The vertebrate species known from the British Quaternary are described with emphasis on the mammals, illustrating salient anatomical characters. A notable feature among the profuse and attractive pictures is a series of maps showing the present-day distributions of British Pleistocene species, giving an impression of the degree of distributional change since the Ice Age. The organization of the book, however, leaves something to be desired. The author's approach is to cover the same ground (the British Quaternary succession) from various viewpoints (stratigraphy, climatic events, palaeogeography, vegetational history, and faunal history) which seems unduly repetitious. The German

tradition with its *Allgemeiner Teil* and *Spezieller Teil* has much to recommend it.

Despite occasional idiosyncrasies (refusal to accept the identification of Merck's rhino in Britain) and errors (the interpretation of proboscidean phylogeny is obsolete), the book is timely, and will remain an important standard work for Pleistocene workers. It is also recommended reading for the numerous amateur students in the field, for whose benefit the appendix on the collection and preservation of fossils might well have been expanded into a full chapter. □

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Clothing the chemist

Jon McCleverty

Inorganic Chemistry: A Modern Introduction.

By Therald Moeller.

Wiley: 1982. Pp. 830. £31, \$46.50.

IN TEACHING inorganic chemistry one faces a dilemma — whether to deliver the subject in a factual way based on the Periodic Table, or to present it as a series of topics. Practitioners of the first approach feel that students should know facts, supported by theories. The problem is then that the facts can be overwhelming and, in any case, there just isn't time to deal satisfactorily with 105 or so elements. Many of us now take the second route, choosing our topics partly on academic grounds and partly in terms of the constraints of time and resources. One hopes that, towards the end of a such a course, the student will be able to put together, from all the various garments we have woven, an adequate if not complete suit of inorganic clothes.

In *Inorganic Chemistry: A Modern Introduction* Moeller has opted for the "topic" approach. There are plenty of facts carefully interwoven around the central threads of theories and contemporary rationalizations. A most attractive feature is the presentation of the state of our inorganic art alongside its historical development, the relationship between old and new being well-balanced and informative. The sections dealing with coordination chemistry, which are preceded by a succinct description of the applications of group theory, are particularly well-written. There are excellent discussions of various aspects of solid-state chemistry (including metals) and of physical methods for the determination of molecular structure (there are even tables of fingerprint regions in vibrational spectra!). Such material is frequently omitted from other prominent texts. Every chapter includes a very useful list of general references which have been drawn from the international literature.

For us in Britain, one difficulty with textbooks which originate across the Atlantic is how the subject matter relates to courses based on our three-to-four year first degree. Moeller seems to have overcome this problem by including almost everything that nearly all inorganic chemists would agree should form the core studies of their subject. What is excluded (e.g. a detailed discussion of the M-C bond) is arguably inessential for a basic course.

I really like this book — it is immensely readable, and is a splendid teaching text for the early and middle years of a modern course. I am critical, however, of the hopeless inadequacy of the contents list and of the just acceptable subject index (is the author index really necessary?). While the book certainly matches almost exactly the requirements of the inorganic chemists in my own institution, I fear it will not reach the recommended list purely and simply because of its price vis-à-vis the competition. □

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Sins of inclusion

Franklin W. Stahl

Genetic Recombination: Understanding the Mechanisms.

By Harold L.K. Whitehouse.

Wiley: 1982. Pp. 415. £23.75, \$49.95.

HAROLD Whitehouse has judiciously divided his subject into six major areas: transformation, single-stranded phages, phage T4, phage λ , *E. coli* and eukaryotes. Within each of these areas he has concisely yet lucidly surveyed the salient experimental and conceptual contributions, more or less chronologically. His book is a fine accomplishment and represents a worthy product of a long and intense effort to understand God's mechanisms for shuffling the genetic deck.

Whitehouse surveys each of the areas thoroughly and with a fair mind. Each of these valuable qualities nonetheless carries with it responsibilities and dangers. First, the surveys are so thorough that they may become *de facto* official histories. This could mean that the few inaccurate attributions might lead to rather profound injustices; for instance, our knowledge of the delightful ability of the *recBC* gene product to wiggle its way along between the chains of a DNA duplex, separating those chains as it moves, is attributed to authors whose work, while interesting, was supplementary to the uncited work of Rosamond *et al.* (*J. Biol. Chem.* **254**, 8646; 1979).

Second, the surveys are so fair-minded that they are sometimes in danger of being uncritical. Out of apparent deference to historical accuracy, interpretations are presented that, though compelling in their original context, can now be seen to be based on misunderstanding. For instance, the phage mating theory of Visconti and Delbruck (*Genetics* **38**, 5; 1953) accounted for non-localized negative interference by supposing that individual phage genomes differ in the numbers of "pairwise matings" they have enjoyed and that exchanges occur without interference in these individual matings. Subsequent work, however, has revealed that the central idea of the mating theory, for T-even phage, is wrong. As Drake has shown (*Proc. Natn. Acad. Sci.* **58**, 962; 1967), there are no pairwise matings, and negative interference results from miscellaneous heterogeneities plus the circularity of the linkage map (F.W. Stahl and C. M. Steinberg *Genetics* **50**, 531; 1964).

If the present text has a theme, it is that the complexities of recombination, though sometimes daunting, are pretty universal, so that they apply even to widely unrelated groups of organisms. In what I construe as an effort to be true to this message, Whitehouse backs the view that correction of mismatches in stretches of hybrid DNA is the sole mechanism of gene conversion. He acknowledges one dissident voice but puts it down as he did previously in his article with Holliday (*Molec. Gen. Genet.* **107**, 85; 1970). I had hoped that the forceful demonstration by Orr-Weaver *et al.* (*Proc. Natn. Acad. Sci.* **78**, 6354; 1981) of gene conversion by double strand gap repair would have liberalized Whitehouse's view. But, perhaps it has, and *Genetic Recombination* might have been in press when the work of Orr-Weaver and her colleagues appeared.

Enough harping. This book is required reading for all who would work and write in the field of genetic recombination mechanisms. It will be an invaluable aid to us in avoiding sins of omission. □

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