

only a (very large) finite number of possible distinct brain states in any brain of finite size.

These comments do not detract from the overall value of the presentation, which I warmly recommend. I am sure there will be many further editions of this fine book. □
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Sex and sensibility

The Two Sexes: Growing Up Apart, Coming Together

by Eleanor E. Maccoby

Harvard University Press: 1998. Pp. 376.

\$39.95, £26.50

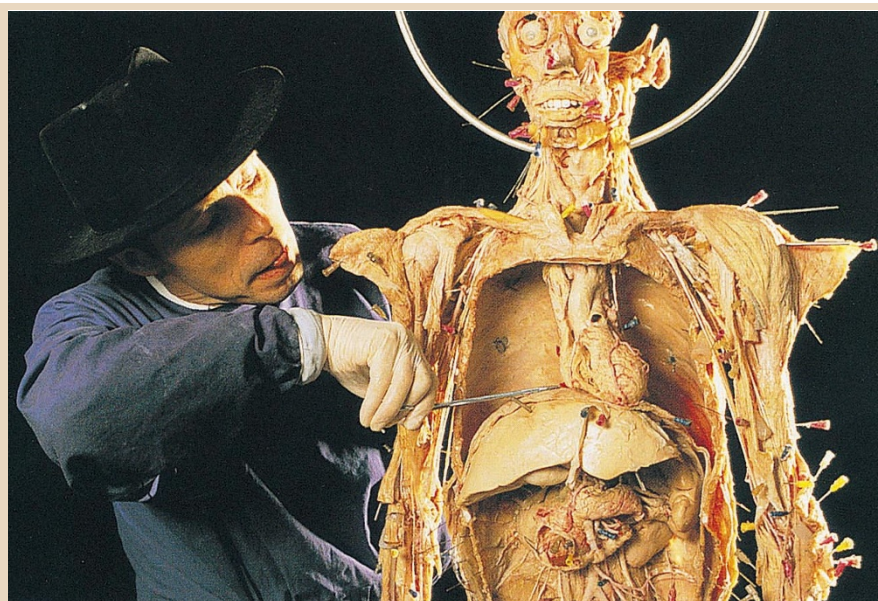
David H. Skuse

Are men really from Mars and women from Venus? In *The Two Sexes*, Eleanor E. Maccoby attempts to explain the considerable evidence that male and female patterns of social interaction differ from one another in terms of both same-sex and opposite-sex exchanges.

In 1974, Maccoby published with Carol Jacklin a landmark work on the psychology of sex differences, which arguably heralded the birth of a movement in feminist psychology. Stimulated by the conclusions of that synthesis of previous research, which claimed such differences were smaller than had been generally assumed, feminist scholars set out to show that, if gender studies were conducted with due regard to cultural relativity and gender stereotyping (by subject and observer), consistent findings would emerge. They reasoned that the results would show few, small or no differences in cognitive and social characteristics by sex.

Many meta-analyses later, only the most diehard psychologist would still cling to the view that sex differences in behaviour do not exist. Meanwhile, Maccoby has become a proponent of the popular 'separate cultures' school, which argues that children learn rules for social interaction from experience in largely peer-aggregated groups. They carry this learning through to adulthood. So when a man's wife asks him "What's wrong, honey?", and he replies "Nothing", and she persists "I can tell you're annoyed with me — I can see it in your face", he retorts "I tell you, there's nothing wrong, cut it out won't you!" because he is male, and that is how he has learned to respond to questions about his emotional state.

Maccoby's book is beautifully written and organized. In the first half she takes us on a journey from infancy through pre-school behaviour, to elementary school and adolescence. Fascinating evidence is added for the formation of sex-segregated social groups, which are amazingly resistant



Insides out

The German anatomist Gunther von Hagens preserves human bodies by a process he calls 'plastination', in which he replaces all of the water and fat with silicone and other polymers. He began by creating anatomical preparations for educational purposes, but now also exhibits them at controversial shows. The corpses are obtained through a donation programme.

