

obsession with the nervous system as the origin of most disease, the nineteenth-century establishment of experimental neuroscience and, finally, the flowering of clinical neurology in the late nineteenth century. The approach is primarily biographical and expository, which permits selectivity and places the value of the work on its individual sections rather than on any unifying synthesis. As the sub-title suggests, the book is a series of chapters rather than an integrated history.

This approach has its limitations and its strengths. Among the latter is the way it permits Spillane to bring his own neurological knowledge to bear on the ideas of his intellectual forebears. This is particularly true for the more recent neurologists such as G.B.A. Duchenne, W.R. Gowers and Silas Weir Mitchell, men whose names are invoked more often than their works are read. Spillane has also rehabilitated several men whose contributions are often forgotten: John Cooke (1756–1838) and John Russell Reynolds (1828–1896) fall into this category. Nearly 200 illustrations are neatly integrated into the narrative, and production standards are high.

On the other hand, such an approach can be self-indulgent and historically impoverishing. There is little social context for the individuals discussed, little consideration of the wider professional concerns involved in the emergence of neurology as a speciality, and little attempt to integrate Spillane's principal figures into mainstream medical history. Furthermore, the focus is too rigidly Anglo-American, with occasional excursions into France but little on the equally important German scene. M.H. Romberg gets some consideration, probably because his book was translated into English, but the earlier work of men such as K.F. Burdach, and the rich neurological and neuropsychiatric tradition created by Monakow, Westphal, Korsakoff, Benedikt, Wernicke and others are essentially neglected. It is also historically distracting to concentrate on organic diseases of the nervous system at the expense of "functional" disorders, hysteria for example, which so preoccupied physicians such as Weir Mitchell and Russell Reynolds. Aphasia and the neurological consequences of tertiary syphilis also get curiously brief attention.

It may seem ungenerous to carp at what Dr Spillane has failed to give us, when he has given us so much. For his book is a pleasure to read, and the copious use of quotation gives it the flavour of a source-book in the history of his discipline. It distils the secondary literature on many pioneers in neurology and the neurosciences. But it is decidedly chapters in, rather than a history of, neurology. □

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## Ecology: much to be done in the North

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*The Boreal Ecosystem.* By James A. Larsen. Pp.500. ISBN 0-12-436880-8. (Academic: 1981.) \$45, £29.80.

ECOLOGICAL studies of the boreal forest region have proliferated in the past few decades, and synthesis of them is certainly overdue. Larsen's impressive and scholarly treatise is not all we might have hoped for, but it will be welcomed eagerly by all boreal biologists and allied students of the North.

The book proceeds from a consideration of the glacial–postglacial history of boreal vegetation to discuss soils, climate, plant communities, various processes, and the economic utilization and management of the boreal forest ecosystem. Although a substantial portion is devoted to presenting some of the author's own data from his 20 summers of fieldwork, overall the book is a review and analysis of other published works.

Despite the ambitious title, the work is less than a definitive treatise on the boreal forest biome. This is not a synthesis for animal ecologists — except for one interesting but general chapter on animal populations ("The Trophic Pyramid"), *The Boreal Ecosystem* deals with plants. Geographically, the author confines his treatment largely to North America, with the Canadian sector, where he has had the most experience, receiving the most detailed consideration. Eurasia, with two-thirds of the world's boreal forest area, is compared briefly here and there, and the extensive Scandinavian and Russian boreal ecological literature is only lightly covered. The perfunctory paragraph on the Appalachian extension of the boreal forest, which long has intrigued American ecologists, is disappointing.

The study of boreal ecology, as ecology generally, often has been hindered by differences in method and terminology. Fortunately, Larsen wastes no time in equating "boreal forest" in the American sense with "taiga" in the Russian sense; thus he does not perpetuate the erroneous notion commonly encountered among North American botanists that taiga is forest-tundra. Probably no two ecologists use the term "muskeg" in precisely the same sense, and such pivotal terms as this, which the author uses throughout, should have been more explicitly defined at the outset.

Larsen, a modern quantitative plant ecologist, begins and ends with an expression of faith in modelling and systems analysis, and he never misses a chance to demonstrate the superiority of the continuum concept and method in analysing boreal forest communities. Continua do not reduce easily to definable systems, however. If he does anything with his wealth of data and description, he convinces us that there are *many* boreal forests

and environments — in short, many ecosystems, which form a baffling continuum from the tundra complexes in the north to the temperate complexes in the south. Though he drops generalizations here and there throughout the book, most never quite jell, and, while remaining optimistic about future breakthroughs, he is the first to concede that we have not begun to know how to elaborate a workable model or to put numbers into the equations.

We cannot hold him accountable for the untidy nature of ecological science, and we can applaud his quest for the grand synthesis. But Larsen never quite rises above description, in spite of his ecosystem point of view and emphasis on dynamics and process. Nonetheless, he does bring many fresh insights and promising quantitative methods to bear on some of the most fascinating but perplexing and intractable ecological riddles of the North: vegetation history, northern forest limit, nature of succession, permafrost, broad-scale vegetational uniformity masking great local variation, to name a few. His analyses of the forest boundary communities and environmental conditions (particularly the frontal air mass dynamics) and of the inadequacies of classic successional concepts are especially useful and enlightening.

Much of the book is too detailed and heavy-going for quick and easy comprehension, and Larsen's treatise comes off more as a compilation and review than as a challenging new synthesis. Nevertheless, as a compendium on the state of knowledge of the North American boreal forest and its ecotones to the north and south, this unique book is the best and most complete single volume available. □

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## Evolution writ small

R.P. Ambler

*Biochemical Evolution.* Edited by H. Gutfreund. Pp.368. ISBN hbk 0-521-23549-9; ISBN pbk 0-521-28025-7. (Cambridge University Press: 1981.) Hbk £30, \$69.95; pbk £12.50, \$24.95.

THERE are two ways in which evolution can be studied at the biochemical level. One is by the traditional comparative approach, epitomized 40 years ago by Baldwin's *An Introduction to Comparative Biochemistry* (Cambridge University Press, 1940). The other is through molecular