In 1609, while exploring the lake that now bears his name, Samuel de Champlain looked to the east and exclaimed, “Voila les vert monts.” The Green Mountain State was an inhospitable place at that time; few dared to settle there until after the end of the French and Indian War, in 1763. By 1771, the population of Vermont was 4667 people. They led a difficult existence, and the earliest surgeons were true pioneers. Most doctors of the time practiced in widespread areas and had to endure difficult conditions to reach their patients. Many anecdotes about these individuals have survived.1-3 Dr Adam Johnson thwarted an attack by wolves by throwing his saddlebags at them. Dr Steven Powers of Woodstock was physically adapted to the challenges of the countryside. He wore buckskin trousers for their durability and as a convenient way to sharpen his surgical instruments.

Vermont’s surgical history is inextricably linked to the political history of New England, New York, and southern Canada. Like many Vermont surgeons, Dr Powers participated in the American Revolution and was a surgeon during the Battle of Bunker Hill.1 Dr Silas Hodges of Clarendon served with George Washington’s Continental Army. However, not all Vermont surgeons were loyal to the new republic. Dr Frederick Aubrey of Bradford served as a surgeon in the British Army and was credited with caring for General Wolfe’s wounds at Quebec. Dr Jacob Roebuck of Grand Isle was a surgeon for the German contingent of King George III’s army.

In 1741, Vermont’s land area was claimed by New Hampshire.4 New York disputed New Hampshire’s claim, and in 1764, the English Crown decided that the land west of the Connecticut River belonged to New York. The citizens of Vermont were upset over the rules imposed by the New York County courts against local government. Ethan Allen, leader of the New Hampshire settlers in Vermont, organized the Green Mountain Boys to protect their interests, the same group who fought so ardently at the battles of Bennington, Ticonderoga, and Crown Point.

Dr Jonas Fay, the son of Stephen Fay (who owned the famous Catamount Tavern in Bennington), was a surgeon to the Green Mountain Boys during the battle of Ticonderoga. As early as 1774, he served as vice president of the Council of Safety of Vermont and participated in all of the formal conventions leading to Vermont’s independence and the state constitution. He was an agent of Vermont to the Continental Congress. Dr Reuben Jones of Rockingham signed the Vermont Declaration of Independence and was also a delegate to the Continental Congress. In Paul Reveres fashion, he rode to Dummerston to warn its inhabitants following the Westminister massacre in 1775, the first bloodshed during the American Revolution.

Vermont declared itself an independent republic in 1777 under the name of New Connecticut. Six months later, after realizing that a district on the Susquehanna River had the same name, Dr Thomas Young, Ethan Allen’s friend and tutor, suggested “Vermont” as the state name. Vermont was accepted as the 14th state on March 4, 1791.5 Following the example of the original 13 colonies, the founders of Vermont included in its constitution provisions for an institution of higher learning, a university. The University of Vermont
(UVM) was established in 1800 under its first president, Daniel C. Sanders. The medical department was instituted in 1804.

Although he had never attended medical school, Dr John Pomeroy was appointed as lecturer in surgery and anatomy and later became professor of surgery at UVM. Born in Marlboro, Mass, in 1764, he apprenticed with Dr James Bradish of Covington and in 1787 migrated to Cambridge, Mass, where he had a large practice. He subsequently moved to Burlington, Vt, in 1792. At that time, Burlington had become one of the largest lumber markets in the country, and the town’s population was 322 and growing rapidly. By 1800, he was taking pupils into his home to give them a sample of “physic.” Despite his position as lecturer, Dr Pomeroy received no work space or financial support from the university; his home on Battery Street in Burlington remained his classroom and office. Dr Pomeroy was awarded an honorary medical degree in 1809. Only 1 of his students, Truman Powell, was awarded a bachelor of medicine degree.

