**Book of the month**

**Human Molecular Biology: An Introduction to the Molecular Basis of Health and Disease**

Six hundred pages long, fresh from the scientific cutting edge, written by a single author, and bursting with energy and humour, we could not fault the publisher’s description of *Human Molecular Biology*¹ as groundbreaking. As predicted, we found ourselves launched into a strange but colourful and exciting world of sonic hedgehogs, frizzles, snurps and Wattanabe heritable hyperlipidaemic rabbits. A glance at the book shows that it merges the fields of molecular biology and medicine, as promised. Richard Epstein advances two main arguments for this adventure. One concerns the nature of health and disease; the other concerns education. Before recommending the book to ‘the new generation of medical students’, those arguments bear scrutiny.

There is no place for holism in Epstein’s conceptualization of health and disease. He argues, ‘it is the interconnected working of genes, proteins, and intermediary molecules which define health and disease’. He writes of the limitations of a systems-based approach, on the grounds that systems are interconnected, and arrives after a diversion into educational method at the statement, ‘All biology is now about molecules’. But mightn’t a move to holism be an even more logical response to the interconnectedness of systems? Not for Epstein, whose next chapter hammers home the message, summarizing it in ten words, ‘Medicine is now about molecules’. Molecules are easy to understand. Perhaps it was sour grapes because we knew the meaning of no more than one-third of his ‘must know’ terms (age narrowly outperforming beauty), but we felt unsure he had presented evidence for the first point and were more persuaded against than for the second.

On modern medical education, Epstein would not expect a student and a teacher from a medical school with a problem-based curriculum to side with him when he dismisses ‘imbuing trainees with creative insights and self-learning potential’, and praises ‘learning facts’. We politely remind him the two are not mutually exclusive, as shown by a recent study from the Netherlands.² Facts, Epstein tells us, are as essential to someone learning medicine as an instrument is to learning music. But is he using the right analogy? Shouldn’t we consider whether you need a rigorous grounding in music theory to perform well? The success of jazz musicians with little formal education argues otherwise. We heard strong echoes of Flexner,³ from whom the UK General Medical Council is trying to pull us away,⁴ in his contention that ‘the task of the educator is to teach biomedical sciences from the molecules up rather than from the disease down’. Whether Epstein approves or not, modern medical education puts the student rather than the teacher centre-stage, and impoverished students need to be sure a book is a good investment, so is this skilful enough teaching to justify an outlay of £30? We present our judgments separately, beginning with those of LW, the medical student.

Good visual impression began with the eye-catching cover and continued with the excellent vertical layout of one-third diagram two-thirds text. The pages are colourful and the micrographs make an aesthetically pleasing start to each chapter. Structure and navigation have been carefully thought out. There are two tables of contents, brief or detailed, so a reader can quickly identify the main areas covered within a particular chapter or, if required, locate more specific information. The ‘Read Me First’ page that introduces readers to the colourful icon navigation system is a thoughtful touch, though remember that we never do read books from the beginning, so the explanation will be wasted on many. And are three introductions really needed to outline a book’s objectives? There is a glossary to help readers cope with the language of molecular biology but putting it at the beginning means some will never find it. And there is at least one example of a single abbreviation referring to two terms.

A fundamental drawback of the book is that it is written as a narrative, each chapter building on information in previous ones. That would not matter if I could be expected to read it all, but the overwhelming size and level of detail makes that an unrealistic expectation of a medical student. So, many of Epstein’s nice educational ideas are doomed. The pharmacy footnotes and clinical keynotes, illuminating science with clinical examples and vice versa, assume prior knowledge of concepts and processes. As the book goes on, the molecular mini-reviews contain information that presupposes degree level knowledge of molecular biology; and to understand the text that follows, you need to have understood the mini-review. Catch 22!

Students doing research projects or special study modules will be grateful for the suggestions for ‘enrichment reading’, and all readers will appreciate the chapter summaries, though they would be better as bulleted lists than paragraphs of prose. Self-assessment is useful, but it is a fatal flaw in a book of this complexity not to give the answers to questions, which means you have to re-read the chapter to find if you have got the answer right—not an encouraging prospect when you have just ploughed through to the end.

