<table>
<thead>
<tr>
<th><strong>Harvey Williams Cushing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Born</strong></td>
</tr>
<tr>
<td>April 8, 1869</td>
</tr>
<tr>
<td><strong>Died</strong></td>
</tr>
<tr>
<td>October 7, 1939 (aged 70)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td>Yale University</td>
</tr>
<tr>
<td>Harvard Medical School</td>
</tr>
<tr>
<td>Johns Hopkins Hospital</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
</tr>
<tr>
<td>Surgeon; Neurosurgeon</td>
</tr>
<tr>
<td><strong>Years active</strong></td>
</tr>
<tr>
<td>1895–1935</td>
</tr>
<tr>
<td><strong>Known for</strong></td>
</tr>
<tr>
<td>Pioneering brain surgery</td>
</tr>
<tr>
<td>Cushing's syndrome</td>
</tr>
<tr>
<td><strong>Spouse(s)</strong></td>
</tr>
<tr>
<td>Katharine Stone Crowell (m. 1902–39)</td>
</tr>
<tr>
<td>William Harvey Cushing</td>
</tr>
<tr>
<td>Mary Benedict Cushing</td>
</tr>
<tr>
<td><strong>Children</strong></td>
</tr>
<tr>
<td>Betsey Maria Cushing</td>
</tr>
<tr>
<td>Henry Kirke Cushing</td>
</tr>
<tr>
<td>Barbara Cushing</td>
</tr>
<tr>
<td><strong>Parent(s)</strong></td>
</tr>
<tr>
<td>Kirke Cushing</td>
</tr>
<tr>
<td>Bessie Williams</td>
</tr>
</tbody>
</table>

**Harvey Williams Cushing** (April 8, 1869 – October 7, 1939) was an American neurosurgeon. A pioneer of brain surgery, he was the first person to describe Cushing's disease. He is often called the "father of modern neurosurgery."

**Early life**

Dr. Cushing was born in Cleveland, Ohio. His parents were Bessie Williams and Kirke Cushing, a physician whose ancestors came to Hingham, Massachusetts, as Puritans in the 17th century. Harvey was the youngest of ten children.
Education

As a child, Cushing attended the Cleveland Manual Training School which expanded his interest in science and medicine. The school’s emphasis on experimental training and a “physics-focused” approach to education played an important role in influencing Cushing towards a career in medical surgery. The school's manual dexterity training program also contributed to Cushing’s future success as a surgeon. He graduated with an A.B. degree in 1891 from Yale University, where he was a member of Scroll and Key and Delta Kappa Epsilon (Phi chapter). He studied medicine at Harvard Medical School and earned his medical degree in 1895. Cushing completed his internship at Massachusetts General Hospital and then did a residency in surgery under the guidance of a famous surgeon, William Stewart Halsted, at the Johns Hopkins Hospital, in Baltimore.

Early career

After doing exceptional cerebral surgery abroad under Kocher at Bern and Sherrington at Liverpool, he began private practice in Baltimore. During his time with Kocher, he first encountered the Cushing reflex which describes the relationship between blood pressure and intracranial pressure. At the age of 32, he was made associate professor of surgery at Johns Hopkins Hospital, and was placed in full charge of cases of surgery of the central nervous system. Yet he found time to write numerous monographs on surgery of the brain and spinal column and to make important contributions to bacteriology. He made (with Kocher) a study of intracerebral pressure and (with Sherrington) contributed much to the localization of the cerebral centers. In Baltimore, he developed the method of operating with local anaesthesia, and his paper on its use in hernia gave him a European reputation. In 1911, he was appointed surgeon-in-chief at the Peter Bent Brigham Hospital in Boston. He became a professor of surgery at the Harvard Medical School starting in 1912. In 1913, he was made an honorary F.R.C.S. (London). He was elected a Fellow of the American Academy of Arts and Sciences in 1914. In 1915, before the Clinical Congress of Surgeons in Boston, he showed the possibility of influencing stature by operating on the pituitary gland.

