NEUROSURGERY COMES OF AGE*

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... This new and rapidly expanding subject has budded off from general surgery and ardently attached itself to neurology.

Harvey Cushing, 1935

In a review published in 1937, I stated, "Neurosurgery is still a youth among the medical and surgical specialties." Today, eleven years later and sixteen years after the founding of this Society, it may be appropriate once again to take stock of the position of this youth and to take thought for his future. For our erstwhile precocious youngster, flexing his technical muscles, increasing his store of knowledge and sometimes rudely thrusting aside his less fortunate cousins, has attained the stature of manhood.

With the burgeoning confidence of his rapid growth and new-found independence, he has allied himself with many new friends and accepted many new obligations, while wandering ever farther, at times, from the parental hearth of surgery. Now, on the threshold of a new phase of his life, he must take care lest new tasks and new interests divert him from the family ties of his chosen occupation.

In its first phase as a specialty, neurosurgery consisted essentially of a courageous struggle with seemingly insuperable technical problems by a very small group of bold and adventurous pioneers. The ceaseless battle with hemorrhage, the constant threat of the dreaded cerebral fungus, the problems of pressure and visual loss in patients with deeply situated and then inoperable tumors and many similar difficulties concentrated the attention of this group on matters of technic.

The Society of Neurological Surgeons was organized in 1920 with eleven members, all of whom were experienced general surgeons. In that same year, Cushing wrote that the subtemporal decompression was the most useful operation in craniocerebral surgery. Dandy's ventriculography had just been described and was regarded with grave suspicion as a highly dangerous procedure.

Despite their technical preoccupation, these early workers recognized that the neurosurgeon should have "a working knowledge of clinical neurology as well as of the disorders of the mind and of neuropathology" (Cushing, 1923), and they resented the dictatorial attitude of the neurologist in his assumption of the surgeon's ignorance. But many a would-be neurosurgeon in the latter part of this era had little or no knowledge or train-

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† Roughly, the first twenty-five years of this century, but including sporadic earlier activities.

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ing in the field: "He comes and spends a short time as an onlooker and returns to his clinic a neurosurgeon."

Then came the second phase of neurosurgery, beginning in the late twenties and perhaps reaching its termination at the present time. This has been a period of enormous expansion,—expansion of technical surgical facilities, of the scope of the field, of the number of neurosurgeons and of the body of knowledge in related fields, not specifically neurosurgical.

With this rapid expansion came the inevitable "growing pains." As technical problems were surmounted, as operating time was shortened, as newer procedures for the relief of additional disorders were developed and as the medical profession learned of the possible accomplishments of neurosurgery, an ever-increasing stream of young men has sought to become neurosurgeons. Training of a limited number in a few great centers soon gave way to the development of assistants by most practitioners in the field. The Armed Services, during the war, and subsequently their analogue, the Veterans Administration, have of necessity greatly increased the number of actual or would-be neurosurgeons. And each of these men wants to be a "well-trained" neurosurgeon!

Meantime, however, the scope of the knowledge which he is told he must acquire has grown well nigh beyond the ability of any man to learn. Cushing's little surgical "bud" which so "ardently attached itself to neurology" now finds itself almost lost amid the tangled branches of neuro-anatomy, neuropathology, neurophysiology, neuro-ophthalmology, neuroradiology and others. Even the huge and long-established store of clinical neurological knowledge requires many years for its mastery. The great field of neurophysiology, already growing rapidly, has been mushroomed by the new and highly technical application of knowledge of electronics and radio-activity. And so with the others.

This period of rapid and at first random and uncontrolled expansion in neurosurgery has led to several far-reaching developments:

1. The neurosurgeon has "taken over" large portions of the field of neurology, insisting that he can make his own diagnoses, at least in neurosurgical conditions and offering a specific form of therapy. Clinical neurology, remaining essentially a static body of knowledge (and further reduced by loss of other conditions to internal medicine), has shrunk to include a few common but untreatable diseases and a large number of interesting but rare and obscure clinical syndromes.

2. As a result, the neurologist has either consummated a sort of unholy marriage with newly rejuvenated psychiatry or has sulked in his tent, muttering nostalgic laments for the "good old days" or hurling bitter imprecautions at the "men of action" (Bailey and Aring).

3. In an effort to curb the entrance of large numbers of poorly trained men into neurosurgery, the American Board of Neurological Surgery came into being. This Board, earnestly seeking to still the criticisms of the neurologists and to encompass the vastly expanded special fields of knowledge