It seems Epstein is trying to appeal to the younger market in his use of trendy language, but his style of writing
is too much in every sense. Too many adjectives, too much text and too much information. As well as trying to get to grips with an unfamiliar scientific language, I am faced with complex and decorative prose; it is not skilful teaching to write of ‘The Rosetta stone of homo sapiens’. At the other extreme, are medical students so thick they need to be given a definition of vegetable as ‘not animal or mineral’? Give us simple prose, bullet points and subheadings. And simple, illustrative figures. Processes such as the transcription of DNA–tRNA–mRNA, described in detail in the text, would have really benefited from a clear visual aid. I particularly liked the photograph of Burkitt’s lymphoma; more of this sort would give the text so much more meaning.

To round off our review, and return to Epstein’s central claim that medicine is now about molecules, the medically qualified reviewer (TD) put it to two tests. One was to select a page of the index at random and see what it referred to. There were 31 clinical conditions, 19 of which I have never had to deal with, and many of which I have never heard of. That is surely a distortion of what ‘medicine’ is, and doesn’t it perpetuate a problem the General Medical Council so much deplores if Canale–Smith ‘medicine’ is, and is naturally curious, but neither the student nor the teacher who reviewed the book could recognize it as ‘medicine’ or ‘skilful education’. Lauren Wentworth

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At the moment, damage to the brain and spinal cord, whether traumatic or a result of disease or degeneration, is largely irreparable. Numerous approaches to repair are being explored and the goal is becoming tantalizingly close, but success will depend on close collaboration between laboratory scientists and clinicians. Such collaboration is increasingly difficult to achieve: the burgeoning of detailed scientific knowledge, on the one hand, and clinical knowledge, on the other, means that few teams are able to bridge the gap. In the laboratory, animal and tissue culture models with highly controlled lesion technology generate the large numbers of treatment and control experiments needed to obtain consistency, and permit a vast range of tests, observations and histology. They allow rapid advance, but on a very narrow front. By contrast, clinical conditions are complex, exhibiting multiple and varying manifestations, with each individual having unique features. The more a clinical condition is investigated, the more variations are encountered, and no animal model can mimic the complexity and range of symptoms experienced by humans. The existence of a science-to-patient gap is thus hardly surprising. Now, Brain Damage, Brain Repair provides a source book for those who would venture to cross it.
Though the book is the work of many contributors, mainly Cambridge based, the chapters have been carefully assembled to produce a unified work. The first section deals with the complex array of cellular mechanisms involved in damage to brain and spinal cord (collectively referred to as the central nervous system, CNS). In general, these mechanisms are peculiar to the CNS, not found in other tissues of the body. They include the regulation of cell death, the effects of cutting axons, and demyelination. Metabolic forms of damage, the spread of infection and inflammation, and degenerative diseases also take forms unique to CNS tissue.

The second section considers methods for the limitation of damage, neuroprotection, the use of steroids and other anti-inflammatory agents, and the effects of various trophic factors. Allied to this is a third section outlining what is known about the intrinsic mechanisms for recovery by metabolic changes, sprouting, and relearning the use of surviving connections, and remyelination.

The next section takes up the clinical picture of brain and spinal cord damage in terms of motor, sensory and autonomic functions, as well as the assessment of the cognitive and psychiatric impairments that are encountered. The four chapters in this section clearly illustrate the large gap between what can be studied in animal experiments and the vast range of observations that can be made by clinicians examining patients. This is followed by an overview of what pharmacological and rehabilitative measures are currently available in practice for clinical treatments.

The chapters of the final section deal with the advancing edge of laboratory research. These include a résumé of what is known about axon regeneration in the central and peripheral nervous system, the promising results seen with transplantation of nerve cells (e.g. in Parkinson’s disease), and the transplantation of glial cells as a method for obtaining remyelination in demyelinating diseases or for providing a bridge to allow regenerating axons to re-establish functionally valuable connections. The growing fields of stem cell research and gene therapy are covered in brief chapters. For research students, many of whom enter this area without clinical training, there are very useful appendices offering two-page summaries of the main features of eight of the principal clinical conditions.

**Brain Damage, Brain Repair** is an excellent and authoritative source book on what, for most people, is the most important question about the nervous system—how to repair the damage inflicted by the ever more violent ways of peace and war and the depredations of age. Reading it, one is surprised that the need for such a work has not been recognized before.

