line polymers. In this contribution, the various models of crystalline polymers such as Hosemann's 'paracrystalline model' are reviewed. Throughout, the emphasis is on the dangers of limitations of SAXS and on its ability to discriminate among the various possible structural models. Hall & Toy have done the polymer science community a great favor by writing this review on SAXS and its limitations.

The sixth chapter is by H. K. Herglotz on *Long-wavelength X-ray scattering to study crystal morphology.* The existence of large-scale organizations in a crystalline polymer solid such as spherulites is well known. While 1.54 Å copper radiation is a good match for the interatomic distances, the same cannot be said about repetitive morphological features. This limitation of classical X-ray wavelength renders it profitable to exploit aluminum (8.34 Å) and carbon (44.7 Å) radiations to unravel features of the polymer solid greater than the size scale of the crystallographic cell. This chapter covers reasons for and difficulties with long-wavelength X-ray diffraction to probe crystalline polymer structure. This chapter is quite useful for users of synchrotron radiation, which can also generate long-wavelength X-rays. Again, this paper emphasizes the dangers of misinterpretation that may trap the unwary experimenter.

The seventh and final chapter is contributed by C. P. Buckley & A. J. Kovacs on *Chain folding in polymer crystals: evidence from microscopy and calorimetry of poly(ethylene oxide).* Chain folding has long been a controversy in polymer physics concerning the crystalline state, particularly for polymers recrystallized from the melt. In this chapter, low-molecular-weight fractions of poly(ethylene oxide) are selected for the study of chain folding and have been the subject of extensive and rigorous investigation using SAXS, optical microscopy and differential scanning calorimetry. The results are used to shed light on the central issues regarding the nature of polymer chain folding and unfolding. However, it is still uncertain whether the results of such a study on a single polymer are applicable to crystalline polymers in general.

In summary, the seven chapters in this book are written by ten active researchers who have made significant contributions to the advancement on the understanding of unsolved problems in polymer physics. These reviews are presented both clearly and authoritatively. Hence, most polymer physicists will find this book to be quite an indispensable reference in their library.

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

J. Appl. Cryst. (1985). **18**, 54

Molecular beam epitaxy of III–V compounds: a comprehensive bibliography, 1958–1983. Edited by *K. Ploog* and *K. Graf.* Pp. 222. Springer-Verlag, 1984, Price DM 48.00, US $ 17.90.

Dry etching for microelectronics. Edited by *R. A. Powell.* Pp. xi + 299. North Holland, 1984. Price US $ 69.25, Dfl 180.00.