

## Fire alarm?

Jonathan T. Overpeck

**Global Biomass Burning: Atmospheric, Climatic, and Biospheric Implications.** Edited by Joel S. Levine. MIT Press: 1991. Pp. 569. \$75, £67.50.

In the arena of global climate change, biomass burning has come to be recognized, along with the burning of fossil fuels and deforestation, as an important source of atmospheric trace gases. As much as 2–5 per cent of the Earth's land area burns each year, mostly as a result of fires caused by humans. This biomass burning causes a net transfer of CO<sub>2</sub>, CO, CH<sub>4</sub>, NO, NO<sub>2</sub> and N<sub>2</sub>O into the atmosphere, generating 5–25 per cent of the total radiative climate forcing due to all anthropogenic greenhouse gas emissions. Locally, biomass burning also contributes to smog, acid precipitation, cloud condensation nuclei and daytime cooling. Although most burning occurs at low latitudes, where it is used for land clearance, agriculture and energy, high-latitude biomass burning also has large environmental effects. Global biomass burning is increasing, making it a global environmental issue that both scientists and policymakers cannot ignore.

This book is a product of the 1990 Chapman conference on global biomass burning and will be a reliable source book for anyone interested in global warming, deforestation, atmospheric chemistry and future climate change. The 63 papers by over 150 contributors include excellent scientific summaries and discussions of new results. Good coverage is given to the detection and estimation of the size of burn area, to the effects of burning on atmospheric chemistry, and to the potential effects of these chemical changes on the climate system. Policy implications are also discussed. The contributor list is inter-

### New Journals Issue

This year, *Nature's* annual new journals review supplement will appear in the issue of 1 October. Publishers and learned societies are invited to submit journals for review, taking note of the following criteria:

■ Journals that first appeared during or after June 1990 and issued at least four separate numbers by the end of April 1992 will be considered.

■ Journals covering any aspect of science are eligible, although those dealing with clinical medicine, engineering and pure mathematics are excluded, as are publications of abstracts.

■ Frequency of publication must be at least three times a year. The main language used must be English. Translation journals in English are of course eligible.

■ Deadline for submission is the end of May.

When submitting journals for review, please send at least four different issues (the first, the most recent and any two others) of each title.

national and the geographical coverage global. Forty pages of bibliography provide a further reason to obtain a copy.

Several general points become clear. First, a great deal of uncertainty is associated with most estimates of biomass burning and rates of associated trace-gas emissions. The study of biomass burning is young, but it overlaps with studies of many other aspects of global change in that they all need a more detailed description of the Earth's surface, including the biosphere. Fortunately, this description is a main aim of the International Geosphere-Biosphere Program (IGBP). Second, the book leaves one with the impression that, despite scientific uncertainty, the problems posed by biomass burning are real and deserve international attention. Policy goals can be set immediately to improve the way in which biomass burning is managed, without waiting for a more complete scientific understanding. This point is true for most global environmental issues, but is too often lost in the unavoidable haze of scientific uncertainty.

Not all of the possible environmental effects associated with biomass burning are covered in the book. As several of the authors make clear, marginally

controlled or uncontrolled fires occur frequently at all latitudes. A prescribed burn can escape its intended perimeter and encroach upon surrounding areas. National parks and nature reserves, perhaps containing the last remnants of particular ecosystems, are thus at risk as long as biomass burning is poorly managed. The effect of climate change on the incidence of fires must also be considered. How will the incidence of "fire weather" alter with changing global climate, and how will this affect efforts to manage biomass burning and protected ecosystems? The book does not answer these questions, but it provides an impetus for further investigations.

In addition to being an important reference book, *Global Biomass Burning* covers ground that is relevant to a wide spectrum of scientists and policymakers concerned with global change. By combining state-of-the-art summaries with new results and quick printing, it is an excellent example of what a conference or workshop book can and should be. □

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## Opening the mind's manacles

John Hardy

**Molecular Genetic Approaches to Neuropsychiatric Diseases.** Edited by Jurgen Brosius and Robert T. Fremeau. Academic: 1991. Pp. 493. \$69.95, £47.

THE title of this book is misleading. I picked it up expecting to read about the entertaining saga of the applications of genetic linkage analysis to schizophrenia, Alzheimer's disease and affective disorder. But schizophrenia is dealt with in merely a single chapter (and not by any of the groups working on its molecular genetics); the coverage of the molecular biology of Alzheimer's disease, although competent, is way out of date (preceding the identification of pathogenic mutations in the  $\beta$ -amyloid precursor protein); and affective disorder is not mentioned. The book is, in fact, a series of chapters discussing the application of molecular genetics and molecular biology to a variety of diseases, from retinoblastoma to Duchenne's muscular dystrophy, and from Tay-Sachs to schizophrenia. I would guess that the volume will be most useful for neurologists. As such, it is interesting, but suffers from the serious drawback that it has been hopelessly overtaken by events.

Thus, not only is the Alzheimer's story completely outdated, but chapters on neurofibromatosis type 1, myotonic dystrophy and fragile X syndrome all pre-date the cloning of the pathogenic loci. Furthermore, spinal bulbar muscular atrophy, and Charcot-Marie-Tooth and prion diseases receive no coverage, despite the fact that their underlying molecular genetics is now almost completely known.

Chapters on clone crunching by members of H. Lehrach's and G. R. Cantor's laboratories, and on linkage analysis by J. Ott, are well written and informative. But with the sad exception of Huntington's disease, the application of these positional cloning strategies to neurological diseases is almost over. For major psychiatric illnesses, where the mode of inheritance is not clear, strategies other than the lod-score method will probably be used to identify the approximate chromosomal positions of pathogenic loci — the use of positional cloning strategies would seem to be hopelessly naive after the debacles of affective disorder and schizophrenia. Much more likely to succeed are complex genetic analyses of the proportion of genetic risk for disease that is encoded at a candidate locus. This approach is not discussed at all in this book. □

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