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**Textbook of Men’s Health**
Editors: Bruno Lunenfeld, Louis Gooren
594 pp  Price: $119.95 ISBN 1-842-14011-6 (h/b)
Boca Raton: Parthenon, 2002

From the title one might expect a distillation from popular magazines devoted to male fitness and narcissism. In fact the book emanates from the International Society for the Study of the Aging Male. I received it with curiosity mixed with guilt—the former because I wondered what a specific textbook could offer over and above established textbooks of medicine; the latter the guilt of one who has lapsed. Anticipation was quickly overtaken by the controlled panic of clinical self-doubt: could the seemingly all-pervasive presence of androgenic matters be pointing to a major black hole in a ‘mature’ clinical repertoire? Though I can claim my fair share of clinical coups in older men complaining vaguely of being tired all the time—coeliac disease, myasthenia gravis, and a meningioma, to name just a few—never have I diagnosed an ‘andropause’. Discreet questioning of unequivocally able colleagues suggests I am not alone.

Androgens clearly have interesting roles, but the multiple accounts of androgenic pathophysiology scattered throughout this book are cumulatively unconvincing as well as repetitive. To judge from these accounts, a person answering a multiple-choice question on the symptoms of androgen deficiency would best go for the option ‘all of the above’. There seems to be no consensus on reference values for adrenal androgens. The question posed, ‘Does visceral adiposity induce low levels of testosterone, or do low levels of testosterone induce visceral adiposity?’ simply led me to wonder idly about the role of lager and other male secular comforts. As to be expected in a multiauthor book, some of the contributors provide good well-rounded accounts—for example, the substantial chapters on the genitourinary system and the concise and well written account of hair disorders. This is not, however, a comprehensive text, and matters such as Parkinson’s disease, accidents, suicide, stroke, amputation and rehabilitation are notably absent, contrary to the medical experience of ageing men. The final chapter, on hormone treatments and preventive strategies, is overwhelmingly and unacceptably dominated by androgens. 69 references largely relate to androgens, yet a discussion of melatonin, which suggests that ‘Insomnia observed in some elderly people can be partially restored by administering Melatonin’, is based on trials that are not referenced. The prescribing advice does not feel robust—for UK readers, not NICE at all.

A textbook addressing a defined field such as this should provide a balanced account and the editors should condense the material, where possible, to provide a coherent narrative.
I cannot recommend this work, but for a second opinion I showed it to two third-year medical students. After dipping into and out of it over several lazy summer days they were more positive, suggesting that they would use it if it were in their library; so it may have a place. I am sure androgens themselves have a place in a text on this subject, but the promised future editions should corral them into a single coherent account and widen the horizons.

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Ethics and Evidence-Based Medicine: Fallibility and Responsibility in Clinical Science
Kenneth W Goodman
Cambridge: Cambridge University Press, 2002

There can be few better illustrations of why the term ‘evidence-based medicine’ is misleading than the title of Kenneth W Goodman’s (no relation) thought-provoking book. The question has been asked many times, but what other sort of medicine is there? Medicine that is intentionally divorced from evidence is unworthy even of ethical consideration. It is the subtitle of the book that is the reflection on informed consent. Some of his ideas are challenging, and many will have readers nodding agreement; but it is hard not to think that he is chasing a truism, which he recognizes (p. 139)—there is no general statement or rule that governs the reliability or uncertainty of medical evidence, and no algorithm to tell us what we should do when we don’t know what to do. Medicine is never going to be easy; moreover, it may never get any easier.

What really disappoints me is his treatment of meta-evidence (p. 44 et seq.). He picks it up between his teeth but then sets it down gently. He describes the process of systematic review as ‘scientific’, but it is not (although perhaps he is not rigorous in his definition of science since management and marketing is earlier referred to as one of the ‘sciences’ that first embraced meta-analysis). I would have liked to see the views of Bruce Charlton and Jonathan Rees considered here. Why doesn’t he keep hold of the notion that there is ‘a lot wrong with the gold-standard randomised controlled trial’ and run with that idea? He quotes John Bailar (p. 59) granting meta-analysis ‘a potentially useful role in carefully selected situations’, but doesn’t quote Bailar (as I have) saying that the problems of meta-analysis are so deep that he worries should their results be too readily applied clinically. Nor does he cite Bailar’s preference for the old-fashioned review by the knowledgeable expert explaining and defending judgments. Goodman consistently discards narrative reviews as biased: ‘the inadequacies of narrative reviews left us no choice but to develop these epistemic engines’ (p. 29); ‘narratives are biased . . . because the nature of the review was such that reviewers could not find a . . . neutral vantage point’ (p. 44).

