

**Cryochemistry.** Ed. M. MOSKOVITS and G. A. OZIN. (Wiley, N.Y., 1976). Pp. xi+532. Price £24.20.

A broad cross-section of chemists will be grateful to Drs. M. Moskovits and G. A. Ozin for their own contributions (three chapters and an introduction) to this volume, and for their editorial work in uniting with their own material the seven chapters contributed by eight other authors. The whole forms a cohesive account of modern cryochemistry.

Thus, those wishing either to make low-temperature experiments for the first time, or to develop their expertise in this area, will appreciate the experimental details, and the discussion of the theoretical background to the experimental techniques of producing matrices, given in chapter two by the editors. In chapter three the same detailed information on larger-scale preparative techniques is provided by P. Timms.

Many organic chemists will certainly be surprised by the extent to which the chemistry of carbon vapour is now established, and will find the chemistry of Grignard reagents at liquid-nitrogen temperatures interesting from a mechanistic point of view. This, and much more, can be found in the two chapters by M. J. McGlinchey and P. S. Skell.

Chapter six on infrared and Raman studies of alkali-metal-atom matrix-reaction products by L. Andrews introduces the more physical theme of the second half of the book. But the emphasis remains clearly preparative in this and the following chapters; main group elements by S. J. Ogden and transition-metal cryochemistry by the editors.

In contrast, D. M. Gruen's review of the spectroscopy of matrix-isolated atoms strikes a purely physical note.

The final chapter on photochemistry in matrices is contributed by J. Burdett and J. J. Turner and, again, a variety of chemists will find this material of interest, quite apart from those whose area of research this is. The theoretical problems posed, and the photoreorientation of species in the matrix, will intrigue physical and theoretical chemists. Teachers might like to use the discussion of the cage effect on the photochemistry of carbonyl complexes in the gaseous, solution and matrix phases to illustrate aspects of a course on reaction kinetics.

The editors and their collaborators are to be congratulated on putting together this timely volume. A large number of references to the original literature and an index increase the usefulness of the book and add to its value as a reference work.

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