

TUESDAY ROUNDS WITH DEREK DENNY-BROWN AT THE HARVARD NEUROLOGICAL UNIT CIRCA 1965

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The Setting

The Boston City Hospital was not the easiest place to work. As a PGY 3 in neurology one had to return to doing the CBC's, urine analyses, various bacterial stains and even the 20 minute swirling of the Erlenmeyer flasks then required for LE preps. The resident personally performed all neurological testing including perimetry, tangent screen visual fields, urodynamics, Pantopaque myelograms, pneumoencephalograms and in emergencies, carotid "stick" angiograms and EEGs especially for possible subdural hematomas and brain abscesses. The Hospital was a scruffy poorly maintained institution sprawling among more than a dozen buildings, most connected by dark dank subterranean tunnels. Many employees were the special needs relatives of Boston "pols" who were prone to proving that their job security was greater than yours. The elevator call system had deteriorated to the point where a spoon was taped with white adhesive to the door and you tapped the floor number on the elevator door with the fond hope that the operator would take the time from selling for his numbers racket to come pick you up.

However, Tuesdays were special because it was Professor's rounds. Dr. Denny-Brown saw all patients on the Service. This was one of the three educational highlights of the week. The other major events included Thursday "brain cutting" where the neuropathologist would demonstrate the gross abnormalities in the brain following discussions of a protocol beginning with a junior assistant resident on up to the Chief. The protocol was not available until the session was to begin. Autopsies were so frequent that most of the time the deceased patient had been seen by Neurology. The other highlight was Saturday conference where two challenging cases would be examined and discussed in detail by D.D-B.

Tuesday rounds started in the 9th floor library of the Medical Building. Everyone (15-20) stood when the Professor entered 10-15 minutes late. We started on the 22 bed women's ward with the first bed on the right. A contingent of residents and Harvard medical students had been moving beds about to place the most interesting patient in the first position because the most time was always spent with the first patient. The contingent included the monthly Visit who was a senior member of the Boston neurological community. The chair at Tufts, John Sullivan, the Chair at Boston University, Charles Kane, the Chief at the Brigham, Richard Tyler, the Chief at the Deaconess, Simeon Locke, the Chief at Mt Auburn, Donald Osterberg were all on this roster. Distinguished foreign neurologists were also frequently in attendance. The redolence that accompanied these rounds was paraldehyde. Our service had complete control over who came to our wards and they represented a small percentage of the neurological problems in the Hospital. The patient stay was totally under our control and one well known Wilson's disease patient was there for 13 years!

Dr. Denny-Brown

Derek Denny-Brown was a formidable man with an athletic build and the mien of a chief. He was born in 1901 in Christchurch, New Zealand and graduated from the University of Otago Medical School in 1924. He won the 1924 Beit Fellowship to work with Nobel Laureate, Sir Charles Sherrington at Oxford. His work there led to a Doctor of Philosophy degree. He focused on defining the motor unit and the use of antidromic stimulation to study motor

neuron responses. He became a contributor to the classic book "Reflex Activity of the Spinal Cord" in 1928 along with Sherrington, Eccles and Creed. He then trained in clinical neurology at Queen's Square. Macdonald Critchley indicated that he might have made a more important contribution if he remained a full time scientist and might even have become a Nobelist himself.

While at Queen Square, he was exposed to the likes of Wilson, Adie, Holmes, Riddoch and Walshe. In 1936 he won a Rockefeller Fellowship to work with John Fulton at Yale where he developed subpial resection of the cortex for the purpose of studying cortical ablation syndromes in animals. The offer for the James Jackson Putnam Professorship came from Harvard in 1939 but was complicated by his military service. There is a complex tale about this event but in the end, the President of Harvard, James Conant, personally intervened with Winston Churchill and D D-B finally became the James Jackson Putnam Professor of Neurology at Harvard and the Director of the Neurological Unit at the old Boston City Hospital. He later did leave to spend time as a Brigadier in Southeast Asia in the British Army. Upon his return to the Unit in 1946 he continued to publish in clinical neurology and monkey ablation studies throughout his tenure until 1967. Another major contribution was training future leaders in neurology. During a period in the 1960's when there were only 41 neurology departments nationwide 19 of the Chairs had trained with Denny at the Unit!

