ALTHOUGH THERE IS little doubt that Charles A. Elsberg deserves the accolade "Father of Neurosurgery" at Mount Sinai, neurosurgical procedures were performed in the last decades of the nineteenth century, before his time. In 1885, William Fluhrer, best known as a urologist, successfully extracted a "pistol-ball" from the brain, tracing it with a probe.¹ Arpad Gerster and Bernard Sachs first reported on the surgery of epilepsy in 1892² with a follow-up paper four years later.³ In 1895, Leopold Stieglitz, Gerster, and Howard Lilienthal reported three operated cases of brain tumors.⁴ Known primarily as a general surgeon, Gerster was responsible for the early training of two men who would go on to fame in neurosurgery—Elsberg and Ernest Sachs, the nephew of Bernard Sachs, Mount Sinai's first Chief of Neurology. Ernest Sachs would later achieve eminence as the Chair of Neurosurgery at Washington University in St. Louis. In 1896, William Van Arsdale reported on "temporary resection of the skull," utilizing a circular saw and trephine that he had devised.⁵

Born and educated in New York, Charles A. Elsberg had his early training at Mount Sinai and then studied abroad. In 1896, he was appointed First Assistant Pathologist to Frederick S. Mandlebaum, the newly appointed Director of the laboratory. Elsberg's first publication on the use of the Widal reaction in typhoid fever diagnosis was subsequently responsible for tracing an epidemic of typhoid fever among the nursing staff to a probable carrier. He also was responsible for the first animal experimental study to come out of the new laboratories.⁶ Although Elsberg's first neurosurgical publication, reporting two cases of cerebello-pontine angle tumors, appeared in 1904,⁷ it would be six years before his next neurosurgical paper appeared. But he was far from idle. He maintained his interests not only in general surgery but also in the laboratory. In that interval, he published extensively on general surgical subjects and, in 1909, described an ingenious cannula for direct artery-to-vein transfusion.⁸ On the basis of extensive experimental work,
Elsberg administered the first successful endotracheal anesthetic in 1910; over the next several years, he played a major role in the development of this technique. In 1909, Elsberg helped to found the Neurological Institute, at first an independent entity. The first site of the Institute was at 145 East 67th Street, a leased building that had originally been the Mount Sinai Out-patient Department building and Nurse’s Home. When the Institute became part of Columbia University’s College of Physicians and Surgeons and moved to Washington Heights in 1929, Elsberg took an active part in planning the building and its operating rooms. During construction, he was known to climb the unfinished building at 168th Street to watch its progress.

Elsberg developed an overriding interest in the surgery of the spinal cord and in 1910 recommended that all cord tumors be operated on in two stages. In the first stage, after opening the dura, a small incision was made in the pia over the tumor, allowing the tumor to extrude itself from the cord so that it could be more easily removed at the second stage. In 1912, Elsberg reported a series of forty-three cases of laminectomy for various spinal cord lesions. In that same year, Pearce Bailey, of New York, in discussing another presentation by Elsberg, commented, “Intramedullary surgery has been done previously. . . . But Elsberg, as far as I know, is the first to take the matter up systematically.” Bailey also made a strong case for the emerging specialty of neurosurgery, noting that “Neurologists should be insisting that experienced neurologic surgeons should do all the operations.”

Originally assigned to the Surgical Service of Howard Lilienthal, Elsberg was placed in charge of the Neurosurgical Service in 1914 when a major reorganization of Surgery took place. As Chief of the Service, Elsberg was responsible for instituting the changes (special instruments and drapes, nurses with special training in neurosurgical procedures, and, eventually, a separate operating room) that set the stage for the superb Service of today. In collaboration with Harvey Cushing, of Harvard, and Charles H. Frazier, of Philadelphia, Elsberg helped establish the Society of Neurological Surgeons in 1920. In 1929, Elsberg left Mount Sinai to work full-time at the Neurological Institute, where he remained until his retirement in 1937. The following year, he was elected President of the American Neurological Association. He died in 1948, having championed the growth of his specialty locally, nationally, and internationally. Not only did he play a major role in the establishment of two leading neurosurgical services in New York, but also he
was responsible for the training of the next generation of neurosurgeons at two institutions. In addition, he left behind four major texts and four volumes of reprints containing more than 150 publications.