John Pomeroy continually worked for the advancement of his profession. In 1797, he organized the first meeting in Chittenden County to develop the Third Medical Society of Vermont for all physicians. This organization was finally established on December 29, 1803. Pomeroy was elected president and held the office until 1813. The First Medical Society of Vermont was established in Rutland and Bennington counties in 1784, and the Second Medical Society was incorporated in Windham in 1794. These societies admitted physicians who passed an examination and thus attempted to regulate medical practice. At that time, only a handful of individuals had received medical degrees. Surgery was limited to minor operations and amputations, all performed without anesthesia. The societies were an attempt to legitimize trained individuals both for the public good and to decrease competition.

Dr William Beaumont, who became famous for his studies of digestion, was licensed to practice medicine in 1812 by the Third Medical Society. His diploma was signed by Dr John Pomeroy and his son Cassius Pomeroy. Dr Pomeroy had assisted Beaumont in 1806 by loaning him books. At the time, Beaumont was studying with Drs Benjamin Chandler and Truman Powell in St Albans. Ten years later, Beaumont first treated Alexis St Martin and subsequently began his studies on digestion.

Following the War of 1812, Pomeroy invited John LeCompte Cazier of Castleton to assist him as professor of physiology and anatomy. This position was not provided with a stipend by the university. Pomeroy’s son John N. Pomeroy, who was serving as professor of chemistry, was allowed a salary of $500, $300 of which was to be received from students. His father paid the remaining sum. (This may be one of the earliest examples of clinical dollars subsidizing basic science in a medical school.) The 3 were permitted to hold their classes in the newly refurbished university building.

In 1822, the trustees of the university reorganized the medical department. Dr Pomeroy retained his position as chair of surgery. Nathan Ryno Smith, the son of Nathan Smith, was appointed professor of anatomy. Nathan Ryno Smith had apprenticed with his father in surgery and received both a bachelor’s and medical degree from Yale University. His father joined him in 1822 when classes began.

It is unclear whether Pomeroy departed the faculty when Smith arrived in deference to Smith’s national reputation or for other reasons. Pomeroy’s resignation was accepted, and James Kemp Platt, a member of the Royal College of Surgeons who had graduated from Middlebury College, became professor of surgery at UVM. Little is written about Pomeroy after he left the university; however, he was regarded as an excellent and resourceful surgeon. One account describes him performing an emergency tracheotomy aboard a canal boat in Lake Champlain using a goose quill for a cannula.

Dr Platt, Pomeroy’s successor, died in 1824 and was succeeded by Henry S. Waterhouse. Waterhouse had only an honorary medical degree, which he received from the university in 1823. Nathan Smith, perhaps the leading medical educator at that time, gave 4 courses of lectures in medicine and surgery while simultaneously teaching at Yale University and Bowdoin College.

Nathan Smith founded 3 medical colleges: Dartmouth, Yale, and Bowdoin. Born in Massachusetts in 1762, he moved with his family to Chester, Vt. At 21 years of age, Smith volunteered to assist Dr Joshua Goodhue of Putney, who had come to Chester to perform an amputation. Dr Goodhue was a well-known surgeon and president of the trustees of Berkshire Medical College. Following a year of study, Smith returned to apprentice with Goodhue for 3 years. He then started practicing in Cornish, NH. A few years later, he graduated from Harvard University and, shortly thereafter, started the medical college at Dartmouth. He then traveled to Europe, where he broadened his medical education before returning to the United States to continue his career. A resourceful surgeon, Smith performed an original operation for ovariotomy in 1821 with no knowledge of Ephraim McDowell’s operation.

Nathan Ryno Smith left Burlington for Philadelphia, Pa, where he helped to establish Jefferson Medical College. Later he became professor of surgery at the University of Maryland. In 1993, David Longcope, a seventh-generation descendant of Nathan Smith, received his medical degree from the University of Vermont.

In the early 19th century, medical colleges were springing up everywhere, and Vermont had 3 such institutions. Selah Gridley, Pomeroy’s friend and associate with whom he started the Vermont State Medical Society, was holding classes in Castleton with Dr Theodore Woodward and others as early as 1810. The Vermont General Assembly granted the Castleton Medical Academy a charter on October 29, 1818. Middlebury College, in 1810, had tried to lure Dr Nathan Smith away from Dartmouth to establish its medical department. Apparently, Middlebury offered Dr Smith a lecture room and $200, as well as the offer to hire a professor of chemistry. Dr Smith decided to stay at Dartmouth after the latter erected a medical building (on land donated by Dr Smith) and appointed a professor of anatomy. Although Middlebury ceased its efforts to start a medical school at that time, 2 years later its trustees took control of Castleton Medical Academy to establish an alliance with the arts and sci-
ences, as had other New England medical schools. This tie with Middlebury lasted until 1827. By this time, Castleton was the largest medical school in New England.

