

## Preface to the First Edition

“Opportunity comes to the mind prepared.” Opportunity came in full measure to H.J. Seddon with his appointment as surgeon in charge of the Medical Research Council’s (MRC) Peripheral Nerve Injury Unit in Oxford during the Second World War (1939–1945). It was after all in the Oxford of those days that J.Z. Young was doing the work on the nervous system that was to be the beginning of so many of the later developments in neuroanatomy and neurophysiology. The rewards of the MRC’s far sighted planning were abundant: to Seddon in particular was due that happy result. He was, however, the first to acknowledge the fortunate circumstances that enabled him to undertake the work in the company of so many doctors and scientists distinguished in the fields of anatomy, physiology and pathology of the peripheral nerves. He acknowledged too his debt to two great colleagues in clinical medicine: Hugh Cairns and George Riddoch. It was also fortunate that the Oxford unit was not allowed to die away at the end of the War, and that Seddon was able to continue at the Royal National Orthopaedic Hospital and the Institute of Orthopaedics the work that had begun and flourished at Oxford. After Seddon’s retirement his close colleague Donal Brooks and others developed and extended his work in London, while in other centres those who had worked with these men made their own contributions.

Sadly, the bright hope that with introduction of the National Health Service the planning that contributed so much to the earlier success would be continued, has withered and died. Seddon’s belief that “the necessity for this segregation, this concentration of cases” would be recognised has been proved wrong. The hope may finally have been extinguished in this country by the introduction through the National Health Service Act of 1990 of an artificial internal market in health care, with competition between “providers of health care” and by the necessary corollary of the forced *Gleichschaltung* of the medical profession.

Seddon’s firmness of purpose, clarity of thought, immense capacity for sustained hard work and powers of organisation were shown in “Peripheral Nerve Injuries” (1954) presented by the Nerve Injuries Committee of the Medical Research Council under his chairmanship. These characteristics were complemented by the qualities of those who collaborated in the work at Oxford. In the preface to the first edition of *Surgical Disorders*, Seddon paid generous tribute to J.Z. Young, P.B. Medawar, Graham Weddell and others. A special prominence was accorded to the contribution made by Donal Brooks. One who knew and worked with both has recorded the view that even that recognition was inadequate. He has made the disrespectful comparison of Brooks and Seddon with Jeeves and Wooster, and others who shared that experience may recognise the origins of the impious thought. Seddon’s character was of course the antithesis of that of Wooster, but those who saw these men at work cannot doubt that the calm guidance from the Irish Jeeves greatly influenced Seddon’s work and actions.

Both editions of *Surgical Disorders* bear the mark of Seddon’s personality: the ordered thought; the meticulous observation and recording; the awareness of the ambient scientific field; the occasional dogmatic assertion; the love of tabulation. No one can read the book and

not admire its depth and scope; no one can read it without astonishment at the comprehensive manner in which the subject is treated. One finds in it flashes of insight which, thought by the reader to have originated with him or her, turn out to be the subliminal origins of that thought.

Some may consider it too bold an undertaking to attempt the revision of a work which is a classic of British clinical science and an abiding monument to Seddon's work and leadership. However, things have moved on since 1975. Advances have been made in this country. In the field of disorders of peripheral nerves by Eames, Fullerton, Gamble, Gilliatt, Thomas, Urich and others. In continental Europe the work of Brunelli, Carlstedt, Gilbert, Hagbarth, Landi, Lundborg, Millesi, Morelli, Narakas, Slooff, Torebjörk, Wallin and others has opened new possibilities and destroyed old certainties. In the USA, Gelberman, Kline, Leffert, Omer, Spinner, Terzis, Wilbourn and many others have made massive contributions. In Canada, Hudson and Mackinnon have made great clinical and experimental contributions. In Australia, the doctrine of primary repair of injuries in the upper limb and hand was developed by Rank, O'Brien and others. In China, where the feasibility of "replantation" was first demonstrated, Professor Gu of Shanghai has made and continues to make advances in the field. The development of neurotisation was largely due to work in Japan, where Nagano and Sugioka and many others continue that and other work. In particular, ideas about all types of lesion of the brachial plexus have changed; conceptions of pain mechanisms have developed, and much enlightenment has come to the understanding of the pathology of tumours. Lastly, and most sadly the incidence of "iatrogenic" lesions has greatly increased, though in this connection great advances have been made in the treatment of birth injuries of the brachial plexus.

