CELL DEATH AND DISEASES OF THE NERVOUS SYSTEM.
Edited by V. E. Koliatsos and R. Ratan.

The biology of cell death in living systems has attracted significant interest in recent years, not only in the field of embryogenesis but in a wider context including tumourigenesis and degenerative disorders. In the foreword to this book, Dennis Choi sets the scene with the comment, ‘... the inappropriate demise of brain or spinal cord cells is at the root of many neurological diseases...’, and indeed cell death, in its various guises not unexpectedly forms the central theme of the book. What is surprising, however, is the sheer range of nervous system disorders presented in this book which may be causally associated with this mechanism. A fairly weighty volume, it comprises an edited collection of papers from no less than 52 contributors, mostly of US origin but also including a few European notables. The papers are divided into four parts and the editors state that the organization of the material in the book follows a logical scheme designed to guide the study of the clinician–scientist whilst providing an underlying historical thread.

Part I, entitled ‘Definitions—cellular and molecular mechanisms’, addresses some basic biological principles of cell death such as apoptotic versus necrotic death and the role of free radicals, calcium and proteases as promoters and exec-
utors of the mechanism. Some parts of these papers I found slightly opaque and heavy going, dependant upon background knowledge but the final paper of this section provides an excellent review of the cell cycle and neuronal cell death. Part II, ‘Animal models’, introduces the doyen of these recruits, Caenorhabditis elegans, and provides a good overview of its usefulness in this field of research including the various genes which have been investigated in relation to cell death. Other papers discuss the use of axonotomy and neurotoxins in neurological research and there is a particularly interesting and wide-ranging review of excitotoxic cell death.

Part III, ‘Nerve cell death in human diseases’, is the most extensive of the four sections with papers covering an enormous range of nervous system disorders. Represented amongst these are the topics one would expect, such as motor neuron disease, Parkinson’s disease and cerebellar degenerations, as well as the less obvious such as Huntington’s disease, DRPLA and Alzheimer’s disease. Frankly unexpected, but not unwelcome, are DNA repair, drugs of abuse, prion disease and epilepsy. This I found the most interesting section of the whole book. Each of the 16 papers offered a good overview of their subject as well as a gem or two of facts not noted elsewhere. Part IV, ‘Approaches in treating nerve cell death’, is the short, slightly speculative, finale to the book. The five papers address some of the potential therapeutic approaches, such as calcium chelating agents, antiglutamate therapies, caloric restriction and antioxidants, which might prove to be of use sometime in the future.

I have to admit that had I come across this book whilst browsing in my local medical bookshop it probably would not have ended up in my shopping basket—but with the advantage of hindsight that would probably have been my loss. Why would I have passed over it? Well, I feel that the title in someways misrepresents the contents. When I first picked up this tome, I was expecting an extensive esoteric exposition on the biology of apoptosis, whereas the authors have in fact, adopted a much more holistic view of cell death. They comment, ‘... since many of the problems in neurology are related to the death of neurones, cell thanatology is the science par excellence of clinical neurology’. Indeed it may be, though a cynic might respond that, since death in some form is the final common pathway of all disease processes, this is a truism.

Quibbles over the title aside, this book contains some excellent reviews on a diverse range of neuroscience topics. The cell death link may appear somewhat tenuous in some places but that does not detract from the quality of the papers, particularly in the section on ‘Nerve cell death in human diseases’. Although as the editors claim, the book is organized in a logical scheme designed to guide the study of the clinician–scientist, there will be few people disposed to read the entire text from cover to cover. I would anticipate the main niche for this book is the institute or departmental library where neuroscientists can dip into their areas of interest for an up-to-date review. On the other hand, if you are a clinician–scientist about to embark on a Ph.D. in CNS cell death, then this is the book to get you up to speed.

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