Following the death of Selah Gridley, Theodore Woodward became the leading figure at Castleton. Born in Barre in 1788, he studied medicine with his distant cousin, Dr Nathan Smith. Woodward was a surgeon at the battle of Plattsburgh in New York and later set up practice in Castleton, where he enjoyed an excellent reputation. He became professor of surgery and obstetrics at Castleton Medical Academy. When Woodward became the leading administrator there, fierce competition developed between Castleton and UVM. In December 1821, Castleton trustees granted the title of “fellow” to 41 leading physicians who could serve as preceptors to potential students, thereby linking them to Castleton rather than UVM. Two years later, they voted to change the school’s name to the Vermont Academy of Medicine, to capitalize on the state’s name.

Benjamin Lincoln, a graduate of Bowdoin College who had studied with George C. Shattuck in Boston, Mass, came to the University of Vermont in 1828. The following year, he was appointed professor of anatomy and surgery. He left for a brief period with Nathan Ryno Smith to lecture at the University of Maryland and returned in 1830. Lincoln decided to reform the medical school by raising admission requirements, which had previously been only the ability to pay the admission fee. Lincoln used his own money to establish a college library; Shattuck even loaned him money for the effort. Shattuck later recommended that his own son, George C. Shattuck, Jr, seek out instruction with Lincoln. A feud broke out between Lincoln (at UVM) and Theodore Woodward (at Castleton) when Woodward enticed 4 Canadian students away from the university by admitting all 4 for the cost of 3. Lincoln attacked Woodward in an essay about this terrible practice, and Woodward countered with an attack on Lincoln for poor business practices that would certainly doom the medical school. Indeed, when the prospective students learned that they would be expected to study and take examinations, enrollment at UVM decreased from more than 40 students to only 14 in 1832. Woodward died in 1837, and Castleton closed its doors between 1838 and 1840, at which time it reopened until its final demise in 1861. Likewise, Lincoln became ill and died of tuberculosis at his father’s home in Maine in 1835. Edward Elisha Phelps succeeded him as professor of anatomy and surgery; however, because of poor enrollment, the college ceased its operations after awarding a single medical degree in 1836. It was not to reopen until 1853.

Dr Joseph A. Gallup started the Clinical School of Medicine in Woodstock in 1827. Dr Gallup had been a lecturer at UVM and a professor and president of the Castleton Medical School. The Woodstock Infirmary became a site for bedside teaching, a concept stressed by the school and unique for its time. The infirmary became affiliated with Colby College in Waterville, Me, which granted medical degrees until 1832. Between 1833 and 1837, the school was affiliated with Middlebury College, after which it was chartered as the Vermont Medical College and could confer its own degrees.

Obtaining anatomical material was always a concern for professors and students. It is likely that few students chose to do their own dissections. At the University of Vermont, cadavers were most often procured from out of state, although grave robbing was not uncommon. It was even rumored that Ethan Allen’s body was taken for anatomical study. Angry farmers from Hubbardton raided Castleton Medical College to retrieve the body of the wife of one of the town’s citizens. During its early years, the school at Woodstock had to promise not to use bodies from Vermont graves. Considering the proximity of the New Hampshire border to Woodstock, one need only use a bit of imagination to determine the likely source of cadavers.

