of the three c-*fos* papers in the "Oncogenes" chapter. For all that, the discussions of the manner in which some transformed epithelial cell lines and their *in vivo* analogues seem genetically predisposed towards either aberrant or overexpression, or both, of EGF receptor transcripts suggest a potentially important correlate of epidermoid malignancy. The more mechanistic aspects of the action of EGF and other growth factors are presented in the "Kinases" chapter. Here the particular role of tyrosine kinases is explored, alone and in their relationship to that possible arbiter of tumour promotion, protein kinase C. It is here also that an organizational eccentricity placed the second of the two related accounts of phosphorylation of 40S ribosomal protein S6, the first being in the opening chapter on EGF.

If we are to take the "Futures" title of the concluding chapter literally, then we are faced with the prospect that studies of certain phenomena — Na^+/H^+ exchange, mitochondrial responses to growth factors, and growth factor effects in systems such as embryonal carcinoma and the developing nervous system — are the subjects of the future. In fact the manner in which growth control signals are developmentally regulated is an undeniably important area of research. But with the exception of the first paper in this chapter (which explores the thesis that "in the future it is likely that the level of biochemistry of cell proliferation, not as well developed now, will become ever more important"), the conclusion is a rather mixed bag of topics that the organizers obviously could not easily fit in elsewhere.

Many of the presentations in this volume are well worth reading, and the book should certainly be in every library pretending to cover the literature on cancer. Whether individuals in the field will find it of much value, I doubt, because most of the data it contains have now been published or even superseded. Non-specialists, however, may find the book a helpful summary of current problems in oncogene research and of the type of experimental approaches that are available to pursue the search for that elusive Holy Grail — the common mechanism. □

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New in paperback

- *The Musical Mind*, by John A. Sloboda. Publisher is Clarendon, price is £9.95, $17.95. For review see *Nature* **315**, 696 (1985).
- *The Computer Comes of Age*, by R. Moreau. Publisher is MIT Press, price is $9.95, £9.95. For review see *Nature* **312**, 572 (1984).
- *The Stars and the Stones: Ancient Art and Astronomy in Ireland*, by Martin Brennan. Publisher is Thames & Hudson, price is £7.95. For review see *Nature* **306**, 516 (1983).

Down to the bones

Bernard Wood

The Human Skeleton. By Pat Shipman, Alan Walker and David Bichell. *Harvard University Press:1986. Pp.343. $27.50, £23.50.*

THE very word "skeleton" has macabre, if not sinister, associations, and its colloquial use also betrays our perceptions of the human frame; we have all experienced privations in hotels which have been excused by muttered references to the "skeleton" staff. Traditional (by which I mean old-fashioned) medical courses did little to enhance the image. Students were drilled in detailed osteology and every bony lump, bump, nook, cranny and crevice had a name which had to be memorized. Such minutiae provided aggressive examiners with the necessary ammunition to trip up even the most nimble student, but had few other merits for a general undergraduate education in anatomy. It is not surprising that the efforts of physiologists and biochemists to enliven teaching on the skeleton by reference to its metabolic relevance made little headway against this type of introduction.

The image of the skeleton is changing, and this book will help hasten the process. Research on the structure and function of hard tissues, at the levels of cell biology and whole animal studies, are invigorating our attitude to both bone and bones. The authors are particularly well-qualified to provide an applied and broad biological perspective on their subject matter. Pat Shipman has pioneered rigorous methods for assessing the implications of marks on bones found at archaeological sites, while Alan Walker has carried out innovative analyses of primate behaviour and has made important contributions to palaeoanthropology and palaeopathology. Their colleague, David Bichell, is an artist who is trained in anatomical drawing.

The book is in three sections. The first deals with the components and organization of bone and discusses its physical properties. The central, and largest, section is a series of regionally-based descriptions of the form of the normal skeleton, augmented by succinct, but useful, presentations of integrated activities such as breathing, walking and chewing. The third section covers the ways in which the skeleton, and its components, can be used in forensic and anthropological research. Predictably, the chapter on skeletal pathology is a strong one, and it was sensible to include an account of the structure and identification of teeth.

In terms of scientific content, the authors have wisely eschewed the exotic. One of the book's strengths is that it presents sound skeletal biology in a way that will stimulate students to learn more for themselves. The style is such that quite complex principles and ideas are introduced and discussed without intimidating the reader. There is little doubt that this volume will have a long life, and in any new edition the authors might consider setting the vertebrate skeleton in an even broader context than they have done. Their classification of joints is traditional and, for all its apparent complexities, they might consider making more explicit reference to MacConaill's analysis of joint surfaces.

For those of us who bemoan the demise of Le Gros Clark's *Tissues of the Body*, this new book provides a helpful account of hard tissues and the skeleton. Other textbooks and reference works will be needed to provide extra detail, but few are likely to offer a more stimulating introduction to the subject than that set out by Shipman, Walker and Bichell. □

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New journals review

On 25 September *Nature* will publish the sixth annual review supplement devoted to science journals.

Criteria for inclusion of a journal in the 1986 issue are that:

(i) the first number appeared, or the journal was retitled, *between June 1984 and May 1985* (the second cut-off date allows at least three issues of a journal to have been published, the minimum number on which a reasonable judgement can be based);

(ii) it is published at least three times a year;

(iii) the main language used is English.

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