

## Book Reviews

### **INJURIES OF THE SPINAL CORD: THE MANAGEMENT OF PARAPLEGIA AND TETRAPLEGIA,** Neville G. Sutton, Butterworth & Co. (S.A.) (Pty) Ltd., P.O. Box 792, Durban, R10,00 plus R0,50 delivery.

The author of this book is director of the spinal injuries unit in Brisbane, Australia, and Emeritus Professor of Surgery at the University of Queensland. In his introduction he gives a short historical review of the progress made in the treatment of spinal injuries from pre-World War II until the present day, and recounts how spinal injuries units became established in several countries, initiated by Sir Ludwig Guttmann at Stoke Mandeville. No mention is made of South Africa, but the problems of distance encountered in parts of Australia are similar to problems encountered here.

In this book of 185 pages, 50 are devoted to an excellent discussion of the anatomy of the vertebral column and the anatomy and applied anatomy of the spinal cord. Throughout these sections the author relates his information to the movements occurring at the various levels, as well as to changes encountered during ageing and in trauma. The section on the blood supply of the spinal cord is particularly valuable, correlating information otherwise scattered sparsely throughout recent literature. Also of particular interest are the paragraphs on pain, which question the traditional concept of a well-defined spinothalamic tract and which include an unusually clear explanation of the characteristics of visceral pain. The section on applied anatomy deals with localization of the level of injury by applied knowledge of dermatomes, myotomes and the lumbar peripheral nerves — including a discussion of degrees of injury to, and possible regeneration of, the lumbar nerves. Bladder and bowel control and the effects of autonomic nervous system damage are clearly set out.

Chapter 6, the longest single chapter in the book, covers injury to the vertebral column, the ensuing mechanisms of cord injury and the pathology of the cord lesion. Special attention is given to the mechanisms of extension of hyperextension injuries, and the vascular element is stressed. The mechanism of cord damage following minor trauma in older age groups is explained concisely. A chapter on statistics related to age and causes follows.

The remainder of the book (rather more than half) devoted to the treatment of spinal injuries and is divided into chapters on initial stages in the treatment of paraplegia, tetraplegia, later care of spinal cord injuries, management of autonomic system dysfunctions, complications, rehabilitation and after discharge from the unit.

First aid and transport of spinal cord injuries are well covered, and mention the Cape Town unit. The author stresses the principle of conservative treatment by means of postural reduction and recumbency for the great majority of spinal injuries, but cites explicitly the few (three) indications for operative intervention. In the case of cervical dislocations the author advocates skull traction rather than the more traumatic reduction by manipulation. Blackburn, Vinke or Cone calipers are preferred. In the Brisbane unit patients are kept recumbent for only 6-8 weeks, which is rather less than generally practised in South Africa. Early care of the skin, bladder and bowel, respiratory complications and intestinal ileus are covered concisely. Few drugs are advocated.

It is refreshing to read that "from the first day in the spinal injuries unit the paraplegic patient is cared

for by a physiotherapist . . .". The sections on early stages of treatment conclude with an explanation of spinal shock in terms of recent research.

The chapter on the recovery period includes nursing care and nutrition, mobilization following postural treatment, the selection of wheel chairs and the control of neuritic pains and muscle spasms. Physiotherapy, ice-packs and valium are thought preferable to more radical methods in the control of muscle spasms. Management of autonomic system dysfunctions covers orthostatic hypotension, paroxysmal hypertension, hyperhidrosis, impaired bowel function and impaired urinary function (in detail). This is followed by discussions on the complications of respiratory infection, deep vein thrombosis (and pulmonary embolism), urinary tract infections, pressure sores, heterotopic calcification, hand-deformities and hydromyelia. The physiotherapist is considered important in both the prevention and detection of deep vein thrombosis. No blame is attached to movement as a causative factor in heterotopic calcification.

The introduction to the chapter on rehabilitation defines not only the concept of rehabilitation but also, realistically, its limitations. In a book of this length it was obviously not possible to devote more than five pages of this chapter to physiotherapy. In this short space, however, the author competently summarized the role of the physiotherapist from the earliest stages of passive movements and psychological support to muscle testing, muscle strengthening, matwork, balance, transfers, activities of daily living, standing and walking, and sports. The optimum quota of patients per physiotherapist is considered to be 6-8. Sections follow on occupational therapy and the social worker, and the chapter concludes with a discussion on sexual functions and the possibilities of procreation.

The final chapter consists of brief discussions on home care and hostels, architectural modifications for wheelchair patients, vocational training and placement, life expectancy, and the future outlook with respect to prevention of spinal injuries and research into central nervous system regeneration.

Illustrations and charts throughout are clear and explicit, and are further supplemented by X-ray photographs. One printing error which remains uncorrected might possibly be misleading.

This book gives a concise but comprehensive review of the problems and management of spinal cord injuries and is most certainly recommended to all physiotherapy students as well as qualified therapists intending to work in this field.

S. Irwin-Carruthers.

**VERTEBRAL MANIPULATION.** Third Edition, 1973.  
G. D. Maitland. Butterworth & Co. (South Africa)  
(Pty) Ltd., P.O. Box 792, Durban. Price: Soft cover  
R7,00, Hard cover R11,00, plus R0,50 delivery.

