Roy Bakay, MD, FAANS: A Tribute to an Icon in Functional Neurosurgery

On Sept. 5, 2013, the world lost a great neurosurgical innovator, and the ASSFN lost a pioneer and leader when Roy Bakay, MD, FAANS, passed away after a long struggle with stomach cancer. For many years, a number of us knew Dr. Bakay in a variety of capacities, and were particularly touched but not surprised by the fact that despite great physical challenges, he remained dedicated to his patients, his research and our society until his final days. Although he is and will be memorialized in a variety of settings, Dr. Bakay was one of us, and his life was dedicated to advancing our particular corner of neurosurgery. Therefore, we find it both necessary and comforting to provide our own tribute to this great contributor in our field.

A true Midwesterner, Dr. Bakay was born in Evanston, Ill. in 1949. After graduating from Evanston Township High School, he entered Beloit College in Wisconsin, where he was captain of the varsity football team. Those who knew him best found that his passion for football was perhaps the only thing outside of his family that could match his love of functional neurosurgery. He graduated as valedictorian, and went on to medical school at Northwestern University. In 1981, Dr. Bakay completed a residency in neurosurgery at the University of Washington in Seattle. His research career in neural
transplantation, which became his major scientific focus for the next 30 years, began with a fellowship in the area at the National Institutes of Health (NIH) prior to joining the faculty of the neurosurgery department at Emory University in Atlanta. This became the site of many years of productive clinical and research development. His collaborations with Mahlon Delong, MD. and Jerrold Vitek, MD. PhD. were among the most legendary in our field, and led to tremendous advances in our understanding of the anatomy and physiology of the human basal ganglia and to improvements in the techniques of stereotactic neurosurgery. He also began to train fellows during that time, many of whom went on to major leadership positions throughout the country. In 2000, he was recruited back to Chicago to become the A. Watson Armour III and Sarah Armour Presidential Chair in Neurosurgery at Rush University. At Rush, he continued training outstanding fellows, and also was able to expand his long-time collaboration and friendship with Jeffrey Kordower, PhD, the Jean Schweppe-Armour Professor of Neurological Sciences at Rush, leading to even greater advances in translational neural transplantation and gene therapy.

A former president and long-standing board member of the ASSFN, Dr. Bakay also was the recipient of the Philip Gildenberg award, which is the highest honor bestowed for lifetime achievement in advancing the specialty. Because he was such an integral and passionate advocate for our field, a simple recounting of his accomplishments is inadequate. Therefore, we have asked a few of those who knew him best to add their remarks to this tribute. Below are thoughts of two former fellows, past ASSFN president Philip Starr, MD, PhD, FAANS; and current ASSFN board member Julie Pilitsis, MD, PhD, FAANS; as well as his great friend and collaborator, Dr. Kordower.

Dr. Jeffrey Kordower: Dr. Bakay was passionate about translational
neuroscience and clinical medicine. He was the principal investigator on a number of NIH-funded RO1’s and other grants, and he vigorously explored the scientific components of new surgical therapies with the ultimate goal of bringing them to patient care. Dr. Bakay was a careful scientist, and was the first to demonstrate the viability of fetal dopamine neurons transplanted into parkinsonian monkeys. He presented this work at a New York Academy of Sciences congress lead by Anders Bjorklund, MD; and Efran Azmitia. This work is the direct predecessor of similar experiments being performed today, examining the structural and functional efficacy of human embryonic stem cells and induced pluripotent stem cells in parkinsonian monkeys. During his long research and clinical career, Dr. Bakay wrote four books, 56 individual book chapters and published more than 150 peer-reviewed journal articles.

Three years ago, while being examined for a potential intragastric ulcer, Dr. Bakay’s cancer was discovered. His stomach was removed, and even until the very end, he faced numerous rounds of chemo-and radiation therapy. Yet, except during the six weeks recovering from his stomach-removal surgery, he never missed a single day of work in the operating room. Numerous friends and colleagues urged him to slow down and enjoy life more fully. He would smile and say, “Maybe,” with all of us leaving the conversation knowing that Dr. Bakay would not slow down; healing the sick and caring for patients was his professional raison d’être, and he loved few things more.

