using a single crystal detecting system.[1] The frequencies of the hypothetical, unsplit rotational lines, ν_0, for each transition and the resulting moments of inertia are given in Table I. The ratio of the intensities of the absorption lines for the transitions $K=0 \to 0$ and $K=1 \to 1$ in the spectrum of CD₃I has been found to agree well with that predicted by the theory of Dennison[2] when the spin of D is taken as one.

TABLE I. Pure rotational frequencies and molecular constants for the ground vibrational state.

Molecule	J Transition	ν_0 (mc/sec.)	I_B (10^{-40} g-cm²)
C¹²D₃Cl³⁵	$0 \to 1$	21688 ± 5	77.36_5
C¹²D₃Cl³⁷	$0 \to 1$	21325 ± 5	78.68_5
C¹²D₃I¹²⁷	$1 \to 2$	24162 ± 2	138.8_9

In Table II are given the molecular dimensions evaluated by combining the above data with that given by Gordy, Simmons, and Smith[3] in equations which follow from the geometry of the molecules. The results are seen to be in good agreement with the values in the earlier determination,[3] the trend in d_{CH} and $\angle$HCH being definitely established. It is felt, however, that the large value of $\angle$HCH obtained for CH₃I is not consistent with a d_{CH} equal to the methane distance, probably due to differences in the zero-point vibrational energies of CH₃I and CD₃I.

In the structure determinations it was assumed that the distances and angles in the ground vibrational state are the same for all isotope combinations. Since this is not strictly correct, the molecular dimensions are not exact solutions of the equations. In this case of methyl chloride the four equations for C¹²H₃Cl³⁵,

TABLE II. Molecular dimensions of methyl chloride and methyl iodide.*

Molecule	d_{CX} (10^{-8} cm)	d_{CH} (10^{-8} cm)	$\angle$HCH
CH₃Cl	1.786_4	1.10_0	$111° 24'$
CH₃I	2.144_0	1.09_3	$112° 3'$

* The values of all physical constants used here have been taken the same as those of reference 3 with $M_D = 2.01473$ as given by R. T. Birge, Rev. Mod. Phys. 13, 233 (1941).

C¹²H₃Cl³⁷, C¹²D₃Cl³⁵, and C¹²D₃Cl³⁷, respectively, are satisfied to better than 6 parts in 10⁵ by the dimensions given in the table.** The methyl iodide dimensions satisfy the equations for C¹²H₃I²⁷, C¹³H₃I²⁷, and C¹²D₃I²⁷ to about 12 parts in 10⁵. In addition, use has been made of the I_A values of 5.52 for methyl chloride and 5.50 for methyl iodide as used by Gordy, Simmons, and Smith[3] in fixing the relative magnitudes of d_{CH} and $\angle$HCH. The availability of more accurate values of I_A would enable a closer determination of these two quantities.

Measurements are now being made of the spectra of C¹³H₃Br and C¹²D₃Br in order to determine more accurately the structure of the methyl bromide molecule.

I wish to thank Dr. Walter Gordy for helpful discussions and Mr. V. E. Pilcher who assisted in the construction of the microwave system.

[1] W. Gordy and M. Kessler, Phys. Rev. 72, 644 (1947); W. Gordy, Rev. Mod. Phys. 20, 668 (1948).
[2] D. M. Dennison, Rev. Mod. Phys. 3, 280 (1931); G. Herzberg, *Infrared and Raman Spectra of Polyatomic Molecules* (D. Van Nostrand Company, Inc., New York, 1945), p. 28.
[3] Gordy, Simmons, and Smith, Phys. Rev. 74, 243 (1948).

Erratum: The Influence of the Length of a Hot Wire on the Measurements of Turbulence

[Phys. Rev. 75, 1263 (1949)]

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IN the particular case when $R_x = \exp(-\pi x^2/4L_x^2)$ the factor $I_b = (L_x/l) erf\{[(\pi)^{\frac{1}{2}}/2]l/L_x\}$ [and not $=1$]. In this case $R_{b,x} = R_x$ and $\lambda/\lambda_{b,x} = 1$ and no correction is necessary for the correlation coefficient.

The Excited State of Li⁷ and the Angular Yield in Li⁶(d,p)Li⁷*(γ)Li⁷

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THE recent discussions[1-3] concerning the nature of the 480-kev excited state of Li⁷ make it desirable to seek additional experimental evidence which will contribute to the interpretation. On the basis of the existing evidence it appears probable[3] that the state has $I = 5/2$. Feld[4] has proposed the measurement of a possible angular correlation in successive $\alpha - \gamma$-emission in the B¹⁰(n,α)Li⁷*(γ)Li⁷ reaction as a means of testing the various assignments which have been proposed for the excited state. The most significant result is that a definite angular correlation of the form $1 + A \cos^2\phi$ in this experiment would exclude the possibility of $I = \frac{1}{2}$ for the excited state, but would allow $I \geq \frac{3}{2}$.

In this B¹⁰(n,α)Li⁷*(γ)Li⁷ reaction, the incident thermal neutrons have $l = 0$. As a result both the alpha-yield and the gamma-yield when measured independently of each other must be spherically symmetric. This is in contrast to the Li⁶(d,p)Li⁷*(γ)Li⁷ reaction, in which the angular distribution of the protons has been measured[5] and found to be of the form $1 + \alpha \cos\theta + \beta \cos^2\theta + \gamma \cos^3\theta + \delta \cos^4\theta$ at several deuteron energies between 400 and 900 kev. It follows from this that the angular yield function of the gammas