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tiers may not be broached, but a large and strategically located segment of the Old World has been extremely well charted. One will have to look hard for a better guide to a region that is criss-crossed with well trodden paths but still nourishes a fresh crop of delicate fruit and nettles each spring. For someone who wants to keep his feet on the ground, nettles really matter. □

Simply chemistry

Chemistry. By Linus and Peter Pauling. Pp. xi+767. (Freeman: San Francisco, 1975.) \$13.95.

THIS is essentially a new edition of the elder Pauling's highly successful *General Chemistry*. The original text has been shortened in places, largely by the omission of much of the thermodynamic material, and the scope has been expanded by the addition of an extensive and well balanced treatment of molecular biology, in which most of the important macromolecular structures are discussed. This change reflects not only some shift in the research emphasis of chemistry itself but also in the new audience for whom this book has been specifically designed, namely "students primarily interested in biology, medicine, human nutrition, and related fields". It provides thus a broad-brush picture of the whole of chemistry (inorganic, physical, nuclear, organic, and biochemistry) and its interaction with the biological sciences, at a level suitable for those first studying it at an American college.

The emphasis throughout is on the structural aspects of chemistry, even more so than in the previous editions. For many chemists the chief demerit of *Chemistry* will be its heavy reliance on electronegativity, resonance, the electroneutrality principle, and other concepts familiar to readers of *The Nature of the Chemical Bond* but less obvious in most of the current chemical literature: the authors would presumably defend their point of view as being simple, general, and particularly suited to the limited chemical sophistication of their intended readers. Others may cavil at the slight reference to modern physical techniques and organic reactions and their mechanisms.

The exposition, which is delightful with its clarity and elegance of style, will appeal to the student and arouse his or her interest with its neat and modern choice of example and illustration. There are numerous sensible, straightforward, and intriguing problems and the diagrams are excellent. I much enjoyed reading it, and so did my daughter, now in the middle of a sixth form science course. By modern standards the book is very modestly priced.

C. S. G. Phillips

From cell to cell

Cell Communication. (Wiley Series in the Dynamics of Cell Biology.) Edited by R. P. Cox. Pp. ix+262. (Wiley: New York and London, November 1974.) £11.90.

ONCE again we are victims of editorial, or perhaps publisher's pride—this book is not about all aspects of cell communication for it treats only a limited number of features of the subject. But there is one strong, important theme of the book: it contains three good reviews on the related subjects of 'tight and gap junctions', 'low-resistance pathways' and 'metabolic cooperation'. The remaining eight papers cover an assortment of subjects in which cell communication plays a greater or lesser role but no particular theme joins them or excuses the absence of so many aspects of cell communication. The diligent reader will note the lack of any mention of exo and endocytosis, cell fusion (both in fertilisation and in other contexts), cell adhesion, cell positioning and recognition phenomena, malignancy, and anything at all about plants.

The electron microscopists seem at last to have abandoned their addiction to neoclassical microanatomical latinity and the excellent article by Norton Gilula shows how *zonulae occludentes* have become tight junctions. But this is not the main virtue of his article. That lies in the beautiful electron micrographs of the specialised contacts between cells which are probably the low-resistance routes between cells and the pathways for interchange of metabolites between cells. This article summarises work from several laboratories, published in the past few years. Judson Sheridan explains the main observations carried out on low-resistance pathways and the editor and his coworkers review "Metabolic cooperation". In spite of the suggestion that appears in these three articles—that the three phenomena are but aspects of the same matter—it is still unclear as to how important the phenomena are in the real life of an animal.

The remaining articles in the book cover an assortment of subjects. Noteworthy are those by Harry Rubin on cell growth—a process in which cell communication may be unimportant—and by Albert Harris on contact inhibition. There are also papers by Fishbach on neuromuscular junction formation, Kolodny on transfer of macromolecules between cells, Cruikshank on cell interactions in the skin, Basten and Miller on the immune response, Neufeld on lysosomal diseases and Ottolenghi-Nightingale on DNA transformation in mammalian cells.

Adam Curtis