Though he weighed close to 300 pounds, Dr. Bakay was quite the twinkle toes, very light on his feet as he loved to dance. At the annual American Society for Neural Therapy and Repair banquet, the big man was always the first on the dance floor and one of the last to leave. He always enjoyed being larger than life, and would often play Santa at parties — and it did not even have to be Christmastime! I know it disturbed him when his illness robbed him of his size.
He was a tremendous friend to many, and few enjoyed a great party as much as Dr. Bakay. To say he was affable is an understatement. He was part of a large group of close friends, including Krzysztof Bankiewicz, MD, PhD; Massimo Fiandaca, MD, MBA, FAANS(L); Lotta Granholm, PhD; and me, who enjoyed being together at meetings both scientifically and personally. We were great friends who shared fun spaces in fun places. Dr. Bakay also was very generous. When I first met him in 1986, he was at Emory, and I was a post-doctoral fellow at the University of Rochester Medical Center, making a second-year post-doc salary. During that year’s Society for Neuroscience meeting in Toronto, a group of neurosurgical residents and fellows were invited to a dinner at a steak restaurant. We ate, drank and were merry to the point where I probably could not afford to eat much for the rest of the week. When the check came, I reached into my pocket to pay my portion. A deep voice came rumbling from the head of the table, “Boys, this one’s on me.” In truth, I think all attendees breathed a sigh of relief as the big man picked up a big check. This was the first of many meals on Dr. Bakay.

Dr. Bakay could be quirky. He always wore a suit when he flew on airplanes, commenting that this was a way to prevent getting his suit creased in his suitcase. After he lost his luggage on one trip to Colorado, it was quite a site to see this bearded behemoth skiing skillfully (or, more accurately, barreling) down Breckenridge Mountain in a three-piece suit with a huge smile on his face. Dr. Bakay also loved scuba-diving, and we often went to beautiful locales to share underwater adventures. Oddly, he remains the only person I can ever remember who went scuba-diving wearing a button down shirt. Indeed, his style of dress during vacations and such were, well, unique. He liked loud prints and bold stripes, often wearing them at the same time. He accessorized such outfits with black socks and sandals. He was also a man of many hats — really, baseball caps. Whenever we
saw him, he was a sight for sore eyes, and sometimes he was just a sight! And when commented upon, he would just show off that huge smile.

His last months were difficult, and his decline over the past month was humanely quick. When it became clear that the end was in sight, I sent emails out to numerous colleagues and friends asking them to email me a few sentences for me to read to Dr. Bakay, letting him know what he meant to his many friends and colleagues. I was inundated with the warmest, loving and appreciative emails from all around the world. Since I stated in my request that the messages would remain private between them and Dr. Bakay (with me as a conduit), I am not sharing them in this forum. The words were beautiful and made his final hours more peaceful. After I read him the last email, I said, “You were loved by so many, and made a real difference to so many in this world. Well done, my friend.” He opened his eyes, tilted his head to me and whispered, “That’s good.” We never spoke again. To those who contributed in this way, I am incredibly grateful.

**Dr. Philip Starr:** In March 2013, many of Dr. Bakay’s colleagues and trainees had the chance to enjoy a symposium in his honor. He felt well at that time and greatly enjoyed the event, which included a dinner and a number of talks on functional neurosurgery. Two of his children were present, as was his companion of the last few years, Cheryl Morris. Cheryl is a nurse who loved him and very much helped him with his care, such that he was able to continue to work and perform surgeries up until one month before his passing. It was very important to Dr. Bakay to continue to be productive, and Cheryl helped make this possible for him.

Dr. Bakay was reserved with many people and could be perceived as intimidating. Yet, once he got to know and like someone, he was extremely relaxed, funny and fun-loving. Many of his best friends were
colleagues in neurology and neuroscience, and he loved to dine, dance, ski and scuba-dive with those to whom he was close. Several of those close colleagues from Rush were with him constantly in his last days, reading him messages sent from his many trainees and associates. I did a fellowship with Dr. Bakay in the late 1990s when we were at Emory University. The fellowship was mentored jointly by him, Dr. DeLong, Dr. Vitek, and Tom Wichmann, MD. It was one of the original truly interdisciplinary fellowships. It not only launched my own career, but was one of the most fun and relaxed times of my life, and I am grateful to Dr. Bakay for this.

