

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.

*School of Chemistry & Molecular Sciences,
University of Sussex, Brighton BN1 9QJ (Great Britain)*

COLIN EABORN

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

national characteristics.) Difficulties have inevitably arisen from the variations in the organization of academic research from country to country, as is evident from the absence of information for many major CNRS (France) and CNR (Italy) centres; thus, for example, the reader will look in vain for information about R. Corriu (CNRS, Montpellier) and J. Satgé (CNRS, Toulouse), or A. Alberti and G. Seconi (CNR, Ozzano-Emilia.)

There is an interesting Statistical Survey, giving the numbers of staff, post-doctoral fellows, and enrolled graduates, and of master's and doctoral level degrees awarded in 1980/81 or 1981/82. The data stimulate speculation and provide some puzzles. For example, in Australia the Flinders University apparently had a graduate enrollment of only 5 in September 1982, but produced 1 master's and 4 doctoral level degrees in 1981/82, whereas Monash, with a corresponding graduate enrollment of 60, produced only 2 master's and 6 doctoral level graduates. Again, in West Germany the University of Stuttgart, with a graduate enrollment of 124, produced a total of 107 master's or doctoral level graduates, whereas the Johan Wolfgang Goethe University of Frankfurt am Main, with a graduate enrollment of 657, produced only 59 such graduates. In Switzerland, the University of Basel, with a graduate enrollment of only 62, produced a total of 57 master's or doctoral level graduates.

In spite of the limitations mentioned, this is a very valuable reference book, and I have already made considerable use of it in the few weeks it has been in my hands. All advanced chemistry students should have access to it. I suspect that later editions will be even more valuable, because institutions which did not send in information for this one will realize how unwise they were.

*School of Chemistry and Molecular Sciences,
University of Sussex, Brighton BN1 9QJ (Great Britain)*

COLIN EABORN

Inorganic Chemistry. Topics in Current Chemistry 124; edited by F.L. Boschke, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1984. vii + 138 pages, DM 68. ISBN 3-540-13534-0.

The title of this volume, "Inorganic Chemistry", is scarcely informative about its contents, which consist of three reviews: the problems for the two-electron bond in inorganic compounds; analysis of the coordination number N (Ch. K. Jørgensen; 31 pages, 125 refs.), cationic and anionic complexes of the noble gases (H. Selig and J.H. Holloway; 58 pages, 172 refs.), and extraction of metals from sea water (K. Schwochau; 43 pages, 166 refs.). These will now be considered in reverse order.

Remarkably, some eighty elements have been detected in sea water to date, at molar concentrations differing by more than twenty orders of magnitude; open ocean water contains 33–37 g l⁻¹ of dissolved salts, but 99.5% of these consist of Na⁺, K⁺, Mg²⁺, Ca²⁺, Cl⁻ and [SO₄]²⁻. Schwochau's review of the extraction of metals from sea water concentrates upon methods which are based upon complex formation, and is very concisely written; unfortunately, of the many metals discussed, only the four metals mentioned above are recovered in commercial quantities, and strontium is the only other metal which might conceivably be profitable.