

there is a risk of asphyxiation or injury.<sup>7</sup>

The back should be high enough to provide support if necessary, but some users find a high back restricts their ability to rotate freely in the chair and to socialise. Reclining the back increases support and may aid positioning but may encourage sliding and make it difficult for the user to reach or lean forward to propel themselves up an incline.<sup>8</sup>

### Tilt and recline

Tilt and recline systems are a useful option for people with very limited trunk stability and strength or who have spinal deformities or muscle contracture and need a mechanism to shift their weight to ease pressure. With a tilt-in-space system (chassis of wheelchair in Figure 5), the back, seat and footplates tilt backwards as one unit, maintaining the angle between seat and backrest. This may be useful for someone with significant lower limb spasticity who is unable to straighten their legs in a recline system. A recline system simply moves the backrest, and usually elevates the footplates to allow the user to rest in a recumbent position. Recline facilities may provide a greater degree of pressure redistribution than tilt systems although the user will tend to slump when returning to the upright position if they are unable to reposition themselves, suffering significant shear forces.<sup>9</sup> Tilt systems may be more efficient to self-propel.<sup>10</sup> Both systems decrease the pressure running vertically through the spine and decrease pressure on the sacrum and ischial tuberosities, transferring it along the backrest.<sup>11</sup> It is important that these systems incorporate good back and head support when tilting or reclining and most users who need this facility need lateral back support, perhaps with a contoured back cushion. In powered chairs, tilt and recline functions may be operated by the user, from a multifunction joystick control.

### Other features

There are many other customisable options when a user chooses a wheelchair, including swingaway footrests, angled footrests, position and type of brakes, suspension systems, anti-tipping devices, armrests, clothing guards and a range of accessories including cup holders, storage for clothes, shopping or walking aids, trays and weather shields. A wheelchair may become an important part of the user's image and it is important that it gives the desired impression. Some users may want a chair that facilitates eye level communication to aid conversation and participation, emphasising ability rather than their disability (Figure 7). Other users may want to emphasise certain features of the wheelchair as an aesthetic statement and certain features may be crucial to one person and unimportant to another. Many users will require more than one wheelchair for different situations, for instance, an attendant propelled wheelchair as a backup for when a powered chair is impractical or undergoing maintenance. It is therefore vital that the person who will be using the wheelchair is as informed and involved as possible in any decision making associated with obtaining or modifying it in order that their function and participation are maximally enabled.

### References

- Mukherjee G, Bhowik P, Samanta A. *Energy cost of manual wheelchair propulsion at different speeds*. International Journal of Rehabilitation Research 2002;25(1):71-5.
- Guo L, Su F, An K. *Effect of handrim diameter on manual wheelchair propulsion: mechanical energy and power flow analysis*. Clinical biomechanics 2006;21(2):107-15.
- Collins F. *A practical guide to wheelchair cushions*. International journal of therapy and rehabilitation. 2007;14(12):557-61.
- Yuen HK, Garrett D. *Comparison of three wheelchair cushions for effectiveness of pressure relief*. American Journal of Occupational Therapy 2001;55(4):470-5.
- Farley R, Clark J, Davidson C et al. *What is the evidence for the effectiveness of postural management?* International journal of therapy and rehabilitation. 2003;10(10):449-55
- Heller KD, Forst R, Hengstler K. *Scoliosis in Duchenne muscular dystrophy*. Prosthetics and Orthotics International 1997;21:202-9.
- Chaves ES, Cooper RA, Collins DM, Karmarkar A, Cooper R. *Review of the use of physical restraints and lap belts with wheelchair users*. Assistive technology. 2007;19(2):94-107
- May LA, Butt C, Kolbinson K, Minor L, Tulloch K. *Wheelchair back support options: Functional outcomes for persons with recent spinal cord injury*. Archives of physical medicine and rehabilitation. 2004;85(7):1146-50.
- Gilsdorf P, Patterson R, Fisher S, Appel N. *Sitting forces and wheelchair mechanics*. Journal of rehabilitation research and development. 1990;27(3):239-46.
- Aissaoui R, Arabi H, Lacoste M, Zalzal V, Dansereau J. *Biomechanics of manual wheelchair propulsion in elderly: system tilt and back recline angles*. American journal of physical medicine and rehabilitation. 2002;81(2):94-100.
- Aissaoui R, Lacoste M, Dansereau J. *Analysis of sliding and pressure distribution during a repositioning of persons in a simulator chair*. IEEE Transactions on Neural Systems and Rehabilitation Engineering 2001;9(2):215-24.

