

time the science is much closer to my own expertise (human reproductive technology, especially intracytoplasmic sperm insertion) and I am familiar with many of the locations and personality types; I looked forward to recognizing more of the events, and expected more action.

On the surface, this is a lubricious novel about an affair between an Israeli, Menachem Dvir, formerly an atomic engineer and physicist but now a research administrator at Ben-Gurion University in Beersheba, and an American widow, Melanie Laidlaw, a grant administrator for a foundation wishing to promote sophisticated male contraception.

Conforming to the stereotype of the 'able woman administrator', she is apparently attracted to him only because she suspects most men of wanting grant-money; he, on the other hand, has not heard of her foundation and is hooked by her charms alone.

Thoughtful flashbacks that illuminate the story are recounted in pages of italics, with occasional lapses into didacticism: her masturbatory history and his sexual anatomy are relished in explicit descriptions more informative than any genuine stream-of-consciousness could possibly be. There is some excuse, however: such science as there is concerns the involvement of nitric oxide in penile erection, and the plot climax involves her secretly stealing his sperm for her own fertilization. I can't tell whether a physicist or a florist would follow the science, but on the whole it is accurate and sets the scene convincingly.

Much of the drama takes place at a fictional series of "Kirchberg Conferences on Science and World Affairs", explicitly modelled on the Pugwash meetings. This gives Djerassi the chance to evoke the early days of Ben-Gurion University and its relation to Dimona atomic research, and to portray a Palestinian scientist's progressive interaction with Menachem against the background of atomic power and weapons in the recent Middle East.

The descriptions of cameo parts are also good, and personal vignettes scattered across the broad canvas are effective in adding colour. The writing is authoritative, evocative but spare; conversation is frequently stilted — but probably justifiably so considering the subject matter being discussed.

There are a few surprising technical and linguistic infelicities: she drops his semen directly into a Dewar flask of liquid nitrogen, without cryoprotectant; an internationally famous French scientist fails to translate *mauvais nouvelles* as bad news; and I can't quite believe that a New England society matron, at a fund-raising dinner in Boston, would use the word 'prick' in the way it is used here. Worst, Menachem's reason for not wanting a child — he has been exposed to heavy radiation — has important implica-

tions even if an apparently normal spermatozoan is used for fertilization. But Djerassi ignores these.

Scientists active on the conference circuit will probably find the portrayal here true to life, and also learn about Israel and human reproduction — although not much about how to conduct an affair. Scientists who resent not being asked to such conferences will have their prejudices confirmed — all drinking and politics.

In an afterword, Djerassi says he tried hard to create an authentic ambience. He has succeeded, but that does not necessarily make the novel entertaining or mean that it will enhance the public image of science or scientists. Indeed, the whole package is rather too predictable, including the cover showing Leonardo da Vinci's *Coiton of Hemisected Man and Woman*. Even though scientists in science fiction have a tendency to blow up the world in exciting ways, their lives are a lot more fun. □

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Sun, sea and life

Aquatic Photosynthesis
by Paul G. Falkowski and John A. Raven
Blackwell Science: 1997. Pp. 375. £39.50, \$54.95

Egil Sakshaug

"Terrestrial plants are so much part of the human experience that aquatic photosynthetic organisms are often overlooked," say the authors. It may be added that the great diversity of pigment composition and physiological properties among aquatic photosynthetic organisms, together with the fact that they are responsible for about 40 per cent of Earth's net primary production, more than justifies publication of this book.

The authors succeed in their aim of integrating knowledge from biophysics, biochemistry and physiology and applying it in an ecological and evolutionary context.

An introductory account, the book presents a wide range of topics: the introduction deals with basic photosynthetic chemistry, evolution and diversity of algae, structural and chemical properties of photosynthetic cells and useful information on quantum aspects of light, electron-spin states, energy transfer in photosystems, fluorescence and much more. The bulk of the book deals with photosynthesis proper, photosynthetic models, respiration and biosynthesis. And there are concluding chapters on global primary production, its modelling on the basis of satellite measurements of chlorophyll *a*, and the role of photosynthesis in biogeochemical cycles and past and present global change.



Marine algae: highly productive *en masse*.

The emphasis of the book is on marine photosynthesis, as reflected in the many references to the authors' own excellent studies. But photosynthesis in freshwater algae does not differ essentially from that in marine algae. Planktonic algae, including cyanobacteria, are given broad coverage whereas seaweeds are treated cursorily. Errors are immaterial and few and far between. A rare exception is the description of light-harvesting complexes in peridinin-containing dinoflagellates, which is incorrect.

Complex phenomena are admirably well described, the layout is appetizing and the illustrations instructive. The historical background is well covered, and numerous footnotes offer anecdotes and facts that make vivid reading. How many biologists know that the term 'photon' was coined by the famous chemist Gilbert Lewis and that Lord Rayleigh developed his theory of light-scattering while travelling down the Nile on honeymoon?

This enjoyable book is recommended to anyone with a general scientific background and an interest in aquatic photosynthesis and its role in biogeochemical cycles and climate. Students who specialize in aquatic photosynthesis should supplement this excellent work with texts on aquatic optics and general plant physiology. □

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