Dr Samuel White Thayer, a graduate of the medical school at Woodstock who was practicing in Northfield, worked hard to reestablish a medical school at UVM. In 1853, trustees voted to reestablish a new medical college at the university. Dr Thayer was appointed professor of anatomy, physiology, and surgery. He became professor emeritus in 1872 and served until 1882. Together with his friend and associate Dr Walter Carpenter, who had been a physician in Randolph before moving to Burlington, Thayer built the medical school into a stable institution. Enrollment grew to 55 students per year until 1861 and to about 65 students during the American Civil War. Thayer held the titles professor of surgery from 1854 to 1855 and professor of anatomy from 1856 to 1872. He recruited Horatio Nelson of Plattsburgh, NY, as professor of medicine in 1854. Although Nelson agreed to come if he was appointed professor of surgery, he never served in this capacity. He was allegedly sent to New York with most of the school’s funds to procure cadavers but never returned. Dr David Sloan Conant became professor of surgery between 1855 and 1865 while also serving as professor of surgery and anatomy at Bowdoin. Unlike Thayer and Carpenter, he was a professional educator and did not do clinical practice in Burlington.

More than 34000 Vermont men, or approximately 10% of Vermont’s population, served during the American Civil War. Dr Edward E. Phelps, professor of anatomy and surgery at UVM from 1835 to 1837 before going to Dartmouth, served on the staff of the commander of the First Brigade, Vermont Volunteers, between 1861 and 1862. He was subsequently in charge of the camp and military hospital at Brattleboro. Under his watch, the hospital was credited with the largest percentage of cures of any US military hospital at the time.

In the spring and summer of 1864, the Vermont Brigade suffered many casualties. More than 1000 Vermont soldiers lay wounded in Fredericksburg, Va, under terrible conditions. Dr Samuel Thayer, appointed state surgeon general by Governor Smith, and 20 other Vermont physicians went to Fredericksburg with a number of volunteers (wives and mothers of the wounded) to assist with care. He established the 3 Vermont military hospitals: Brattleboro, Montpelier, and Burlington.

Dr Milton Goldsmith, born in Maryland in 1818, graduated from the New York College of Physicians and Surgeons in 1840. A professor of surgery at Castleton in 1845, he subsequently became professor of surgery at the Kentucky School of Medicine. Appointed by Presi-
dent Lincoln as brigade surgeon of the volunteers, he had charge of all the military hospitals in Kentucky and was the inspector of hospitals for Grant's army. He demonstrated the usefulness of bromine in the treatment of infections, which led to his recognition throughout the army. After the war, he returned to Vermont and continued his practice of surgery in Rutland.

Dr Henry Janes, a physician in his hometown of Waterbury, became a surgeon of the Third Vermont Regiment. Rising to the rank of major, he supervised 250 surgeons after setting up a special 2000-bed hospital at Gettysburg, Va. He instructed his surgeons on the proper care of the wounded and to resort to amputation only as a last resort. Because of his directives, many lives and limbs were saved. Dr Janes was onstage at the cemetery when Lincoln presented his now famous address. Janes then returned to Waterbury and practiced there until his death, in 1913. Dr John Brooks Wheeler noted that Janes was quick to refer patients in which he was untrained and had little interest. Wheeler noted that Janes was quick to refer patients in need of abdominal surgery.

By the latter half of the 19th century, many Vermont physicians and surgeons were graduates of the local medical schools. Because not even a high school diploma was required for admission, most doctors had little formal education. With the introduction of anesthesia and in particular antisepsis and sterile technique, operations on the abdomen and thorax were developed and practiced, first in the large centers in Europe and later in America. By the end of the 19th century, most surgery in Vermont was still performed in patients' homes. After traveling many miles, the surgeon, his assistant, and sometimes a nurse generally used the kitchen table for the operation. The assistant, often an apprentice or student, would administer the anesthetic while the surgeon operated.

Several military hospitals and “pest houses” existed at various times in Vermont, but general hospitals in this state were a product of the last quarter of the 19th century. Established to provide care for the needy and to increase the efficiency of physicians and surgeons, general hospitals also provided a ready supply of clinical material to use in the instruction of students and apprentices. The Mary Fletcher Hospital in Burlington was a clinical site for the UVM faculty. According to the accounts of Dr Charles Downey, who graduated from UVM in 1894, the first abdominal operation was performed there by Dr A. M. Phelps, professor of surgery, who operated on a drug store clerk in 1894. Downey assisted and described scrubbing his hands in bichloride solution and wearing a sterile gown, though no gloves were worn. Hernia surgery was performed, but not at the Mary Fletcher Hospital. There, students observed mostly amputations and removal of superficial tumors. Appendixes were allowed to abscess and then drained.

