

cond wife, Edith, for instance, consists of West's account of Wells's account of a doctor's account of Gissing's account of his dealings with Edith — the resulting hodge-podge being, unsurprisingly, grotesquely at variance with Gissing's direct record of events in his diary. Quotations from Gissing's letters are scrambled too — up to five distortions in six lines — giving a misleadingly unpleasant slant to things: he's made to refer to his son as "it" not "he", his wife as "the woman" not "the poor woman".

What seems to be happening here is that facts about Gissing's life are being slid around until they fall into a pattern fitting West's preoccupations. Ferociously, West clamps the complex of feelings stemming from his lonely and divided childhood around other people. In his *Experiment in Autobiography*, for instance, Wells recounts how as a boy, when tossed playfully into the air by a youth teasing him with "Whose little kid are you?", he fell and broke his leg. This was, he observes, actually a lucky break: confined to bed and plied with delicacies and books by the youth's mother, he acquired that appetite for reading and knowledge that, via his exhilarating educational experiences studying biology with Huxley, eventually launched his career: "Probably I am alive to-day and writing this autobiography instead of being a worn-out, dismissed and already dead shop-assistant, because my leg was broken". West's interpretation of events is strikingly different: the youth, he believes, "had really put him on the spot with his question: Whose little kid was he, his father's or his mother's?"; he "had been asking him to take sides" and "The probability is that he had been trying to blurt out his father's name when he was dropped", so "It must have seemed as if he had been punished for wanting to be his father's boy".

There is, in fact, nothing in Wells's account to warrant the assertion that he was being asked which parent he preferred, or that he "had been terribly torn between being his mother's boy or his father's". West, however, has spent his life caught in the tensions of such a pull — as his novel *Heritage* about his filial fight against Rebecca West makes only too clear. His new book seems one more round in the psychic tug-of-war between what he calls in a sadly revealing phrase "the father of my dreams", and the mother whose accounts of other people "however sharply detailed and however plausible in their *trompe l'oeil* literalness, are expressive of her states of feeling rather than descriptions of actual . . . occurrences". Ironically, on the evidence presented here, West establishes himself not so much as his father's champion as his mother's son. □

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Processes of natural waters

J.D. Burton

Principles of Aquatic Chemistry.

By François M.M. Morel.
Wiley: 1983. Pp.446.
£42.55, \$49.95.

THE study of chemical processes in natural waters tends to be pursued in compartments — oceans, lakes, rivers, groundwaters and so on. One reason for this lies in the large differences between such environments regarding the spatial and temporal frameworks within which geochemical processes can operate. Another is the contrast in ionic strength between saline and fresh waters, which to some extent imposes different strategies upon the application of both analytical techniques and physicochemical concepts.

Nevertheless, underlying the diversity of geochemical phenomena in natural aquatic systems is a limited number of physicochemical processes which also underlie the chemical behaviour of constituents in treated waters and aqueous wastes.

Professor Morel's textbook is the latest of several which have presented the chemistry of natural aquatic environments in the context of basic physicochemical principles. The first three chapters give a concise and clearly developed introduction to solution chemistry. The subsequent treatment of natural water chemistry is organized along lines dictated by the main

types of reactions which have to be considered: acid-base chemistry, solubility equilibria, complexation, redox chemistry and surface chemistry. The tone is firmly didactic and numerical examples are widely used. Any such approach must be rooted in equilibrium systems but the importance of kinetic factors in determining what happens in the environment receives appropriate emphasis. The dominance of inorganic topics largely reflects the relatively backward status of attempts to apply physicochemical concepts to the behaviour of organic compounds in natural waters.

The author says that sometimes he has used "a clumsily detailed algebraic and numerical development" but this will be considered an advantage by many students trying to make the transition from description to a more rigorous approach. They will be assisted also by the frequency with which the text turns to the processes as they operate in nature, topical matters such as photochemistry and hydrothermal processes at ridge-spreading centres being included.

The material covered is inevitably similar to that dealt with in the well-established text by Stumm and Morgan, also published by Wiley, which went into a new edition in 1981. The present book has its own virtues, however, and should join *Aquatic Chemistry* on the desks of workers in the field. It is to be hoped that a cheaper edition may soon make it more accessible to students. □

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Yeasts and industry

Julius Marmur

Yeast Genetics: Fundamental and Applied Aspects.

Edited by J.F.T. Spencer, Dorothy M. Spencer and A.R.W. Smith.
Springer-Verlag: 1984. Pp.533. DM148, \$57.50.

IN 1970, Dr G.R. Fink offered the advice that "biochemists as well as geneticists should use only S288C or 'isogenic' *Saccharomyces* strains in their investigations. Regrettably, this has not been the rule in the past". True, the principal yeast of industrial importance is *S. cerevisiae*. However, there are over 400 yeast strains, harbouring a vast resource of genes encoding enzymes that carry out a variety of chemical transformations. What is very much needed is the comparative genetic and biochemical characterization of some of the more versatile strains, making use of classical and modern genetics.

J.F.T. Spencer and his colleagues have assembled a book on the principle that "the methods of yeast genetics have many

things to offer the breeder of industrial yeast strains". Thus, there are chapters on topics ranging from gene conversion to the breeding of brewing strains. While some subjects, such as gene conversion (dealt with here by Fogel, Mortimer and Lusnak) are handled in exquisite detail, others, nucleic acid relatedness among yeasts (Kurtzman, Phaff and Meyer), for example, are covered in a broad-based manner, bringing together a great deal of information that is otherwise hard to come by.

In addition to those subjects already mentioned which are "concerned with the nuclear yeast genome", there are chapters on the yeast cell division cycle (Carter, Piggott and Walton), meiosis and sporulation (Dawes), and radiation sensitivity and repair (Game). Particularly good is Elizabeth Jones's wide-ranging contribution on the genetics and biochemistry of yeast proteases and their inhibitors.

Extrachromosomal genetic elements are covered in three chapters, two of them on mitochondria. One would have been sufficient; the longer one (Evans), while initially intimidating, makes informative reading. Another contribution deals with