likely than those of atomic or ionic collisions to bring about an alteration in the relative intensity distribution of these bands[3], the present results, in the case of sequences, show that the atomic or ionic collisions are affected by irradiation. Further evidence on this point is afforded by the observation in the present investigation that external irradiation alters the intensity distribution of the bands in a manner similar to the substitution of air for nitrogen as recorded in experiments[4] on low-pressure induction-coil discharges through nitrogen and air.

The effect observed in the two progressions has to be attributed to an induced perturbation of the low v'' levels brought about by irradiation. A somewhat similar perturbation of these levels brought about by changes in discharge conditions has been observed in the first positive system of bands by Kaplan[5] and others[6].

Details are being submitted for publication elsewhere.

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Microwave Spectrum and Structure of Iodosilane

It has come to our notice that independent studies of pure-rotation spectra of the symmetric-top molecule H_3SiI have been made in our two laboratories. The $J = 2 \rightarrow 3$ and $J = 3 \rightarrow 4$ transitions of $H_3{}^{28}SiI$ were observed at Schenectady with a Stark modulation microwave spectrograph, and the $J = 3 \rightarrow 4$, $J = 4 \rightarrow 5$ and $J = 5 \rightarrow 6$ transitions were observed at Birmingham with a microwave spectrograph of the 'video' type operating between about 20,000 Mc./sec. and 40,000 Mc./sec. Good agreement exists between the results of the two investigations. The hyperfine structures of the spectra can be well fitted to patterns calculated for the nuclear quadrupole coupling of the iodine nucleus, second-order effects being allowed for[1]. For $H_3{}^{28}SiI$, B_0 is 3,215·6 Mc./sec., the corresponding moment of inertia, I_B, is $260{\cdot}90 \times 10^{-40}$ gm.cm.^{2}, and the nuclear quadrupole coupling factor, eqQ, for ^{127}I is $-1{,}240 \pm 30$ Mc./sec.

If we assume the Si—H distance to be 1·55 A., and the angle H—Si—H to be 111°, which is a configuration for the SiH_3 group close to that found in H_3SiCl [2] and H_3SiBr [3], the Si—I distance in iodosilane is found to be 2·433 A. This result is not very sensitive to reasonable variations in the assumed parameters; for example, the calculated length of Si—I is increased by only 0·004 A. if the angle H—Si—H is increased by 2°, or if the Si—H bonds are shortened by 0·04 A. The Si—I distance found agrees with that reported[4] in SiI_4 by electron diffraction, which appears to be the only previously determined length for such a bond. The length found is slightly less than that predicted by the Schomaker–Stevenson rule[5]. Iodosilane therefore falls into line with H_3SiCl [2] and H_3SiBr [3], in which Si—Cl obeys the rule and Si—Br is slightly shorter than predicted, whereas in the corresponding methyl halides the carbon–halogen bonds are longer than predicted by the rule[6]. The nuclear quadrupole coupling of ^{127}I in H_3SiI is only about 64 per cent of that in methyl iodide, which also indicates that the Si—I and C—I bonds here differ in ways similar to those in which the silicon–halogen bonds in H_3SiCl and H_3SiBr differ from the corresponding bonds in the methyl halides[2,3].

More detailed measurements on these spectra, as observed in the 'video' instrument, are in progress, and it is hoped that these will make possible the determination of distortion coefficients for this molecule, and perhaps somewhat more closely determined values of B_0 and eqQ. It is also expected that the spectra of $H_3{}^{29}SiI$, $H_3{}^{30}SiI$ and deuterated iodosilanes will be observed and make possible a fuller determination of the molecular structure.

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'Giant' Fibres in Dragonfly Nymphs

A preliminary study of transverse and horizontal sections through the ventral nerve cord of late instar nymphs of *Anax imperator* (Anisoptera) has revealed several notable features. Accurate counts of the number of fibres within the commissures have shown that these range continuously from 0 to 16 μ, as set out in the accompanying histogram (Fig. 1). The total number of fibres is approximately the same for the two commissures. Measurements of axon diameters show that some of the larger fibres (12–16 μ) are comparable with the 'giant' fibres of the cockroach[1] and locust[2]. As in the nerves to the stellate ganglia of *Sepia*[3], these fibres form part of a continuous size spectrum and do not appear to differ in nature from the smaller ones. The 'giant' fibres are almost certainly the same as fibres *a*, *b* and *c* described by Zawarzin[4] in his classical studies of *Aeschna* nymphs using a methylene blue technique. The 'giant' fibres pass through all the abdominal