John Brooks Wheeler graduated from UVM in 1875 and the Harvard Medical School in 1879. After his third year, he was appointed as a surgical intern or house pupil, also known as a “house puer,” at the Massachusetts General Hospital in Boston. Wheeler graduated in 1879 and traveled to Europe, where he studied in the clinics of Bamberger and Billroth in Vienna, Austria. In Vienna, Wheeler realized the benefits of antisepsis and aseptic technique. He then went to Berlin, Germany, where he studied operative surgery with Langenbeck. Before returning home, he traveled to Edinburgh, Scotland, where he met Dr Joseph Bell, the original Sherlock Holmes.

In 1881, Wheeler returned to Vermont, where he settled and practiced in Burlington. He joined the then proprietary faculty of UVM, giving his first course of lectures in the winter of 1881-1882. In 1885, Dr Laurence Little, professor of surgery at the university, died of appendicitis—just 1 year before Reginald Fitz wrote his famous paper on the topic. Little was succeeded by Dr J. Williston Wright of New York, who resigned in 1889. He was succeeded by Dr A. M. Phelps, also of New York. Famous for his operation to repair clubfoot, Dr Phelps was praised by Wheeler for his use of antisepsis and aseptic technique, as well as his ability to apply bandages and casts. Phelps remained professor of surgery until he resigned in 1900 following a major reorganization of the medical department by the trustees. This occurred because of new standards set by the recently established Association of American Medical Colleges (AAMC). Wheeler was named professor of surgery, and his friend and former student, Henry Crain Tinkham, became professor of clinical surgery and dean of the medical school.

Tinkham started as a demonstrator of anatomy. He rose to the rank of professor in 1884 and was dean from 1900 to 1925. Shortly after his appointment as dean, a fire destroyed the medical building; this event threatened the survival of the medical school. Through his leadership, a new building was constructed that contained a new library, to which Tinkham donated his personal collection.

The American Medical Association (AMA) established a Council on Medical Education in 1904. Tinkham and the faculty worked hard to bring UVM up to the new standards. In 1906, the school received an “A” rating by the AMA after its first survey. The Flexner report of 1910, however, severely criticized the school and recommended its closure. The UVM physicians, lead by Tinkham in the spirit of Ethan Allen, rallied support from the entire medical profession in the state, as well as alumni throughout the country. Tinkham continued to argue UVM’s case before the councils of the AMA and the AAMC. In 1915, the school was classified as grade “A.”

Tinkham’s health declined, and he died in 1925. In addition to his brilliant career as an administrator, Tinkham was described by John Brooks Wheeler as a “beautiful operator” and likened to Wheeler’s former instructor at Harvard, Dr Charles B. Porter, who was originally from Rutland and was descended from a long line of Vermont doctors.

In 1916 at the behest of Dr Peer P. Johnson, who had graduated from UVM in 1900, Wheeler, Tinkham,
and Lyman Allen, who had received his medical degree from UVM in 1896 and was on faculty as professor of surgery, became founding members of the New England Surgical Society (NESS). Wheeler served as the first vice president and was the second president following Samuel Mixter. Lyman Allen served as vice president in 1924 and president in 1933. Peer P. Johnson, of Burlington, Mass, served as treasurer from 1921 to 1934 and president in 1935.

In 1923, Lyman Allen followed Wheeler as chair of surgery at UVM and kept that position until 1942. He continued the modernization of surgery started by Tinkham and Wheeler. A respected surgeon, he served as president of the Vermont State Medical Society. He was a founding member of the American College of Surgeons and the American Board of Surgery.

During this time, other Vermont surgeons enjoyed excellent reputations, including Dr William Townsend, vice president of the NESS in 1928 and again in 1936; Dr George M. Sabin, vice president of the NESS in 1941; and Dr Herbert A. Durfee, vice president of the NESS in 1949—all from Burlington. Dr John H. Woodruff of Barre served as vice president of the NESS from 1945 to 1946. Dr Charles P. Chandler of Montpelier was president of the NESS in 1952.