**Dr. Julie Pilitsis:** In March 2013, I had the pleasure of participating in the first annual Roy Bakay Functional Neurosurgery symposium at Evanston Hospital in Evanston, Ill. Attendees included Dr. Phil Starr; event organizer Shaun O’Leary, MD, PhD, FAANS; Diane Sierens, MD, FAANS; Steve Falowski, MD; former student Sepehr Sani, MD, FAANS; and Dr. Bakay’s past and present colleagues Dr. Kordower, Dr. Vitek and Leo Verhagen Metman, MD, PhD. It gave all of us great pleasure to voice our thoughts on Dr. Bakay and to share our accomplishments with him. I was amazed by the collective insight and expertise exhibited by Dr. Bakay’s mentees. Though we all are impressed with his accomplishments, we also have to recognize his ability to craft an opinion about a neurosurgical topic. As a fellow, I had an opportunity to see him think and write. His opinions, whether you agreed with them or not, were absolute, founded in science and practicality. He was a shrewd reviewer of literature, and was not afraid to take a stand. His goal was to better the field, to help his colleagues and to further science. Dr. Bakay was a true academic and a formidable pioneer in neurosurgery. Particularly striking were Dr. Vitek’s words on their work together at
Emory. There are few teams in modern neuroscience that were as groundbreaking. Dr. Vitek spoke of Dr. Bakay’s NIH funding and his renewal of NIH funding in CNS grafting for Parkinson. He depicted his pioneering work on brain-computer interface. He shared stories of him and Dr. Bakay spending hours in the operating room mapping out our modern-day understanding of the basal ganglia and its electrophysiology. He depicted a case of Hallevorden Spatz, where on the 16th pass on the second side at 11:30 p.m., he said to Dr. Bakay, “We better call it.” Dr. Vitek said that for the first time ever and the last time since, a neurosurgeon said, “How ‘bout one more?” The hours, the dedication, the focus and the passion they developed together made our field what it is today.

Dr. Bakay was a season ticket holder at Soldier Field and loved to talk about fishing. He enjoyed spending time in the north of Wisconsin and traveling the world. Those of us in functional neurosurgery were fortunate to have him at the last WSSFN meeting in Tokyo in June 2013. Dr. Bakay worked until the end. Former fellow Dr. Falowski spoke to him in the final days, and Dr. Bakay’s concern was what would happen to his position and his work. To me, this is a sign of the most passion and dedication a neurosurgeon can have. He was a good man who affected many patients and colleagues and whose legacy will live on.

Dr. Daniel J. DiLorenzo: I first met Dr. Bakay while a 4th year medical student doing a rotation at Emory, specifically to work with him and get to know him. Subsequently during residency and business ventures, we remained in touch, and he was a very significant and enthusiastic contributor to my first Neuroengineering book. When he committed to a chapter, it appeared quickly and in perfect form. Over the past year and a quarter, I had the great pleasure and honor of working and learning as a Fellow in Functional and Epilepsy Neurosurgery at Rush under Dr. Bakay and Dr. Byrne. His receptiveness to new ideas and brainstorming was refreshing, and his
attention to detail in surgical technique was nothing short of extraordinary. As with his technique, he was efficient with his words. When he spoke, usually either a valuable pearl, a good joke, or a work of kindness was about to be shared.

In the Spring of 2013, a seminar was held in Chicago in his honor, largely the work of Sean O’Leary, another of Dr. Bakay’s fellows. In attendance were many of his closest colleagues and friends, most of his fellows, and his family. The many stories, some quite colorful, nicely fleshed out the personal dimension of the superstar neurosurgical innovator as Dr. Bakay was so widely known.

He was a big fan of the Chicago Cubs and enjoyed many well-earned Saturdays off relaxing at the game. He was also generous in sharing his season’s tickets and inviting friends and colleagues to share this pastime of his, and I got my first tan in Chicago watching one with him and his friend Cheryl Morris. He was also an avid fisherman. One of my other mentors told of a story in which on a fishing trip in Canada, my other mentor inadvertently lost his footing and slipped into a pond of quicksand into which he found himself sinking. Fearing for the worst, he yelled out; and Dr. Bakay reached over with one arm and lifted him out of the pond. With his characteristic efficiency of words, he said only, “Stay on the path”, and all was well.

He remained steadfast in his commitment to his patients and to academics, and until a month before his passing, we operated at a full OR schedule, conducted experiments, and reviewed a torrent of manuscripts sent to him for critique. Through his numerous rounds of chemotherapy, he did not let up one bit on his operative schedule. In fact, he timed his chemotherapy such that he had a day to recover before each long day in the OR. On the several occasions in the last year that he was also a patient, after rounding on our service, I would “round” on him. Usually within 30 seconds, he switched the topic from how he was doing to our own patients and upcoming cases, occasionally pulling out a napkin to sketch out subtle surgical nuances and strategies for cases in which he might not be able to participate personally. Even during his last month, recovering at home from a brief hospitalization, he contemplated returning and only tapering down his
OR schedule slightly so that Friday would be a shorter day than the usual 12 hours.

It was an honor and pleasure to learn from and to befriend Dr. Bakay. His clinical and scientific impact on the field of functional neurosurgery and his personal impact on those who knew him were unmatched. He will be missed.