The authors of the present work hope that they may have succeeded in restoring *Surgical Disorders* to its place as the British text on the present state of affairs in the field. George Bonney had the privilege and pleasure and occasional pain, of working with Seddon; Christopher Wynn Parry came to the Royal National Orthopaedic Hospital at the time of its Renaissance under the leadership of Lipmann Kessel when new fields in neurophysiology, in the treatment of pain and in the surgery of the brachial plexus were being explored; Rolfe Birch came to the field at St Mary's and the Royal National Orthopaedic Hospitals armed with experience in microsurgery, and in histological and electron-microscopic techniques. Most of the work on the results of which we have drawn was done at St Mary's and the Royal National Orthopaedic Hospitals.

The original layout of the book has largely been retained, but the text has been entirely rewritten. Chapters on "iatrogenic" lesions, on birth injuries of the brachial plexus and on recovery of sensibility after repair have been added. The subjects of pain and of tumours are considered in more depth than formerly. The subject of electrophysiological examination is considered by an expert in the field, Dr. Shelagh Smith. Rather more attention is given to anatomical considerations than was formerly the case. As Last (1949) remarked with some asperity "restatement of the facts appears to be warranted by the misconceptions shown by many postgraduate students." Not just by students. Evidently, we have tried to keep abreast of continuing advances in this developing field, but we shall inevitably be overtaken by the march of events. One does what one can.

As was shown by his magisterial reorganization of a then famous London medical library, Seddon saw a clear separation between "medicine" and "surgery." As the title of this book suggests, we have aimed to deal mainly with disorders which are generally amenable to treatment by operation, and with the appropriate techniques of operation. However, we maintain a belief in the unity of medicine. The book is aimed at surgeons in training and in practice, at physicians in general and at neurologists in particular. We even hope that undergraduates will come to no great harm through reading it. The aim has been determined by observation over the years in the clinic and in the courts of a general lack of knowledge and want of interest in conditions of peripheral nerves. These defects in medical education have generally been unhelpful to patients: injuries of nerves have been "missed" in accident departments; the delay so

produced is compounded by a lack of appreciation of the urgency of the situation and of the possibilities of repair; tumours of nerves too often go unrecognised until at operation a junior practitioner is confronted by a tumour occupying, or in close proximity to, a major nerve. We hope that this book may help in stimulating interest in conditions affecting peripheral nerves, that it may aid in enhancing the quality of treatment of such lesions, and that it may bring the field of study to the notice of clinicians highly placed in surviving teaching institutions. Lesions of peripheral nerves are indeed very useful in teaching the interpretation of physical signs, which is after all the main business of the clinician. It has not been possible to treat exhaustively every aspect of the now large subject, but we hope that sufficient and sufficiently well chosen references have been given to open avenues for further reading. We had hoped to include a chapter on disorders of selected cranial nerves, and in particular of the facial nerve. That hope was, alas, born to die: we have in the event restricted the cranial nerve study to one which is really a spinal nerve – the spinal accessory – and to some aspects of damage to the fifth, seventh, tenth and twelfth nerves.

Rashly, perhaps, we have proposed one or two new terms for varieties of nerve injury and for pain arising from the nerve injury. We have also revived an old suggestion for a term to replace that commonly used to designate injury inflicted by doctors. We do not hope to escape criticism for this presumption, but we hope that, at least, our derivations will be found by classicists to be correct. We hope that those derivations do no discredit to the august institution where their principles were imparted.

All who work in this field owe a debt of gratitude to the late Sir Herbert Seddon, and to the late Sir Sydney Sunderland. The extent of their contribution is overwhelming: no list of references, however long, can indicate its magnitude. Any book on this subject must draw heavily on *Peripheral Neuropathy*, and in particular on the third edition (1993). We are glad to acknowledge our debt to the editors and authors contributing to that majestic work. The late Professor Roger Gilliatt was foremost amongst those who after the Second World War made advances in the field and stimulated the interest of his colleagues and juniors at Queen Square and in other centres. No-one contributed more to the study and treatment of lesions of the brachial plexus than did the late Professor Algimantas Narakas of Lausanne. We gratefully acknowledge the contribution of these two men and the lasting influence of their work.

