

ANISOTROPIC CRYSTAL GROWTH IN THIN CARBON FILMS.

Thin evaporated carbon films have been heat-treated at temperatures up to $2,500^{\circ}\text{C}$, and the resultant changes in L_a determined from the breadths of the transmission electron diffraction peaks. Isothermally, L_a appears to follow a $t^{1/2}$ law. Electron microscopy of films heated above $2,200^{\circ}\text{C}$ has shown that individual crystallites become markedly anisotropic as they increase in size, developing a length:breadth ratio (in the film plane) as high as 10:1. It has been shown that this anisotropy could account for the scatter in the values of L_a obtained from the diffraction measurements. Linear arrays of crystal defects (thought to be non-basal dislocations) have been observed, which appear to play an important role in the mechanism of graphitisation in these films.

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