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The Liquid Crystalline and Isotropic States with Special Reference to Para Azoxyanisol

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gives a liquid type of peak, but not necessarily because of the likeness of the assumptions to liquid structure.

(2) The number of peaks increase with the number of terms used until the Bragg's law number of peaks is reached.

(3) The position of the first peak with one term is in error by 20 per cent. Its location with increasing terms oscillates and then approaches slowly the correct crystal position.

(4) The second peak is first attained with the acquisition of the second term. It requires five terms for it to reach within 3 per cent of the correct position.

(5) The third peak appears with fifth terms.

(6) The integral term is most effective in keeping the intensity smaller within the first principal peak.

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Two proposals are:
1. The liquid crystal of para azoxyanisol consists of molecules lying parallel. It is strongly optically anisotropic. The transparent liquid is optically isotropic and the molecules, if there is structure, are arranged so that the molecular anisotropy cancels.

2. The nature of the liquid crystal is as just stated. The transparent liquid consists of cybotactic groups with indefinite boundaries with regularity marked within say 30 A.u. diameter and with irregularity between the regularities. The liquid crystal probably consists of approximate like orientation of these minor groups in a group large enough to show optical anisotropy.

The experiments of Letner show that the X-ray diffraction curves in the two states are similar yet different, the difference in intensity of the peak corresponding to the greater coherent diffraction in the liquid crystal. This is in favor of the second proposal as contrasted with the first of Kazt.

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