Rolfe Birch  
George Bonney<sup>†</sup>  
Christopher Wynn Parry

## Preface to the Second Edition

This work is dedicated to George Bonney who began preparation of the second edition of *Surgical Disorders of the Peripheral Nerves* shortly after the publication of the first. The structure of the book was well advanced by the time of his death. One main reason for undertaking this task was the rising tide of iatrogenous injuries. It became clear that it was no longer reasonable to assume that modern medical education provides graduates with a sound grasp of the anatomical and physiological principles of the peripheral nervous system. The work has been almost entirely rewritten with much greater emphasis upon the causes and manifestations of injuries to nerves, particularly iatrogenous injuries and the effects of ischaemia. Shelagh Smith and Ravi Knight have rewritten the chapter on electrodiagnosis which now takes its proper place in the central part of the book rather than at the end. Tara Renton has provided a welcome addition about the risks to the branches of the trigeminal nerve during facio-maxillary and dental work. The field of entrapment neuropathy has been reduced to a discussion about how to avoid error in diagnosis and in execution. With considerable reluctance the field of tumours of peripheral nerves has been approached in the same way.

Information about cause, course and outcome in more than 6000 nerve injuries are summarised. The immense task of collation of data was undertaken by the staff of the Peripheral Nerve Injury Unit under the direction of the research coordinator, Margaret Taggart. Sanjay Patel provided exceptional skills in the development of different data bases and he analysed the extensive material about the birth lesion of the brachial plexus.

Dirk de Camp, photographer of the Institute of Orthopaedics undertook all of the photographic work and developed an archive of several thousand images with particular precision. This involved the retrieval of much earlier material and he showed extraordinary patience in preparing the final order of the photographs for the different chapters. All of the drawings in this edition were done by Philip Wilson, who took on the constant revision and alteration without demur.

We have indeed been fortunate in the close collaboration with distinguished colleagues in two other Institutions. Praveen Anand, now at the Hammersmith Hospital (Imperial College), has, with his team, provided extensive information from investigations of tissues obtained from patients with nerve injuries or suffering from neuropathic pain and these findings have been matched with those drawn from clinical examination and quantitative sensory testing performed in the Joint Clinics held with him, and with Peter Misra, at the Hammersmith Hospital. Uma Anand provided beautiful illustrations from the successful culture of neurones from human dorsal root ganglia. Nicholas Murray, Shelagh Smith, Peter Misra, and Carla Cordivari of the Department of Neurophysiology at the National Hospital for Nervous Diseases, Queen Square examined more than 1000 patients seen in our Joint Diagnostic Clinics.

Susan Standring provided a great deal of her own original material and, through her good offices, Martyn Cooke curator and John Carr photographer, went to great lengths to provide photographs of specimens held in the Wellcome Museum of the Royal College of Surgeons of England.

A number of colleagues undertook the laborious task of reading the manuscripts. The first four chapters were read by Susan Standring, Praveen Anand and Peter Misra who made many cogent suggestions and important corrections. Frank Horan, Editor Emeritus of the Journal of Bone and Joint Surgery, and Michael Laurence of the Editorial Board of that Journal undertook the arduous task of reading the entire work. Their contribution went far beyond the detection of innumerable blemishes. Their highly informed and meticulous criticism strengthened the structure and concept of the work. The responsibility for errors remains with the author.

Margaret Taggart indexed and catalogued all references and transcribed the entire manuscript as well as developing and implementing methods within the Peripheral Nerve Injury Unit for the prospective collection of data for all patients.

Thomas Carlstedt joined us in 1995, transferring his work from the Karolinska Institute, Stockholm and he shared his thoughts and work in the fields of injuries to the lumbo sacral plexus, reconnection between the central and the peripheral nervous systems in cases of avulsion of spinal nerves, entrapment of the pudendal nerve and in aspects of nerve tumours. Marco Sinisi, who joined us five years ago generously provided material from his experience with peripheral nerve tumours, neuropathic pain and prolonged conduction block.

For many years our house surgeons and registrars have made important contributions by reviewing both case notes and patients and going to great lengths to retrieve classical references. We have been extremely fortunate in our many visiting colleagues, who brought with them new ideas and who undertook much original work. Without their contributions the work could not have gone forward and wherever possible those contributions have been acknowledged in the text. Particular thanks are due to the many hundreds of colleagues, for the most part orthopaedic surgeons, by whose acumen and professional authority so many patients have been sent to us with a clear and accurate diagnosis at the best possible time for their treatment.

Particular thanks too go to our editors, Melissa Morton and Denise Roland of Springer. They provided so much encouragement and interest throughout but also offered highly critical reviews of earlier drafts which ensured some clarity of purpose.

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Surgical Disorders of the Peripheral Nerves

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2011, XXIII, 645 p., Hardcover

ISBN: 978-1-84882-107-1