

was published in 1936: it is the first of three to describe uranium(IV) oxide, and confines its scope to the production, preparation and crystallographic properties of UO_2 . The physical and chemical properties of UO_2 will be described in Supplement Volumes C5 and C6. The first sixty-four pages describe, under eleven categories, the preparative routes to UO_2 (including microspheres). This section, although comprehensive and well-written, suffers from the absence of a critical overview, comparing the efficacy of the many synthetic alternatives: the half-page "overview" provided merely acts as a brief contents list. The second section (32 pages) describes the industrial production of uranium(IV) oxide pellets (n.b. other aspects of industrial production are described in Supplement Volume A3 (1981)), and the final section (42 pages) discusses the phase transitions, habit, surface and crystal structure and lattice defects of crystalline UO_2 .

The authors (D. Vollath and H. Wedemeyer) have, like the majority of the Gmelin team, performed a Herculean task in producing a definitive coverage of their defined subject. The volume is well-produced, type-set and clearly illustrated, and its price is in-line with the other volumes in this splendid series. This review is commissioned by *J. Organomet. Chem.* and so I must state the obvious, that this volume contains little of primary interest to the organometallic chemist. However, UO_2 is becoming increasingly used as a synthetic reagent en route to organometallic derivatives, and this volume is *the* source of information relating to the synthesis of UO_2 .

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Organic Reactions. Vol. 33. Wiley; New York, etc.; 1985, xx + 347 pages
£57.00.

This latest volume in a highly regarded series is reviewed in this journal because it contains an extensive and authoritative review (246 pages, 381 references) by E.-I. Negishi and M.J. Idacavage on the formation of carbon-carbon and carbon-heteroatom bonds via organoboranes and organoborates.

The use of organoboron compounds in organic synthesis has been the subject of a good number of monographs and reviews in the last few years, but in view of the importance of such use it cannot be said that there have been too many: Certainly this review will be welcomed by those who actually wish to use organoboron compounds rather than just read about them, since the emphasis is on experimental methods. Thus a brief general introduction (5 pages) is followed by a brief general survey of reactions of organoboranes and organoborates (20 pages), then there is an appropriately detailed account (38 pages) of the preparations of specific types of organic compounds by use of organoboranes and organoborates, including (as is usual in this series) an especially useful section presenting full experimental details on actual preparations of particular compounds. A clear outline of the precautions necessary in handling organoboron compounds is especially welcome.

Finally there is an extensive table (170 pages) giving brief details, with references, of all carbon-carbon and carbon-heteroatom bond-forming reactions reported up to December 1979. In spite of the unfortunate gap between compilation and appearance (I saw only two references to primary literature after 1979, and those only for 1980), this is a very useful review, which will be much consulted.

The other topic surveyed in this volume is by T. Hudlický, T.M. Kutchan and S.M. Naqvi, and deals with the vinylcyclopropane-cyclopentene rearrangement (89 pages, 228 references). It is primarily of interest to organic chemists, but includes informative examples of the usefulness of organosilyl-substituted compounds.

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Chemical Research Faculties: An International Directory; edited by G.L. Pollock. The American Chemical Society, Washington, 1984, xxxv + ca. 530 pages. US \$129.95 (U.S.A. and Canada); US \$155.95 (elsewhere). ISBN 0-8412-0817-4.

This volume mainly lists the names and research fields of scientists working in departments of chemistry, chemical engineering, biochemistry, pharmaceutical chemistry and medicinal chemistry in academic institutions in 61 countries outside the U.S.A. and Canada. There are alphabetical indexes to: (a) names of research workers; (b) areas of chemistry; (c) countries; and (d) individual institutions. There is also a useful list, with addresses, of 63 chemical societies in 51 countries. (Corresponding information for institutions in the U.S.A. and Canada appeared in the "ACS Directory of Graduate Research 1983").

The volume will be of value to those wishing to locate chemists whose names they know or centres in which particular areas of chemistry are under study; and to those wishing to find out the range of research interests in a particular institution. It will be of considerable assistance to potential postgraduate or postdoctoral fellows who are considering where to go, but they should bear in mind the limitations mentioned below.

Although a large volume of information is presented clearly, it is, unfortunately, very incomplete, since requests for information sent to 1150 institutions produced only 727 responses. Thus some countries are completely missing, notably China (Taiwan does appear), the U.S.S.R., and East Germany (though the Socialist Bloc is represented by Czechoslovakia, Hungary, and Poland). Perhaps more seriously, since the reader may not be so aware of the gaps, there are many major institutions missing from countries which are represented; for example, under Italy there are no chemistry entries for Florence, Milan, or Padua, all flourishing centres of chemical research. (I did not notice any omissions for Britain, however, and I suspect that the difference in the nature of the response from Britain and Italy reflects differences in