tributes 0·016 per cent of total cosmic rays in the same energy region. The angular width of the point source was estimated by various methods to be not more than 5°. Increase of cosmic rays at the position was observed at both azimuths. Positions observed at the two azimuths were identified through the correction for the geomagnetic deflexion, which depends on the charge and momentum of effective primary particles. They were presumed statistically to be positive and 2 Størmers ($P \doteqdot 240$ GeV./c.) respectively by the previous scanning, and were shown to be correct through the observation of this particular point source.

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The Near Ultra-Violet Bands of *para*-Dichlorobenzene

The bands in the near ultra-violet of *p*-dichlorobenzene were first studied in absorption by Wollman and reported by H. Sponer[1], who gave a general analysis and description of the bands. Recently, T. Anno and T. Matubara[2] have published a detailed analysis of these absorption bands obtained at different temperatures. Work on these bands, in absorption as well as in emission, has been in progress in this laboratory for some time past. Comparison of our results with those of earlier workers is thought worthy of advance publication, since the spectrum has also been obtained in emission and there are a few interesting points of difference in analysis.

The position of the zero band as measured by us is 35,755 cm.$^{-1}$ in absorption and 35,752 cm.$^{-1}$ in emission. The divergence is within experimental error. The value is again in agreement with that in absorption reported by Anno and Matubara, namely, 35,750 cm.$^{-1}$, but differs from that given by Sponer, namely, 35,743 cm.$^{-1}$.

The main progression, which consists of doublet bands, involves the upper-state frequencies near 1,061 and 1,051. Anno and Matubara correlate these frequencies with the ground-state frequencies 1,164 and 1,102 respectively, observed in absorption and Raman effect. But in the emission spectrum obtained by us, there is a broad band at 34,672 cm.$^{-1}$, which perhaps represents two unresolved bands involving the ground-state frequencies 1,084 and 1,071. The ground-state frequencies 1,164 and 1,102 do not seem to occur in the emission spectrum. Further, from the polarization measurements of the Raman lines, Saxena and Narain[3] suggest that perhaps 1,084 and 1,071 form a Fermi doublet. Thus the data of the emission spectrum and the intensity and polarization of the Raman lines appear to favour the correlation of the upper-state frequencies 1,061 and 1,051 to the ground-state frequencies 1,084 and 1,071 rather than to 1,164 and 1,102 respectively.

The ground-state frequency 248 observed by us and also by Anno and Matubara does not seem to have a corresponding Raman line, unless it is a very faint line at 232 cm.$^{-1}$ reported by Kohlrausch and Paulsen[4] (and referred to by Sponer and Nordheim[5]). In emission, there is a band of medium intensity on the longer wave-length side of the zero band at a separation of 251 cm.$^{-1}$. This band probably corresponds to the ground-state frequency 248 observed in absorption.

The totally symmetric ground-state frequency 331 is correlated with 244 in the excited state by Anno and Matubara. But the intensity of the band involving the frequency 244 is low, and although this is not, by itself, an argument against its being totally symmetric, we prefer to regard it as a satellite of the band involving the upper-state frequency 329. This assignment has also been suggested as an alternative one by Anno and Matubara.

The prominent difference-frequencies of about 25 and 85 are observed by all workers. Of the other difference-frequencies 9 and 16 reported by Anno and Matubara, only the first occurs in association with weak bands on our plates, while there is no trace of the bands involving the difference-frequency 16. This is no doubt due to the fact that we restricted our studies to room temperature, about 30° C., where this difference-frequency is either absent or very weak[2].

The occurrence of the ground-state frequencies 302 and 486 is regarded as rather uncertain by us, as the bands involving these frequencies can have alternative assignments.

A detailed treatment of the bands obtained in absorption and emission is to be published elsewhere.

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Correlation of Nuclear Quadrupole Interaction Frequencies with Polarographic Half-Wave Potentials

When the nuclear quadrupole interaction frequencies of some aryl iodo-compounds are plotted against the corresponding half-wave potentials of these compounds at *p*H 7 (Fig. 1) a general linear

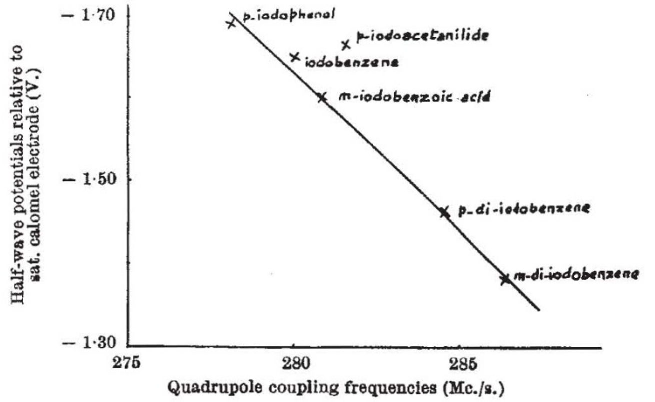

Fig. 1