Goodman is good on the debate about science versus art in medicine. He cleverly argues that the art is really tacit experiential knowledge, which is what underlies ‘clinical judgment’. He is also realistic about the difficulties of incorporating patient preferences into treatment plans (p. 135): ‘Sometimes they just do not make any sense [and become] a silly waste of public money’. And, a couple of pages further on, while stressing the ethical imperative that lies with individual clinicians, ‘We should be forgiven the weariness that accompanies the need to sort out individual duties in an environment in which society has dropped the ball’.

The book discusses important issues, but under the wrong title and with a hollow centre. It is still worth reading, but a second, retitled, expanded edition ought to be better. I can thank Goodman at least for not describing evidence-based medicine as a ‘new paradigm’. 

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Imaging of the Prostate
Ethan J Halpern, Dennis LI Cochlin, Barry B Goldberg
222 pp Price £99.50 ISBN 1-84184-198-6 (h/b)
London: Martin Dunitz, 2002

Though well illustrated, Imaging of the Prostate is not a coffee-table book. It is a serious attempt to bring together matters that, I suspect, are ill-understood by urologists and radiologists alike. In urology, transrectal ultrasound is used mainly as a guide for biopsy placement, MRI or CT being requested for staging of prostate cancer before definitive treatment. Many urologists take the view that neither ultrasound nor MRI can exclude prostatic cancer, and contributors to this book seem to agree. The work is excellently illustrated and the radiological anatomy is well described (although the terms inner and outer gland are not used in the UK). The sections on benign conditions are comprehensive and useful. There is also a section on therapy. Essentially this is a work by radiologists for radiologists, but urologists who perform a large number of prostatic biopsies and ultrasounds will find it a useful source of reference when something odd is seen on a routine biopsy scan. I suspect it will also be a good addition to the radiologist’s library.

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Nutrition in Early Life
Editors: Jane B Morgan, John W T Dickerson
374 pp Price £34.95 ISBN 0-471-49624-3 (p/b)
Chichester: John Wiley, 2002

This an extraordinary book, written by a constellation of renowned researchers and practitioners. The subject, defined by John Dickerson in his introductory chapter, is nutrition as it affects ‘the processes by which the fertilized ovum is transformed into a mature individual’. There follow six chapters mainly on the prenatal influences on the ovum and fetus, the last being a detailed overview and update by Keith Godfrey and David Barker on programming and the ‘fetal origins’ hypothesis. After that the emphasis changes, with five practical chapters on nutrition in infancy and (to a lesser extent) childhood. These cover the nutritional requirements for normal and low birthweight infants, as well as issues of undernutrition and malnutrition. The book is full of beautifully turned phrases which bring the script alive and will doubtless appear on Powerpoint presentations in the future—for instance, ‘processes whose timing is subject to nature, nurture and nutrition’ (Dickerson); ‘Milk is nutrients packaged for the journey from breast to gut’ (Weaver and Prentice); ‘. . . “cruising” round the furniture with great enthusiasm . . . ’ (Poskitt).

Does the book do what it says on the lid? In his foreword, Brian Wharton says ‘The effects of nutrition and nutritional stress depend on a triad of influences, the genes of an individual, the stage of development he or she has reached and the circumstances in which they live. This book describes the middle factor’. This is true. I confess I was also hoping to find information on aspects of the pathophysiology of nutrition in diseases in infancy and childhood which are not organ or disease specific—e.g. the effects of inflammation and disordered metabolism in conditions such as Crohn’s disease, cystic fibrosis, chronic renal failure and cyanotic congenital heart disease, all of which affect growth and development—but that is for another book.

Nutrition in Early Life is said to be aimed for students, but which students? From the list on the back, clearly the editors are aiming for a wide readership. I can think of few who would not benefit from reading the first chapter, an overview written in clear readable style with user-friendly tables and diagrams, and the prenatal and perinatal chapters offer a good introduction for research students. The later chapters will appeal to clinical students and to trainees working for DCH or MRCPCH; community and hospital-based paediatricians will find them useful for their continuing professional development. For those like me who have sat on working parties trying to write nutrition guidelines, Margaret Lawson’s ‘Practical advice on food and nutrition for the mother, infant and child’ will come as a breath of fresh air: in future, all we need to do is get copyright consent, find a photocopier and the deed is done.

