When Thomas Willis (1621–1675) first used the term “neurology” in Cerebri Anatome to mean knowledge of the cranial, spinal, and autonomic nerves, he did not specify whether practitioners should be physicians or surgeons. The physicians won the mantle but somehow this did not catch the imagination of the public or even aspiring doctors in the same way as that of being a “brain surgeon”, a term proverbially ranked alongside “rocket scientist”, indicating the very acme of medical achievement.

With more modesty the Society of British Neurological Surgeons (SBNS) defines the specialty of neurosurgery as that of “the clinical management of patients with potentially surgical remediable conditions of the central (intracranial and spinal) and peripheral nervous system”. In their important document Safe neurosurgery 2000, they recommend that neurosurgical units should be situated within a multidisciplinary neuroscience centre on a general hospital site, and should provide both core and subspecialty services.

While neurosurgery is thus commonly sited alongside neurology, the reverse is not always true. An increasing number of UK neurologists, while regularly attending a neuroscience centre, spend the majority of the working week away from their surgical colleagues. Neurologists thus need to be informed and equipped to work without immediate access to a neurosurgeon.

The links between our specialties have changed beyond all recognition over recent years. While Victor Horsely and William McEwan were regarded as the founders of British neurosurgery, it was Harvey Cushing, not much troubled by a lack of neurologists, that trained and influenced the first generation of UK specialist surgeons (Cairns, Jefferson, Dott, Sloan Robertson, and McConnell). The second world war saw the spawning of the regional neurosurgical units and the birth, outside London, of the neurological physician. In the 1960s and ’70s our specialties worked in close collaboration up until the advent of cross sectional imaging. The increased availability and non-invasive nature of new scanning technology weakened the links between neurologists and neurosurgeons as the neurologist ceased to be the “gate keeper” for neurosurgical referral. Developments in interventional neuroradiology and tumour management are now changing the face of neurosurgery. Subspecialty interests in epilepsy, movement disorders, and cerebrovascular medicine have resulted in closer working partnerships between some neurologists and their neurosurgical colleagues, while in other areas our disciplines have diverged.

CHANGING RELATIONSHIP

As our relationship has changed so have our perceptions of each other. We have moved on from the caricatures where neurologists regard neurosurgeons as technicians that do their bidding, or neurosurgeons consider neurologists to be investigative spendthrifts consuming scarce radiological resources in order to diagnose disorders without treatments. We are frequently involved in the care of similar patients, but often have radically different perspectives on investigation and management. A clearer understanding of the different approaches of the closely allied specialties should improve the care of our shared patients.

Many of the differences in neurological and neurosurgical thinking relates to the type of decision that each specialty makes. Neurosurgical thinking is based on deciding to undertake a single irreversible and potentially harmful procedure on a patient. In contrast, neurological decisions, particularly about treatment, are more provisional and reversible; a diagnosis can be revised, a drug can be changed or easily stopped. A neurosurgical operation is not standardised, being “operator” dependent, and there is thus an additional personal dimension to the treatment, whether successful or harmful, that is not so for medical treatments. Neurosurgeons are increasingly involving patients in these often difficult decisions, a dialogue that goes beyond informed consent to a shared decision.

Not only is the focus of the decision different, but often the very evidence that is available on which it can be based differs. For many neurosurgical conditions there is often only very limited data on the natural history of the untreated patients, this being compared with selected series.
commonly from enthusiasts within a field. There are few controlled trials, and blinding in any surgical treatment is evidently difficult. In addition, case series within the literature often reflect practice by neurosurgeons with particular interest and expertise in an area, such that outcomes may not be generalisable to the “average” neurosurgeon. Increasingly sophisticated audit of individual surgical practice is further informing these decisions. More recent studies, such as those on the natural history of unruptured aneurysms or coiling and clipping symptomatic aneurysms, have begun to use clinical trial methodology.

On the other hand neurosurgical practice is an area of more diagnostic certainty than neurology. Most neurosurgical patients will have abnormal radiology relevant to their clinical problem. Neuropathology will often be able to confirm and refine diagnoses. There are few clinical syndromes without radiological abnormalities that are treated neurosurgically, though perhaps trigeminal neuralgia and hemifacial spasm fall into that category. There are a smaller proportion of those challenging and demanding patients, not infrequent in neurology, with non-organic or medically unexplainable problems.

The modus operandi within outpatients differs, reflecting the central nature of the decision for neurosurgery. Neurologists will keep many patients with neurological disorders under review in outpatients to direct their long term management. Neurosurgeons will discharge patients to neurological care if there is no appropriate neurosurgical intervention for them. However, neurosurgeons will tend to follow up those patients with conditions where options remain surgical, such as hydrocephalus, or partially resected benign tumours.

This supplement aims to provide some insights into the world of neurosurgery. It is one of those areas in the neurology curriculum where a single heading covers entirely a related speciality in which neurology trainees are clearly not expected to train to the level of competence as neurosurgeons. Trainees do, however, need to have an understanding as to what neurosurgery has to offer and to have some concept as to how to approach a patient’s problem, improving communication and referral practice and ultimately patient management. In this supplement head injury is considered, first from a neurosurgical perspective, by Peter Hutchinson and Peter Kirkpatrick, followed by a neurologist’s view by Richard Greenwood. Hydrocephalus is addressed by Ian Pople, and raised intracranial pressure by Laurence Dunn. Peter Kirkpatrick discusses aneurysms for the neurologist. George Malcolm and Nitan Patel address the role of surgical intervention in cervical and thoracolumbar spinal diseases. We have not tackled brain tumours, as this will appear in a forthcoming supplement on neuro-oncology. Surgery for movement disorders has been addressed recently.7

We hope this supplement goes some way towards helping neurology trainees understand better neurosurgical practice and its practitioners.

REFERENCES