When Elsberg left Mount Sinai in 1929, Harold Neuhof was appointed Chief of the Neurosurgical Service. His professional passion, however, was thoracic surgery, and in 1932 Ira Cohen became the new Chief of Neurosurgery. A member of the staff since his internship in 1911, Cohen had a distinguished career in the military during World War I. As a Major assigned to Base Hospital No. 3 (the Mount Sinai unit), he served in France. Asked to establish a new hospital at Le Braun, France, he outfitted it and ran it with distinction. While overseas, he suffered a head wound above his right brow that caused a skull fracture and a dural tear; awake and with the mirror in his hand, he instructed his colleagues as they debrided and repaired his wound. The defect that remained was a distinguishing feature of every photograph of Cohen.

It was Cohen who in 1932 convinced the administration that Neurosurgery should be separated from the body of Surgery and have its own department. One year later, Cohen and Joseph Turner (then Di-
rector of the Hospital) noted, "The medical profession and the in­
formed lay public were asking more insistently for trained specialists
for these highly technical operations. . . . In no branch of surgery is it
more important for the operating team to be constant. In no branch are
results more dependent on attention to details, before, during, and
after the operation."21 An excellent teacher, Cohen established the for­
mal residency in neurosurgery at Mount Sinai in 1946. Cohen was able
to appoint only two Residents before his retirement in 1950. The first,
Aron J. Beller, went on to become Chairman of the Department of
Neurosurgery at Hadassah Hospital in Israel. The second was
Leonard Malis.

Sidney W. Gross became Acting Chief upon Cohen’s retirement. This appointment was short-lived, however, as Leo Davidoff was ap­
pointed Neurosurgeon to the Hospital effective February 1951. David­
off was a brilliant individual who had received his neurosurgical train­
ing at the Peter Bent Brigham Hospital under Harvey Cushing. He had
a penchant for accepting appointments at many of the hospitals in
New York City and at one time or other had been the Chief at most of
them. His tenure at Mount Sinai was short, and, after his resignation in
June 1956, Gross was named Neurosurgeon to the Hospital and Chief
of Service.

A midwesterner, Gross had trained in neurosurgery at the Neuro­
logical Institute under Elsberg. This was followed by a fellowship with
Ernest Sachs in St. Louis and neuropathology training in Chicago. He
was appointed to the Mount Sinai staff in 1938 and rose rapidly
through the ranks of the attending staff. The first individual to use
water-soluble contrast material for myelography,22 Gross was an ex­
ceptional teacher who was revered by his Residents. In the early 1960s,
the residency was expanded to include the City Hospital Center at
Elmhurst, with its busy trauma service. Leonard Malis and Bruce Ral­
ston were added to the attending staff. It was an interesting time to be
a House Staff officer in neurosurgery. Anton Marti, a Resident during
this period, has commented, "Because of differing personalities, back­
grounds, and professional interests, the three attending neurosurgeons
brought a wealth of concepts and operative approaches to the resi­
dency program. Dr. Gross drew from tried and true traditional meth­
ods. Dr. Malis brought consistent innovation to neurosurgical tech­
nique. Dr. Bruce Ralston never performed any operation the same way
twice."23 On Gross’s mandatory retirement at age sixty-five, in 1969, he
was appointed Director Emeritus and Consultant, and Malis was named Chief of Service.

Born in Philadelphia, Leonard I. Malis was brought up and received his early education in Atlantic City. An early bent toward technological innovation and a passion for electronics led him, as a youngster, to build a radio transmitter, boat and auto engines, and his first television set before the advent of commercial television. He earned undergraduate and M.D. degrees at the University of Virginia. Following internship at the Philadelphia General Hospital, Malis served two years in the Army Medical Corps, where, without formal training, he emerged as the Chief of his hospital’s Neurological Service.