What are the good features of this book? The first is that it has been written at all: the topic has been seriously neglected. Secondly, the authority, clarity and depth of the writing. My reservations? I feel that this is a book with two audiences. The first half is for basic scientists and the second for practitioners. However, there is no harm in seeing how the other half lives, and the price does not put one off a dual-purpose book. When searching for specific topics one needs to go through the chapter details in the front rather than the index at the back: I wanted to find something on vegan diets and vitamin B12. V in the index gives the page for vegetarianism but not vegans and the vitamins list shows only the fat-soluble ones. However, the text includes tables that contain exactly the information needed. Inevitably each author has personal and general interests so that there is some repetition (for example, of folic acid information). While ‘Asian rickets’ is rightly included, I was disappointed to see no mention of the ‘African rickets’ that we now encounter in the multicultural parts of the UK.

Would I recommend it? Oh yes: it should be read or consulted by all whose research or clinical practice involves growth and nutrition in early life. That includes
obstetricians, public-health and primary-care professionals, community and hospital-based paediatricians and of course dieticians.

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Succeeding as a Hospital Doctor
2nd edition
Roger Kirby, Tony Mundy
127 pp  Price: £19.50  ISBN 1-903734-26-6 (p/b)
Abingdon: Health Press

How to succeed as a hospital doctor, in a book, and in only 200 pages? Surely this is not possible. Roger Kirby and Tony Mundy took on a tall order in accommodating the intricacies of success but they have contrived to produce an informative, up-to-date and pertinent guide to survival in the ever-changing National Health Service. In their first edition, the aim was to cover the financial and medicolegal issues encountered by surgeons. Since both are surgeons, there is still a distinct bias towards surgery, but the new edition includes a vast array of topics ranging from ‘making your mark in the NHS’, through ‘research’ to ‘management issues’. Although the book is aimed at ‘clinicians at all stages of their careers’, I think that specialist registrars stand to benefit the most. It is they who are in greatest need of information on the pitfalls that await them on the way to their goals.

In the first paragraph of the introduction, Kirby and Mundy define a successful doctor as ‘one who has gained a good reputation and credibility from the approval and respect of patients and colleagues alike’. But in the remainder of the text they seem to overlook this and re-define success in financial, legal and political terms. We all have our own definition: if you do not agree with theirs, this book is not for you. The first chapter, ‘Training for success’, offers sound practical advice that many of us take for granted, but few follow. They instruct us how to make the most out of our training and write a CV, and guide us through the rigmaroles of specialist training. Unfortunately they do not tell us how to succeed at interview, which many potential readers will wish to know. A chapter entitled ‘Research’ may be helpful to research-virgins but offers little to those established in their career and aiming at success; this section could have been a lot more informative. The subsequent chapters, ‘Making your name in private practice’, ‘Effective communication’ and ‘Crisis management’, are straightforward, clear and appropriate. Also, the authors offer enlightening disquisitions on clinical governance and management issues—important topics in the present climate. They describe the historical development of and justification for clinical governance and advise us to ‘play our part’.

Specialist contributors are brought in to deal with certain matters, and this works well for ‘Finance’: we are offered clear advice on mortgages, record keeping, taxation, pensions and retirement. (But what about investments? Surely this is a relevant topic if we are to be financially successful.) Another of these special sections is on ‘Hiring and firing’, with an account of the legal ramifications of employing staff. This contains not only formal advice but also wisdom.

There is a lot in this book that is good. A standard form is maintained throughout with helpful comments highlighted in the margins, numerous tables with bullet headings, all chapters referenced and even a final section written by ‘voices of experience’—an encyclopaedia of eminent doctors. A list of useful addresses is provided, ranging from research trusts to political establishments and the Royal Colleges. My only criticism here is that there is no index. In outlining their thoughts on success and how to achieve it, Kirby and Mundy have produced a meritorious publication. Some might argue that the title should have been ‘surviving’ rather than ‘succeeding’. As I read it, a line from Twelfth Night came to mind: ‘some men are born great, some achieve greatness, and some have greatness thrust upon them’. Overall, I think this book is for those who wish ‘success’ to be thrust upon them.

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