

Abstract of Paper 2 for the Eighth  
Biennial Conference on Carbon<sup>+</sup>

The Mosaic Character of Graphite as  
Revealed by Catalytic Oxidation

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By oxidizing graphite crystals at elevated temperatures in the presence of either boric or molybdic acids, small-angle boundaries, which convert a so-called single crystal into a mosaic of crystallites (or 'blocks') may be revealed. The method enables the dimensions of each crystallite to be determined directly; the degree of parallelism of adjacent crystallites to be estimated; and the nature of the interface separating any given pair of crystallites to be characterized. Boundaries of pure tilt, of pure twist and of mixed character may be identified from the trace of the interface plane (developed by catalytic oxidation) on the basal surface.

Large variations in the reactivity from one crystallite to another within a single crystal have been

noted, there being evidence to suggest that some residual lattice impurities (analyzed mass-spectrographically) and localized accumulations of lattice defects (particularly vacancies) may be important in this connection. The implications of these findings in relation to studies of reactivity and diffusion are briefly discussed.

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Work supported by the U.K.A.E.A., Harwell.