Dr Albert George Mackay succeeded Dr Allen as chair of surgery at UVM from 1942 to 1969. Dr Mackay was an outstanding clinical surgeon, and the department at UVM continued to provide excellent clinical instruction to students and residents. He served as president of the NESS in 1964.

In the 1960s and 1970s, Vermont was leading the development of microvascular surgery. The pioneering work of Dr Julius Jacobson along with Suarez in the microvascular anastomosis of small blood vessels led to advances in all fields of surgery. Dr Jacobson subsequently moved to New York. Microvascular neurosurgery developed under the direction of Dr R. M. Peardon “Pete” Donaghy. Born in Quebec, his family moved to Vermont in 1922. After graduating from Northfield High School, UVM, and UVM College of Medicine, he did his postgraduate work at Montreal General Hospital and the Children’s Hospital in Montreal, Quebec. Donaghy obtained further training in neurosurgery, neuropathology, and psychiatry in London, at the Lahey Clinic in Burlington, Mass, and at Massachusetts General Hospital. In 1946, he returned to UVM as chair of neurosurgery. In 1948, he started his research in a Quonset hut behind the medical college. His research budget that year was $25, which he provided, to study peripheral nerve repair. His interests turned to cerebrovascular disease and novel ways to revascularize the cerebral circulation using the operating microscope. Perhaps more than anyone, Dr Donaghy made microsurgical management of many complex neurosurgical problems possible. Dr Gazi Yasargil from Zurich, Switzerland, learned from and worked with Dr Donaghy. Together they developed a superficial temporal artery to middle cerebral artery anastomosis. The first 2 cases were performed 2 days apart, in Zurich and Burlington in 1967. Both cases were successful. Dr Donaghy was vice president of the NESS in 1970.

During the 1940s and 1950s, the trustees at UVM pushed to increase the research abilities of the medical college to be eligible for newly available grant funding. A national search was undertaken for new chairs of medicine and surgery to lead new research and academic efforts. Dr John H. Davis was recruited in 1969 as chair of surgery. A graduate of Allegheny College in Pennsylvania, he obtained his medical degree from Case Western Reserve University in Cleveland, Ohio, in 1948 after serving in World War II. During the Korean conflict, he was a member of the surgical research team, which was the first to use artificial kidneys in the treatment of wounded soldiers in combat.

When Davis arrived in Burlington, he recruited a top-notch faculty and built excellent clinical, research, and educational programs in the Department of Surgery at UVM. Dr Jerome S. Abrams was recruited as vice chair and developed colorectal surgery and endoscopy. Dr Laurence Coffin was recruited to develop the open heart program. Despite opposition and 2 previous failed attempts by others at UVM, Dr Coffin succeeded in building an excellent program, eventually adding 3 more surgeons to his team. Dr Roger S. Foster was recruited as a breast and endocrine surgeon. Principal investigator for the National Surgical Adjuvant Breast Project in Vermont in the 1970s and 1980s, he was instrumental in educating Vermont surgeons on modern diagnosis and management of patients with breast cancer. In addition, he developed the renal transplant program at UVM. He served as treasurer of the NESS from 1987 to 1989 and is now president-elect of the NESS and a member of the Board of Regents of the American College of Surgeons. Dr David B. Pilcher joined Dr Davis in 1969 as a vascular and trauma surgeon. He was instrumental in developing a statewide emergency medical technician program in Vermont. Dr Pilcher was vice president of the NESS in 1994.

In 1986, Dr Davis contracted a viral transverse myelitis that left him paralyzed from the chest down. He was forced to step down as chair. Although officially retired, he remains an active teacher to this day, and surgery students go to his home for seminars. Even on occasions when he has been hospitalized, students have crowded around his bed for teaching sessions.