Following his discharge from the military, Malis came to Mount Sinai, where he spent one year as a Neurology Resident under Israel Wechsler and then was appointed Ira Cohen’s Resident in Neurosurgery. Funded by the Dazian Foundation, Malis spent a year in the laboratory of John Fulton at Yale, then a mecca for neuroscience researchers. There Malis began a number of studies that would be continued and refined throughout his professional lifetime. Recognized as a basic scientist and clinical investigator, an outstanding teacher and a superb neurosurgeon, Malis made many contributions to the field, including:

the study of neurophysiology, creation of a true bipolar coagulator, design of a serial cassette changer for cerebral angiography, refinement of full-column myelography, understanding of spinal stenosis, introduction of the binocular microscope into the neurosurgical operating room, invention of many instruments key to neurosurgery, and perfection of microsurgical techniques to safely and completely remove tumors of the base of the skull, posterior fossa, pituitary, and spinal cord.

At one point early in his tenure as Chief, Malis became concerned with a small but nevertheless serious incidence of wound infections on the Service. He instituted changes to the usual routine of antibiotic prophylaxis and added irrigation with topical antibiotic solutions. Over the subsequent five-year period, during which more than 1,700 cases were treated, the infection rate was reduced to zero, a remarkable feat.

Under Malis’s leadership, the Department expanded in dramatic fashion. With the opening of the surgical suite in the Annenberg build-
ing, two dedicated neurosurgical operating rooms were supported with neurosurgical specialist nurses. Malis developed, designed, and constructed a unique operating room television network that linked the operating rooms, Attending staff offices, the laboratories, and the neuroradiology suite. Laboratory space was enlarged; the residency program increased in size, attracting outstanding candidates who would receive unique training by a dedicated group of attendings. Ved Sachdev was a mainstay of the teaching program for many years until his death in 2000. Martin Camins, Allen Rothman, and Frank Moore continue their participation in all aspects of the Department’s activities. Malis retired from the Chairmanship in 1991 but continued his practice for another three years. He was succeeded in the Chair by Kalmon D. Post.

Post, a native New Yorker, received his medical degree from the New York University School of Medicine, where he served his neurosurgical residency under the legendary Joseph Ransohoff. His training included a two-year appointment as a Clinical Associate in Surgical Neurology at the National Institute of Neurological Diseases and Blindness. Beginning his academic career at Tufts University, Post moved to Columbia University in 1980, rising through the ranks to become Vice Chairman of the Department of Neurological Surgery. He joined Mount Sinai in July 1991 as Chairman and Professor of the Department and Neurosurgeon to the Hospital.

Like his predecessor, Post has had a major interest in the management of acoustic and pituitary tumors. Follow-up of the patients with acoustic tumors has shown outstanding rates of hearing preservation and facial nerve function. Long-term postoperative studies on a large group of patients with acromegaly have demonstrated excellent endocrine data and long-term cure rates. The Department has been a beta test site for studying frameless stereotactic cranial surgery for more accurate and complete removal of primary and secondary brain tumors. In the laboratory, researchers have studied the molecular biology of primary tumors, searching for a gene defect in pituitary tumors.

The Department has extended its educational activities with a faculty that now consists of seven full-time and nine voluntary neurosurgeons and a research staff of seven. Joshua Bederson, Vice Chairman of the Department, directs the efforts in cerebrovascular surgery and is Co-Director of the Clinical Program for Cerebrovascular Disorders, a
collaboration with the Department of Neurology. Isabelle Germano is Director of the Mount Sinai Medical Center Stereotactic and Functional Neurosurgery Program, an advanced multidisciplinary program that uses computer-assisted, image-guided neurosurgery to accomplish minimally invasive procedures. She is one of the pioneers of computer-assisted image-guided minimally invasive neurosurgery and an international expert in brain tumor, epilepsy, and movement disorder surgery. Subspecialization has also led to the development of expertise in endoscopic neurosurgery, microsurgery, physiologic monitoring in the operating room, and the surgery of epilepsy. The residency program is highly sought after. Collaborative programs have been initiated with the Departments of Pediatrics, Rehabilitation Medicine, and Otolaryngology. Surgical case volume has increased steadily to approximately 1,300 cases per year.

The surgeons performing neurosurgical procedures at the Mount Sinai Hospital for more than a century created an extraordinary legacy. Under the stewardship of Kalmon D. Post, the Department of Neurosurgery will further that legacy as it builds on its current excellence and formulates new initiatives in minimally invasive surgery, spinal disease, and the management of neurovascular abnormalities and tumors of the nervous system.