Pp. 16–17: In the definition of the concept of a crystal system the following claim is made:
'However, for any **Q**-class **C** there is a unique holohedry **H** such that each f.u. group in **C** is a subgroup of some f.u. group in **H** but is not a subgroup of any f.u. group belonging to a holohedry of smaller order.'

This statement is correct from dimensions 1, 2, 3, and 4. However, it follows from the results of Plesken & Pohst that there is a counterexample to it in seven-dimensional space.

To formulate the definition of 'crystal system', the authors of the book use the intersections of **Q**-classes and Bravais flocks as introduced on p. 17 and they define the classification of the set of all **Z**-classes into crystal systems as follows:
'*Definition*: A crystal system contains full geometric crystal classes. The **Z**-classes of two (geometric) crystal classes belong to the same crystal system if and only if these geometric crystal classes intersect the same set of Bravais flocks of **Z**-classes.'

The book clearly demonstrates the variety and complexity of crystallographic groups in four dimensions in comparison with lower dimensions. In four dimensions there exist point-symmetry operations of orders 5, 8, 10, and 12; nonsolvable groups occur as point groups; the centered hypercube has higher symmetry than the primitive hypercube; non-symmorphic space groups, other than $P\bar{1}$, exist, containing only translations and point-symmetry operations; the difference between crystal system and crystal family becomes much more apparent, *etc.* Therefore, the description of the four-dimensional crystallographic groups provides a better insight into dimension-independent crystallographic properties and, thereby, a deeper understanding of crystallography in two and three dimensions.

The book may be of interest to crystallographers, physicists and chemists, as well as to mathematicians, whom the last section of Chapter I and the Appendix are meant to attract.

The reference list cites 112 names.

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Disorder in crystals. By N. G. PARSONAGE and L. A. K. STAVELEY. **International series of monographs on chemistry.** Pp. xxviii + 926. Oxford: Clarendon Press, 1979. Price £28·00.

This book is a good survey of the present knowledge of many aspects of disorder for a great selection of stoichiometric crystalline substances; the problems of defects, defect structures, and their order–disorder transformations are therefore not included. The book deals with three kinds of disorder: positional disorder, orientational disorder and magnetic disorder.

The book has twelve chapters, each with a detailed list of references. The short introduction provides some definitions. By disorder of position is meant, as one type, that the lattice is one in which there are more sites to accommodate a particular kind of particle than there are particles of that kind available and that there is some randomness in the way in which the particles are distributed among the sites in question (but nothing is said about such problems as distribution coefficients or site preferences), and, as another type, that there are N A atoms and N B atoms which together occupy $2N$ sites in a partially or wholly random way. Not included are problems of polytypism and OD structures. Orientational disorder can arise when diatomic or polyatomic molecules or ions have access to different orientations in the crystal lattice which are distinguishable. Magnetic disordering is a disordering of the orientations of magnetic spins. While the crystal may have to pass through more than one transition to reach a completely ordered state, these order–disorder transitions are also discussed but only in connection with the special examples and not in a general or complete form.

Two chapters deal with the theoretical background. The classification of transitions, ferroelectrics and antiferroelectrics, and hysteresis phenomena are discussed in terms of thermodynamics. Much attention is devoted to statistical mechanics, especially to the Ising model, its solutions and its general applications to order–disorder systems. The next chapter is a review of the more important experimental methods, such as thermodynamic studies, diffraction methods, NMR, IR and Raman spectroscopy, neutron scattering spectroscopy and other spectroscopic techniques (NQR, ESR), and dielectric properties.

The following chapters deal with detailed results on many examples: alloys; positional disorder in inorganic compounds; orientational disorder in salts, ice and hydrates; disorder in molecular solids, clathrates and channel compounds; and magnetic systems. Here, one can find a lot of detail on the disorder problems of many substances – but not of all, for example, the interesting case of minerals. The text is completed by many instructive figures and tables. There is a substance index and a subject index.

The book is written by two chemists engaged in research work in this field. It gives a detailed survey of modern knowledge of the field of disorder in crystals and is recommended for chemists, crystallographers, physicists and material scientists who are interested in order–disorder problems and phenomena in a general or special way.

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Phase transitions in solids. By C. N. R. RAO and K. J. RAO. Pp. 330, Figs. 168, Tables 20. Maidenhead, England: McGraw-Hill, 1978. Price £18·15.

There are at least two common approaches to the subject of phase transitions. On the one hand, the emphasis may be on a theoretical understanding of critical phenomena where terms such as order parameter, critical exponent, model Hamiltonian and (in recent years) renormalization group