This image by Marc Steinmetz of von Hagens at work is from the science and technology section of *1998 World Press Photo* (Thames and Hudson, £12.95 (pbk)), a remarkable collection of the previous year's most striking examples of photojournalism. The book brings together the winners of the 41st World Press Photo Contest.

in middle childhood to well-meaning adult attempts to force integration. In the second half, which is rather weaker in terms of argument and grasp of detail, issues of sex roles in the workplace and in parenthood are discussed. A variety of explanations for the seemingly universal existence of sex-role differentiation are proposed, from biology to evolutionary psychology, but Maccoby is most comfortable and knowledgeable when discussing the role of social influences.

As writers on the subject acknowledge, despite a tremendous and growing literature there has been no really satisfactory theoretical framework to encompass both the intrinsic differences in the ways the sexes behave and the environmental influences that moderate or mediate such traits. Although evolutionary psychology claims the high ground here, many commentators feel that retrospective predictions fail to do justice to the complexity of the issues.

Take the well-documented male propensity to dominate not only his own sex but particular females too. How could this be linked to other typically male characteristics, such as a lack of emotional expression (relative to females) and the irritating habit of interrupting people (up to five times as often as women in small-group interactions)? Do these features of 'male' behaviour arise innately, from 'essential qualities',

or are they by-products of socialization experiences?

Maccoby is rather surer about the origins of male behaviour than female behaviour. Gender divergence, she argues, has its origins in the way children of a given sex aggregate with children of the same age. Groups of male children tend to be more cohesive than female aggregations, and their play style (which she characterizes as rough and essentially physical in nature) is highly attractive to boys but is a turn-off to most girls. On the other hand, female groups are loose-knit affairs, although they are also formed on the basis of play-style compatibility and are, as any male will tell you, not at all attractive to boys. It is implicit that girls form groups with girls largely because they do not, as a rule, want to join in with the boys.

Could it be that boys are primed by androgen exposure *in utero* to behave in a way that fosters group cohesion? Maccoby seems happy to posit biological factors as the ultimate explanation for male social behaviour, but for girls an environmental explanation is proposed. She thinks that girls are influenced by their upbringing to be more sensitive to others' feelings and to be more nurturing, socially sensitive, friendly and concerned with another's welfare.

Maccoby believes the differentiation of social behaviour by sex in adulthood

reflects 'echoes of childhood'. Perhaps we need to repress styles of social interaction learned then in order to function adequately as parents, as she suggests. But we are still some way from a comprehensive explanation, as opposed to a mere description, of the way the sexes differ in their behaviour. The popularity of books lamenting the difficulty men and women have in understanding each other's verbal and non-verbal discourse is testimony to that sad fact. □

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Students' dilemma

Essential Cell Biology: An Introduction to the Molecular Biology of the Cell

by Bruce Alberts, Dennis Bray, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts and Peter Walter
Garland: 1998. Pp. 630. \$59.95, £24.95

David S. Latchman

Even before I opened this book, the fact that it was from the authors of the highly acclaimed *Molecular Biology of the Cell* led me to expect it to be outstanding in both the lucidity of the text and the clarity of the illustrations. I was not disappointed. If anything, this book is even easier to follow than its predecessor.

A conscious effort to make things as simple as possible seems to have been made: the subheadings for each section make the appropriate point simply and effectively, and the order of the chapters has been carefully thought out. So, unlike *Molecular Biology of the Cell*, the chapter on mitosis and meiosis precedes that on the cell cycle, which is, in my opinion, much better for undergraduates. The work is generally up to date, although if it was written today I suspect there would be at least a mention of the effect of histone acetylation on gene expression, and the cloning of Dolly would receive more than a brief mention in a figure legend.

But overall this is an excellent work, and normally I would recommend it wholeheartedly. Given the success of *Molecular Biology of the Cell*, however, one must ask how it is intended to be used in relation to the previous book. The introduction to *Essential Cell Biology* says it should be "easily understood by first or second year undergraduates with little background in biology". Apparently *Molecular Biology of the Cell* is aimed at "advanced undergraduates specialising in the life sciences or medicine". It was not always so: the preface to the first edition, which is still included in the current edition, says it was intended "for students taking a first course in cell biology" and that "even a stranger to biology could follow it by starting

at the beginning". Perhaps the authors changed their opinion as the field advanced and they received comments from readers.