This well-known book was written by an Australian physiotherapist who has recently been awarded the Fellowship of the Chartered Society of Physiotherapy for his work in this field. It is intended primarily for physiotherapy students and qualified physiotherapists and is especially useful to those attending courses in manipulative therapy. The author describes his approach to the treatment of patients with pain and other symptoms and signs arising from abnormalities affecting the movements of the spinal column. Three techniques are used: gentle mobilizations, localised and general manipulations and traction. The book, especially the first and last chapters, also should be helpful to those doctors who wish to refer patients to physiotherapists for spinal manipulation.

The basic structure and chapter headings remain the same, except that the first chapter, by Dr. D. A. Brewerton, has been renamed and rewritten. This deals mainly with the indications for manipulative therapy. The headings are clearer and a paragraph has been added on "posture and work". A query arises on page 5 where root pain is reproduced by "... maintenance of a spinal posture, such as rotation of the neck away from the pain ...". It is usual (as described on page 22) to sustain rotation towards the painful side.

The other chapters have been expanded by the addition of more detail and discussion, and several illustrations previously published in articles by the author have been added. The most improved is Chapter 2: "Examination". It now includes the dermatone chart from the booklet "The Vertebral Column — examination and recording guide" as well as several new test techniques such as the "quadrant" tests for the cervical and lumbar spine. Also included are tests for vertebral artery involvement, tension tests and their meaning, the sacro-iliac joint, passive intervertebral movements and the abnormalities found on passive movements with illustrations of thumb pressures on the vertebrae, more techniques of examination of passive range of intervertebral movement by palpation and quick movements when pain is not provoked at normal speed.

If one may suggest something when reviewing a book of such high standard: it might be helpful to undergraduates if the "planning" stage included some questions which may be asked at this stage, such as: Do the severity and/or nature of the symptoms indicate caution? Is this an irritable condition? Is it likely that a comparable sign will be found easily or not? What is the pathology and at what stage is it? What is the probable prognosis? Are there any dangers to manipulation? Is a neurological examination necessary? This would clarify the aims of the subjective examination. One feels that, as this book is used by those who have not always had appropriate practical and clinical instruction, the chapters on "Examination" and "Application" could be tied up more definitely. Reference could be made at the end of "Examination" to the need for careful selection of technique, the level to be treated and the grade of application (as explained in Chapter 4). Teaching experience has shown that "techniques" are too often divorced from "application" when learning to manipulate.

In addition to the techniques described in the second edition, fifteen more techniques have been included and some illustrated. The symbols used for recording treatment have now been included here. Among the additional techniques are AP unilateral vertebral pressure, cervical and lumbar flexion, lumbar rotation with straight leg raising, and traction in hospital. The adjustable cervical halter is also described and illustrated.

More upper cervical localised manipulations are added and the PA thrust described and illustrated. The names and illustrations of the cervical manipulations are clearer, and more thoracic manipulations are included.

In "Application of Mobilization" more reference is made to known pathological conditions and techniques are correlated with these. There are two page-reference errors on page 161; supine neck flexion is described on page 26 (not page 9) and the straight leg raising test on page 25 (not page 137, where the treatment techniques is described).

In "Application of Manipulation" the author clearly explains his use of manipulation, an aspect of his work which is often overlooked by the uninformed.

In "Principles Applied" the author clarifies his approach, and why he uses signs and symptoms to

guide his assessment. He describes the recording of examination and treatment. The case-histories are intended for reference. They clarify the total approach, guiding factors, progression and interchange of techniques. The possible prognosis using these techniques is illustrated, including the number of treatments required, when to stop or discontinue treatment for a while, when collars are used, or when and how the patient is advised to rest. Other forms of physiotherapy are mentioned briefly in the appropriate cases. The cases have been grouped into four main categories, eight new case-histories have been added and one omitted. Among the new case-histories are severe lumbar root pain and cervical joint locking. Physiotherapists interested in manipulation, orthopaedics and treatment of the spinal joints are advised to buy this book even if they already possess the second edition (although, like most other things, the price has been increased).

B.W.

## Mechanics for Movement

Notes for Physiotherapy students

by Francoise A. McDonald

Published by G. Bell & Sons Ltd., York House, Portugal Street, London. Price £1.25 net.

Francoise A. McDonald, M.C.S.P. Dip. T.P., who teaches in the Aberdeen Hospitals School of Physiotherapy, has produced a very useful little paperback book in which the mechanics required by physiotherapy students is gathered into one convenient volume. The book is written in a simple concise form and is copiously illustrated with clear line drawings.

The Physics is not dealt with in depth but each aspect of the physics is referred to the body or the physiotherapy apparatus to which it applies and herein lies its value for the physiotherapist. There are four sections — Introduction to Mechanics, Equilibrium, Machines, and Liquids, covering such things as Centrifugal Force, Gravity, Stability, Angle of Pull, Inclined Plane, Springs, Buoyancy Diffusion and Osmosis, as well as the usual Forces Levers and Pulleys and, I feel, would be a useful addition to any physiotherapy student's bookshelf.

A. McF.

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