Conducting the Rounds

When rounds began, the senior resident was the guide and gave all the follow-ups and knew exactly where to stand and hand the Professor the right instrument at just the right time. The junior resident presented his new patients in great detail and in the precise order that he had been rehearsed by the senior. I had the good fortune to have Martin Pollock as my senior and his New Zealand accent seemed to have a mollifying effect on Denny. If any of the rules were breached he might be excused from rounds and "someone who knows the case" i.e. the senior, would be asked to continue.

Examples of forbidden acts on these rounds include:

- using a "diagnostic" term like *chorea* or *athetosis* would evoke, "That is a diagnosis! Describe the abnormal movements that you see!" I realized later on that this does train your powers of observation.
- presenting any patient with sensory findings without holding up a detailed map of each modality.
- asking any questions.
- describing the results of any testing as normal or abnormal would be rejoined with "Tell me the number and I will tell you whether it is normal or not."
- using any psychiatric, especially Freudian, terminology. It seemed that the only behavioral disorder was "inadequate character development". If you admitted a patient with functional paraplegia you were not to leave the Hospital until you had the patient walking by promoting their "confidence"!
- any allusion to other living neurological authorities was unwise, especially Dr. Raymond Adams. Dr. Adams did start out at the Neurological Unit but they must have had a falling out. I do know there was animated disagreement concerning the pathological changes underlying parkinsonism. Dr. Adams had it right.
- over dependence on the results of EEG's was also a peril. I once tried to convince him of a spike discharge only to be asked "Did someone slam the door?" I wonder whether this might be part of the reason why the Gibbises and Lenox moved on.
- the resident should never try to demonstrate an "avoidance" reflex. Denny described this phenomenon as a response of hand and finger extension following a distal moving lateral palmar cutaneous stimulus. This was postulated to be a frontal response released by parietal damage. The term and its elicitation had become extinct.

Denny was not without humor and there were certain stock lines he could not resist using repeatedly. If the resident began the presentation by indicating, "we have an interesting case" D D-B would retort, "Tell me about it and I will tell you if it is interesting".

When the resident indicated that “The ankle jerks were trace to 1+”, D D-B on finding no reflex would comment “You must have gotten the last one”. If the resident was carrying a Queen’s Square style reflex hammer he would enjoy calling it a “pessary on a pole”. (A pessary was a doughnut shaped object inserted into the vagina to treat uterine prolapse.)

When doing the paperwork (minimal in those days) for approval of the Training Program, he asked the assembled residents if they had been attending the weekly psychiatry conferences with a smile that said he did not really expect us to. He did not seem to believe in psychiatry which was much more psychoanalytic in those times. He took some pride in moving neurology into the model of internal medicine in the U.S.A. where there had been a strong neuropsychiatry tradition.

The Patients and the State of Neurology

The diagnoses of the patients on these rounds were very different from what you would find on present-day neurology services. Jakob-Creutzfeld was considered a degenerative disease and autism was due to “cold” mothering. There were still some cases of general paralysis of the insane and tabes dorsalis. Antihypertensives were not so effective and our patient population was disinclined or unable to take daily medications. Thus, *etat lacunaire* or advanced Binswanger encephalopathy with pseudobulbar palsy, frontal dementia and gait disorder was everywhere on the wards. Hypertensive intracerebral hemorrhage was also much more common than today. Sydenham’s chorea and tuberculous meningitis were not rare. Immune encephalitis with ovarian tumor was unknown and I can recall a patient of mine who, in retrospect probably died of that entity. Wernicke-Korsakoff patients were everywhere as community centers had not yet begun to dole out thiamine to all comers.