Dr Davis served as editor of the Journal of Trauma from 1975 to 1995. He was president of the NESS in 1992 and received the society’s Nathan Smith Award for distinguished service in 1997. He has also served as president of the Eastern Surgical Association and the American Association for the Surgery of Trauma. He received the Surgeon of the Year Award from the National Safety Council, and in 1991 he received the Distinguished Service Award from the American College of Surgeons. Perhaps his greatest legacy is the many students and residents he has trained who are now leaders in the field of surgery throughout the country.

Dr Steven R. Shackford succeeded Dr Davis in 1989 as professor and chair at UVM. After receiving his medical degree from St Louis University in Missouri in 1973, he did his residency training and vascular fellowship at the Naval Regional Medical Center in San Diego, Calif. A vascular and trauma surgeon, he became nationally...
known for developing a model trauma system at Naval Regional, where he was director of trauma and the surgical intensive care unit. When he arrived in Burlington, he quickly worked to build on the foundation laid by Dr Davis and his predecessors. The American College of Surgeons certified UVM as a Level I Adult and Pediatric Trauma Center. Internationally known as a leader in the use of ultrasonography by surgeons, Dr Shackford organized courses for training residents and practicing surgeons to perform ultrasonography. Currently, the Department of Surgery at UVM continues to grow, with new faculty members adding their expertise to build and expand programs.

Vermont remains a beautiful place to live and practice. Vermont surgeons, like the people they treat, continue to be innovative, independent, and caring neighbors. Primary and secondary surgical services are provided by well-trained surgeons in communities throughout the state. To this day, the Green Mountains are a significant barrier to east-west travel in the state, especially during the winter months. Referral patterns are dictated, in part, by the geography of the area. Together with Burlington hospitals, UVM has developed into a major referral center for northern Vermont, northern New York, and parts of northern New Hampshire. Dartmouth and the Mary Hitchcock Hospital developed into a referral center for southern Vermont, the towns along the Connecticut River Valley, and the north-south interstate highway system. A Department of Veterans Affairs hospital was established in White River Junction, just across the river from Hanover, NH. It is staffed by physicians and surgeons closely affiliated with Dartmouth. An excellent surgical department was built there under the guidance of Dr Walter B. Crandell, who served as vice president of the NESS in 1973 and president in 1982.

This report has commented on only a few of the many capable surgeons who have provided and continue to provide excellent care to the citizens of Vermont and surrounding communities. The history of surgery in Vermont is filled with many more stories and vignettes that are not possible to relate in a document of this length. I apologize for any misstatements or misinterpretations of events, and welcome any clarification or additional information.


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ARCHIVES OF INTERNAL MEDICINE

An Overview of Acute Stroke Therapy: Past, Present, and Future

Marc Fisher, MD; Wolf Schachitz, MD

The effort to develop effective therapies for acute ischemic stroke achieved several important successes during the past decade, but also many disappointing failures. The 2 primary successes were related to thrombolysis. The first was the NINDS rt-PA (National Institute of Neurological Disorders and Stroke Recombinant Tissue-Type Plasminogen Activator) trial reported in 1995. This study demonstrated that initiation of intravenous (IV) rt-PA within 3 hours after the onset of acute ischemic stroke significantly improved outcome at 3 months.1 This study led to the approval of rt-PA initiated within 3 hours of stroke onset as the only currently available acute stroke therapy. The second major success was the demonstration that intra-arterial prourokinase initiated within 6 hours of stroke onset in patients with angiographically documented proximal middle cerebral artery (MCA) occlusion also improved outcome at 3 months.2 A third marginally positive acute stroke trial used ancord, a defibrinogenating agent derived from Malaysian pit vipers.3 Ancrod initiated within 3 hours after stroke onset also improved 3-month outcome but to a lesser degree than either rt-PA initiated within 3 hours or prourokinase initiated within 6 hours. These successful acute stroke therapy trials were outweighed by a large number of neuroprotective trial failures. Currently, not one of many purported neuroprotective therapies assessed in pivotal clinical trials has demonstrated unequivocal, statistically significant improvement in clinical outcome.4 The neuroprotective trials all included patients who presented with a stroke 3 hours after onset, and the therapies used for each patient failed for myriad reasons that will be explored in detail. (2000;160:3196-3206)

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