## Oxford Handbook of Neurology

White coat pockets were once a target for publishers, but in an era of e-medicine and naked-below-the-elbow dress codes is there still a need for these cute tomes, or anywhere to put them? After using and scrutinising this book we think it has a great future; it does exactly what it says on the tin and with minor tweaking it could easily become the book we all use to inform and record registrar training.

The book has seven sections entitled Neurological history and examination, Neuroanatomy, Common clinical presentations, Neurological disorders, Neurosurgery, Clinical neurophysiology and Neuroradiology; an ambitious coverage but one reflecting the range of authorial interests. The text is not referenced, which diminishes its authority in areas with a strong evidence base, but it reads well.

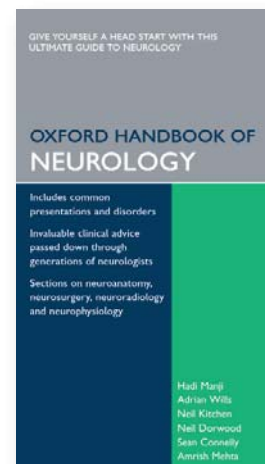
We began by consulting it regularly regarding cases we had seen. The sections on acute myasthenia and acoustic neuroma with communicating hydrocephalus were thorough but concise and the details about actually how to do a tensilon test were useful. MND was covered comprehensively with notes on clinical features, investigation and management. The section on bedside cognitive testing section included both the Mini-Mental State Examination and the Camels in Holland version. In general clinics the tables containing the starting doses and common side effects of drugs for epilepsy, migraine, trigeminal neuralgia and spasticity were handy and the tables about seizures and syncope, short-lasting unilateral headache, and the paraneoplastic conditions and their antibodies were informative and easy on the eye. Neurosarcoïd gets a (brief) mention, head injury gets ten CT images and as a primer in neurosurgery and neurophysiology it is worth having around.

Reading it cover to cover gave us some different insights. With time we became unsure whether it was a pragmatic guide to dumpety-dump clinical neurology, or a minified unreferenced version of an authoritative text. Coverage seemed uneven at times. Early on there are 20 pages of very familiar anatomical illustrations but with no insights into the diagnostic thinking required to spot the common mononeuropathies, the posterior cord plexus lesion, or the infarcted lateral medulla. Despite the importance of the consultation it gets only one page. Ten different patterns of chronic neuropathies are described but bulbar and respiratory failure in neurological disease are not discussed or indexed. There is a refreshing emphasis on inherited disorders but the degree of detail seemed disproportionate at times although we now long to make the diagnosis of Gelsolin familial amyloid neuropathy (Finnish) so we can tell our colleagues it is the stuff of handbooks, not obscure journals.

However the choice of section headings and their contents works well with minimal duplication and omission; the differential diagnosis of acute vertigo on page p58 excludes BPPV, although it is discussed in depth on p 254. The appendices were useful. Kurtzke, Barthel, Hoehn & Yahr, and Rankin make up the first. Clinical pearls follows; a nice idea but we were left wanting more. Then the eponyms appendix, which helped with Duane's, disappointed with Lewis Sumner, but put us straight about Villaret, Monakow, and Foix-Alajouanine. Some useful website addresses make up the fourth appendix.

So we recommend it to you. With some tick boxes and more room to record patient details it could become a neurological trainee's tacnometer, a combined logbook and pocket reference which no SpR will be allowed not to mention at their RITA, and its future will be deservedly ensured.

Reviewed by: Rob Powell and Tom Hughes,  
University Hospital of Wales, Cardiff, UK.



Authors: H Manji, S Connelly, N Dorward, N Kitchen, A Mehta, A Wills  
Published by: Oxford University Press, 2006 • Price: £29.95  
ISBN: 9780198509738

If you would like to review books for ACNR, please contact Andrew Larner, Book Review Editor, c/o rachael@acnr.co.uk

## The Legacy of Harvey Cushing – Profiles of patient care

Harvey Cushing's Brain Tumor Registry was an immense collection of more than 2200 patient case studies from Johns Hopkins Hospital, Baltimore and later, the Peter Bent Brigham Hospital in Boston. The meticulous recording of clinical information, annotated with exceptional photographic records, provided the earliest and most enduring archive of neurosurgical case histories.

Cohen-Gadol and Spencer dissect the collection, now held in Yale University, in a clear and cohesive fashion. The Legacy of Harvey Cushing enables this important historical work to be available to all neurosurgeons. The book, which includes a detailed introduction about the history of the collection itself, is divided into chapters based on disease type, including pituitary tumours, meningiomas, malignant tumours, posterior fossa tumours, spinal tumours and cerebral aneurysms. Each of these chapters also includes an introduction written by a variety of currently practicing neurosurgeons. These foster an understanding of both past and current practices and enable the reader to gain insight into the remarkable talents of Harvey Cushing.