Treatment was very limited. Multiple sclerosis was treated with ACTH injections, scopolamine type drugs were the mainstay of treatment for parkinsonism. Preimaging neurology made challenges out of what is now elementary. Finding spinal compression and telling an infarct from a hemorrhage (especially cerebellar) were frequent problems. Pneumoencephalography was technically challenging and a tribulation for the patient. A handout of advice to new residents of apocryphal origin stated “Pneumoencephalograms and arteriograms correspond to the views of the Director, regardless of the interpretation of the Chief of radiology, the Visit and/or those who performed them....View boxes are an unnecessary modern convenience, except at some conferences; southern windows are to be used in the summer, the lateral windows in other seasons.”

Dr. Denny-Brown’s Personality

Denny could tear into people but there were occasions when he was on the receiving end of the exchange. He coined the term *amorphosynthesis* to describe an overall behavior in patient with the parietal syndromes, which was a concept so vague that it never caught on. Nobody could figure out what it meant. Critchley cites Ben Jonson in this matter, who wrote, “A man coins a new word not without peril, and less fruit, for if it happens to be received the praise is but moderate; if refused, the scorn is assured.”

His writing was rather arcane and Critchley tells us “He was not a great communicator at least on paper, and once received a post-card from FMR Walshe which read ‘Dear Denny, I see you have a paper in *Brain*. When is the English version coming out?’” I once introduced Denny as having the singular honor of writing a book on motor control which was translated into the same language. This was the truth as the title of Othello Langworthy’s book “The Sensory Control of Posture and Movement: A review of the Studies of Derek Denny-Brown” reveals.

Denny was a very dedicated teacher. When a senior resident (Dennis Thoen) once had the temerity to quietly apologize for not having an interesting case, he made a special effort to make the discussion particularly fascinating. He even sent Sid Gilman upstairs to Medical 10 to bring a recently operated monkey down to illustrate some of his discourse. When you presented a case to Denny, his discussion (never a dialog) was entirely directed to you and always brought a fresh point of view usually with physiologic as well as anatomic insights into the case.

Sign out

At the end of rounds the group returned to the library where there was a stack of discharge summaries for him to sign. If you put down a diagnosis other than his he gave you a scowl, crossed out your diagnosis and replaced it with his. Many weeks might have elapsed since the patient had been discharged. He did have an incredible memory. Once I showed him some sensory maps where length dependent neuropathy had advanced to involve the anterior torso and he referred me to a late 1800's paper in German which showed this phenomenon in thiamine deficiency!

After his retirement he made a comment to me that revealed that much of his difficult behavior was a bit of a bluff. "Sylvia (his wife) and I have joined a Cambridge neighborhood group that puts on informal plays and of course they always cast me in the lingo parts".

Scientific and clinical achievements and his personal characteristics made him a role model for a generation of neurologists as did his personal characteristics. Denny had an incredible work ethic and even younger men had a hard time keeping up with him. When in England he did all his own tissue staining and preparation for microscopic study. He went out to a nursing home to do a post mortem on a patient of interest. On Saturday afternoons he made movies of patients and often made his own equipment. I saw him repairing the bench outside his office. He wore a long brown lab coat when doing non-clinical work and a white one while being a clinician. He was also known for his intense sense of honesty; he actually returned any unspent funds to NIH annually.

Denny also had great physical and mental toughness. He could continue through rounds when hampered with the facial flushing, tearing and nasal discharge of his cluster headaches. He would often be seen rubbing the neuroma site of his amputated finger and endured catheterization to study bladder physiology. When I expressed my sadness at learning about his slowly advancing fatal myeloma, he said it was "not a bad deal" at his age and dying of uremia was a good way of going. At that moment I could better understand his bluntness with some patients.

In the end, while we who trained enjoy the tales of awed terror, stress and bemusement, the Unit was an incredible opportunity to apprentice in neurology with a leader of great colorful brilliance, superb clinical insights and a singular physiological perspective. We are forever proud to trace our neurologic lineage through him.

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