

Book review

Homogeneous Transition-metal Catalysis — a gentle art; by C. Masters.
Chapman and Hall, London and New York, 1981; x + 277 pages, hardback
£ 20, paperback £ 9.50.

This little book is an excellent and authoritative introduction to its subject. In the "Sciences Paperbacks" series it is also excellent value for the individual chemist's library. Homogeneous catalysis is a growth area. It has provided some highly important processes to the petrochemical and plastics industries and now is entering the pharmaceutical. Its great advantage over heterogeneous catalysis, still by far the most important in industry, is its capacity to be tailored to catalyse selectively the desired reactions. Thus it seems likely that further generations will have to look even more to homogeneous catalysis to provide economically from coal, or eventually from carbon dioxide, the heavy organic chemicals now based on oil.

The author shows himself to be well versed in both the theoretical and industrial aspects of his subject. His first chapter (37 pages) gives a comprehensive and not too detailed overview of the basic principles of heterogeneous catalysis leading directly into an excellent review (181 pages) of the catalytic systems underlying reactions such as hydrogenation, isomerisation, carbonylation, hydroformylation, oligomerisation, polymerisation, oxidation and metathesis which have already provided industrially important processes. This is the main theme of the book, comprehensive but not studiously detailed. Here the author draws on his considerable experience with Shell Chemicals U.K. Ltd. Then follows a short chapter (31 pages) on catalytic systems with industrial potential now in course of development and finally a very short peep (6 pages) into possible future developments.

The author has wisely limited his references to a manageable number (448) and at the end of each of his first three chapters appended a short useful list of pertinent recent reviews for "further reading". There is a subject index of just over 5 pages.

I enjoyed reading this book; it is well written and the subject matter nicely organised. Its only fault is a somewhat inadequate index. Printing errors are few.

I strongly recommend the book to all who wish to obtain a good introduction to heterogeneous catalysis and its present status in industry whether student, postgraduate, postdoctoral or experienced chemist in other areas who wishes to be brought up to date on the present status of heterogeneous catalysis.

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