Nonetheless, it would have been helpful to have been told the target audience for each of these texts. A student taking an isolated introductory course would buy *Essential Cell Biology* and find it highly appropriate. But should a student taking an introductory course who wants to go further and take specialist courses buy *Essential Cell Biology* and then *Molecular Biology of the Cell*, even though there is considerable duplication, or risk buying just the more complex *Molecular Biology of the Cell*?

The excellence of both books makes this question all the more pressing. The clarity and attractiveness of *Essential Cell Biology* will surely ensure it a worldwide audience in the same way as *Molecular Biology of the Cell*. But the financially and academically hard-pressed student is entitled to know which book they should purchase and when. □

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At a glance

Nucleosynthesis and Chemical Evolution of Galaxies

by Bernard E. J. Pagel

Cambridge University Press: 1997. Pp. 378. £19.95, \$29.95 (pbk); £55, \$74.95 (hbk)

Take 10^{11} solar masses of gas with almost primordial composition, add many generations of stars formed at a suitable rate, let the elements be synthesized inside the stars, add some heavy elements in ejecta from dying stars, and stir the ejecta with the surrounding medium over a low heat for 10^{10} years. The result should be the pattern of elemental abundances observed in our own Galaxy and external galaxies. Surprisingly, the cosmic soup tastes the same (with a few exceptions) almost everywhere. Why?

This subject is addressed by Bernard Pagel as he guides the reader magisterially through the secrets of measuring elemental abundances and producing the first light elements by cosmological nucleosynthesis, and later all the others by stellar processing (primary and secondary elements, hydrostatic and explosive phases, in single and binary stars and through neutron-capture synthesis). He also discusses the concepts of galactic chemical evolution and its theoretical modelling in steps of different complexity, and finally the comparison of the observational data with the theoretical results for galaxies of different morphological type and star-formation history. Each topic is explained from the ground up, giving the reader all the information needed to proceed further. The book manages to present (without losing scientific rigour) one of the most fascinating subjects of modern astrophysics. □

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New Journals

This year, *Nature's* annual new journals review supplement will appear in the issue of 10 September. Publishers and learned societies are invited to submit journals for review, as well as details of any eligible electronic journals, taking note of the following criteria:

- Journals must have first appeared during or after June 1996 and issued at least four separate numbers by the end of May 1998.
- Journals covering any aspect of science are eligible, although those dealing with clinical medicine and pure mathematics are excluded, as are newsletters and publications of abstracts.
- Frequency of publication must be at least three times a year.
- The main language is English.
- Deadline for submission is 5 June.

Please send at least four different issues (the first, the most recent and any two others) of each eligible title, together with full details of subscription rates, to: Peter Tallack, *Nature*, Porters South, Crinan Street, London N1 9XW, UK. Tel: +44 (0)171 843 4567. e-mail: p.tallack@nature.com

Mitosis and Apoptosis: Matters of Life and Death

by I. D. Bowen, S. M. Bowen and A. H. Jones
Chapman and Hall: 1997. Pp. 182. £24.99, \$49.95 (pbk)

A book of modest size but great ambition, this endeavours to explain cell proliferation and cell death at the molecular, cellular, physiological and philosophical levels. It is aimed at students at graduate and advanced undergraduate levels, and covers a broader area, but in less depth, than the title suggests.

For example, in addition to the mechanics of cell-cycle control and apoptosis, one of the six chapters is devoted to signal transduction. Because signal transduction controls both proliferation and death, this chapter nicely links the two topics. But there is a price to pay. In exchange for the broad coverage, the reader gets short-changed on several concepts central to cell division and cell death.

There is no serious discussion of chromosome dynamics, and DNA replication is covered in just a few brief paragraphs.

The chapters on cell death are more complete, including some useful discussions on non-apoptotic types of death. In general, the book is fairly up to date and contains many references to primary research articles. If a brief introduction to cell proliferation and cell death is required, this concise, enjoyable book might well be it. □

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