

### *Dendritic Growth of Polyoxymethylene Crystal*

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It has been reported by Geil and others<sup>1-3)</sup> that polyoxymethylene (POM) crystallized from a dilute phenol solution or from dimethyl phthalate forms the regular hexagonal plate single crystal\*. Figure 1 shows that a fresh single crystal of POM grown from aniline has the same hexagonal form.

However, the dendritic growth of the needle-like crystal of POM was observed in some specimens which had been aged for a month after their preparation. A typical electron-micrograph of the POM dendrite is shown in Fig. 2. The crystal aspect of the dendrite is similar to that of the whisker or the snow crystal. To prevent thermal damage to the crystal by electron beam irradiation, the specimen was cooled in an electron microscope by liquid nitrogen below  $-50^{\circ}\text{C}$  during the observation.

Though the hexagonal plate and the dendrite

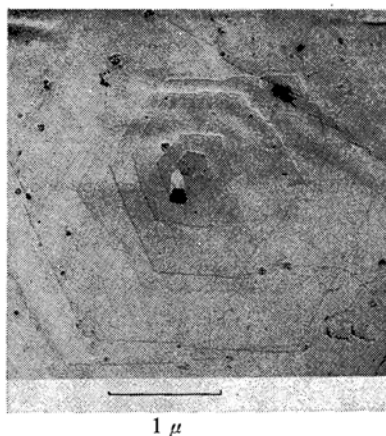


Fig. 1. The regular hexagonal single crystal of polyoxymethylene.

1) P. H. Geil, N. K. J. Synons and R. G. Scott, *J. Appl. Phys.*, **30**, 1516 (1959).

2) D. H. Renker and P. H. Geil, *ibid.*, **31**, 1916 (1960).

3) K. Kobayashi, reported at the 17th Annual Meeting of the Society of Electron-microscopy of Japan, May, 1961.

\* The six-pointed star-like crystal was also obtained from cyclohexanone<sup>2)</sup>.

were apparently different in form, however, the same crystal structure was obtained from their electron diffraction patterns in the process of our experiment.

Our results suggest that the polymer crystal can grow in other forms than in the thin plate

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Fig. 2. The dendrite of polyoxymethylene.

(lamellar) form which is commonly known. Further experiments are now in progress.

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