Betty Q. Banker, MD (1921–2010)

Betty Q. Banker, a pioneer in neuropathology, died on February 7, 2010, at the age of 88 years. Betty was born in New York City in 1921 and raised by her mother in Freeport, Long Island, under difficult circumstances. Supported by a scholarship, she earned a bachelor degree from Ithaca College and became a high school teacher. She soon decided to take a medical degree. After graduation from Albany Medical College, she interned at the Boston University Hospital. In 1950, she was a neurology resident at the Boston City Hospital under the tutelage of Dr Derek Denny-Brown, and in 1953, she became a neuropathology resident at the Massachusetts General Hospital under the direction of Dr Raymond Adams. From 1955 to 1957, she again worked with Denny-Brown, examining the effects of denervation on normal and dystrophic muscle. In 1957, Betty was appointed Neuropathologist at the Children’s Hospital Medical Center in Boston and became an Associate in Neuropathology at the Harvard Medical School. In the same year, she married Maurice Victor, a neurologist at the Massachusetts General Hospital. In 1962, Betty and Maurice moved to the Cleveland Metropolitan General Hospital, where Betty became the director of the Division of Neuropathology and Maurice the director of the Neurology Service; both were appointed professors in their respective fields at Western Reserve (now Case Western) University. In 1986, Betty and Maurice retired from their posts in Cleveland and took up residence in Hanover, NH. There, Betty became professor of neuropathology at the Dartmouth Medical School and retired from that position in 1994. Maurice also remained academically active and spent the next 6 years at the VA Hospital in White River Junction, VT.

Each of Betty’s many contributions to neuropathology was distinguished by scholarly review of the existing literature, meticulous observations, extensive documentation, and lucid exposition. Here, we will highlight only a few of the now classical studies. A 1961 article on infantile muscular atrophy with Randolph Byers (1) masterfully described the pathology and clinical features of the disease, showed that the outcome varied directly with age at onset, and correctly predicted that the infantile and childhood forms of spinal muscular atrophy and of adult-onset proximal muscle atrophy were facets of the same disease; this notion was fully confirmed in 1990 when the SMA gene was discovered. Another study in 1961 detected a 9% incidence of occlusive cerebrovascular diseases in 555 autopsied infants and children and showed that more than half of the cases were caused by venous occlusions (2). The following year, Betty and Jeanne-Claude Larroche showed that periventricular leukomalacia of infancy was caused by anoxic insults at birth (3). This article has been cited 510 times since its publication. Other important contributions around that time were an article with Peter Berman that showed an association of neonatal meningitis with perinatal maternal infections (4) and a review with Maurice Victor on the etiology, therapy, and prognosis of brain abscess (5).

In the late 1960s and early 1970s, Betty and her associates examined the pathological features of the dy/dy dystrophic mouse (now known as an animal model for human α2-laminin [merosin]–deficient congenital muscular dystrophy) and elucidated the basic elements of muscle fiber degeneration and regeneration at the ultrastructural level (6). Betty also investigated the muscular dysgenesis (mdg/mdg) mouse (now known to be caused by failure of excitation-contraction coupling because of a defect of the transverse tubular Cav1.1 channel) that is born with arthrogryposis and cannot breathe (7). Betty repeatedly revisited the subject of arthrogryposis multiplex congenita and ultimately classified it as resulting from primary alterations in the spinal cord, motor endplate, and skeletal muscle (8–10). In an important study in 1966, she investigated the pathology of dermatomyositis in children and showed it to be associated with an angiopathy of skin, muscle, and the gastrointestinal tract; she documented the presence of small infarcts in muscle but interestingly did not comment on the
perifascicular atrophy of the muscle fibers (11). Nine years later, Betty examined the ultrastructural features of dermatomyositis and described microtubular inclusions and other abnormalities in the endothelial cells of small blood vessels (12). Another study in 1973 with Susan Chester detailed the clinical features, pathology, and therapy of diabetic muscle infarction (13). In 1977, in a clinicopathologic study of 20 cases of hypertensive encephalopathy, Betty and coworkers emphasized that severe vascular alterations appeared in both brain and other organs; that in the CNS, the brainstem was most severely affected; the association with uremia; and that the dominant cerebral symptom was altered consciousness and headache (14). In a later contribution, Betty and coworkers found that central pontine myelinolysis in burned patients was caused by an antecedent period of extreme serum hyperosmolarity rather than rapid correction of hyponatremia (15).

Betty was also author or coauthor of 41 monographs and book chapters. Between 1982 and 1986, she and Andrew Engel coedited a textbook on the basic and clinical aspects of muscle diseases entitled Myology. Her chapters for the book were carefully crafted and elegantly illustrated, and both editors read, and sometimes redacted, each of the 73 chapters of the book. Betty remained a key contributor to the second and third editions of Myology, published in 1994 and 2004, but could no longer serve as coeditor because of recurrent pulmonary infections.

Betty Banker is remembered as a teacher of infinite patience. Maie Kaarsoo Herrick, Betty’s first neuropathology resident in Cleveland, recalls, “I would look carefully at a tissue section to see what I thought was important, and she would urge me to look again. How valuable that lesson was! It was repeated many times each week, initially to my frustration but eventually to great satisfaction when I began to see what she had seen so clearly.” Although demanding to the point of perfection, Betty’s willingness to take the time to do things right remained with Maie throughout her professional career. “How special it was to have had the opportunity to share those wonderful times at our microscopes!”

Betty received several honors and awards. These included the Weil Award of the American Association of Neuropathology and the Hower Award of the Child Neurology Society. She and Andrew Engel were corecipients of the Book Award of the American Medical Writers Association in 1986. Betty became a member of the American Association of Neuropathology in 1957 and was promoted to senior membership when she retired. She was also an honorary member of the American Neurological Association, the American Academy of Neurology, and the New Hampshire–Vermont Neurologic Society. From 1977 to 1987, Betty served on the Scientific Advisory Committee of the Muscular Dystrophy Association; in 1990, the Muscular Dystrophy Association named a research fellowship in her honor.

We enjoyed our associations with Betty Banker; we admired her, and we will miss her.

Andrew G. Engel
Maie Kaarsoo Herrick
Garth M. Bray

REFERENCES