Through the vignettes of each patient, the authors translate Cushing's meticulous notations on disease and provide a unique level of detail about the individual patient. The patient case histories detail the presenting symptoms and signs. They are supplemented with clinical and operative notes, radiology and pathology reports, patient correspondence and notes on further clinical events and, where relevant, autopsy reports. It is, however, the powerful photographic images that captivate the reader. These catalogue the devastating impact of neurological diseases in a way that could not be achieved today due to both the current ability to diagnose disease earlier and restrictions now placed on such photographic documentation.

This book contains several hundred photographs. The power of these is reminiscent of Frank Hurley's photographs detailing Shackleton's Endurance expedition. Many of the patients have advanced disease. The cachetic appearances of a patient with a pineal tumour are akin to those

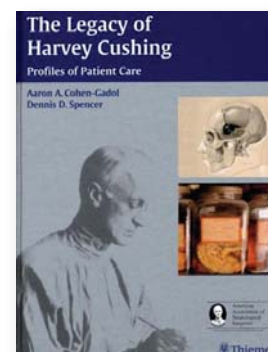
showing prisoners of war from by-gone conflicts. The free text and final collection of photographs provide a better understanding of Harvey Cushing, who is often considered to be the father of modern neurosurgery. To tackle the enormous Cushing collection and compile this list of case histories is a tremendous task.

This book enables the neurosurgeon to understand the impact of the man that reduced mortality for his patients to below 10%. Given the advanced state of disease at presentation and the lack of an operating microscope in the pre-antibiotic era this achievement was remarkable.

In summary, this new book is a remarkable catalogue of neurological disease exploring the impact upon the patient and the evolution of surgical and non-surgical treatments. Furthermore, the cases suggest the possible origins of collaboration of different medical specialties. This type of collaboration survives today in the form of weekly tumour conferences. This book is a recommended addition to the collection of any medical historian. It is also an incredibly powerful read for anyone pursuing a career in the care of the patients with neurological disease. The clinical vignettes provide insight into disease for everyone, from those who care directly for patients and observe the ravages of those diseases first hand, to those who rarely engage the patient and look for cures through a microscope or elsewhere. The patients, stoic in their diseased state, captured in dramatically clear black and white photos, provide an extraordinary reminder of what inspires us to be neurological surgeons. This unique book will have an enduring impact on all of those who take the time to read, observe and study Cushing's pioneering work.

Reviewed by:

Neil Malhotra (*Visiting Neurosurgical Resident from Pennsylvania*) and Peter C Whitfield (*Consultant Neurosurgeon*), Plymouth, UK.



Authors: Aaron A Cohen-Gadol, Dennis D Skinner • Published by: Thieme New York : Stuttgart • Price: \$129.95 • ISBN: 978-1-588890-389-1

## Wolff's Headache and Other Head Pain (8th edition)

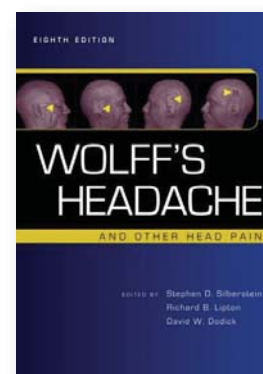
Harold Wolff died in the year I was born, having just completed the revision for the second edition of his textbook. The fact that his book lives on, now in its eighth edition, is testimony to its value, described in the blurb as "the definitive reference text in the field".

The core of the book is structured around the second edition of the International Headache Society classification (ICHD2) of primary and secondary headache disorders. As one would expect there is a wealth of information, related to both pathophysiology and clinical management of these disorders. "Migraine treatment", for example, runs to 88 pages (without the references), so this is for those readers wanting a comprehensive account rather than a quick refresher. The clinician who can recall all 6 pages tabulating causes of ocular, orbital or periorbital pain in the "quiet eye" has a better memory than I do.

As one might anticipate, it is hard to identify omissions, although I cannot recollect any mention of ophthalmoplegic migraine and its possible reclassification as a focal demyelinating neuropathy. Errors of commission, on the other hand, are plentiful. Does Oxford University Press permit authors to proof read their chapters (I presume the answer is no, since one misspells his own name, p601) or employ professional proof readers? Typographic errors are sufficiently frequent to be intrusive. Nonetheless, this book is excellent value for money at £60, a must for all those professing an interest in headache and worth dipping into by all neurologists seeing headache patients (i.e. all neurologists).

Reviewed by:

AJ Larner, WCNN, Liverpool, UK.



Authors: Silberstein SD, Lipton RB, Dodick DW (eds.). • Published by: Oxford University Press, 2008 • Price: £60.00 • ISBN: 978-0-19-532656-7