First World War

Shortly after the entry of the United States into the First World War, Cushing was commissioned as a major in the U.S. Army Medical Corps on May 5, 1917. He was director of U.S. base hospital attached to the British Expeditionary Force in France. Cushing also served as the head of a surgical unit in a French military hospital outside of Paris. During his time at the French military hospital, Cushing experimented with the use of electromagnets to extract fragments of metallic missile shrapnel that were lodged severely within the brain. He was mentioned in a dispatch by Field Marshal Sir Douglas Haig in November 1917.

On June 6, 1918, he was promoted to lieutenant colonel and was assigned as senior consultant in neurological surgery for the American Expeditionary Forces in Europe. He served in the U.S. Army Medical Corps, attaining the rank of Colonel (O-6) on October 23, 1918. In that capacity, he treated Lieutenant Edward Revere Osler, who was fatally wounded during the third battle of Ypres. Lieutenant Osler was the son of Sir William Osler.

Cushing returned to the United States in February 1919 and was discharged on April 9 of the same year. In recognition of his service during the war, Cushing was invested as a Companion of the Bath by the British government. In 1923 he was awarded the Distinguished Service Medal by the U.S. Army.
Later career

Cushing was responsible for the Pulitzer prize-winning biography Life of Sir William Osler (London: Oxford University Press, 1925).

From 1933 to 1937, when he retired, he worked at the Yale School of Medicine as Sterling Professor of Neurology. Cushing died on October 7, 1939 in New Haven, Connecticut, from complications of a myocardial infarction. He was interred at Lake View Cemetery in Cleveland. Interestingly, an autopsy performed on Cushing revealed that his brain harbored a colloid cyst of the third ventricle.

Legacy

In the beginning of the 20th century he developed many of the basic surgical techniques for operating on the brain. This established him as one of the foremost leaders and experts in the field. Under his influence neurosurgery became a new and autonomous surgical discipline.

Historical marker at Lake View Cemetery, Cleveland

- He considerably improved the survival of patients after difficult brain operations for intracranial tumors.
- He used x-rays to diagnose brain tumors.
- He used electrical stimuli for study of the human sensory cortex.
- He played a pivotal role in development of the Bovie electrocautery tool with William T. Bovie, a physicist.
- He was the world's leading teacher of neurosurgeons in the first decades of the 20th century.

Arguably, Cushing's greatest contribution came with his introduction to North America of blood pressure measurement. On visiting colleague Scipione Riva-Rocci, an Italian physician, Cushing was astonished at Riva-Rocci's non-invasive way to measure intra-arterial pressure. In 1896, Riva-Rocci developed a wall-mounted mercury manometer linked to a balloon-inflated cuff that would measure the pressure needed to compress arterial systolic pressure, i.e. systolic blood pressure measurement. Riva-Rocci's design was based on a more primitive version developed by French physician Pierre Potain. Cushing brought back a sample of Riva-Rocci's sphygmomanometer, and blood pressure measurement became a vital sign and its use spread like wildfire across the US and western world as a direct contribution by Harvey Cushing. Its use remained until Russian physician Nikolai Korotkov included diastolic blood pressure measurement in 1905 (after he discovered the famed "Korotkoff sounds") with his modern sphygmomanometer, which also replaced the mercury manometer with a smaller, round dial manometer.
Dr. Harvey Cushing, 1908; oil on canvas, Edmund C. Tarbell

Cushing's name is commonly associated with his most famous discovery, Cushing's disease. In 1912 he reported in a study an endocrinological syndrome caused by a malfunction of the pituitary gland which he termed "polyglandular syndrome." He published his findings in 1932 as "The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations: pituitary Basophilism".[13]

Cushing was also awarded the 1926 Pulitzer Prize for Biography or Autobiography for a book recounting the life of one of the fathers of modern medicine, Sir William Osler.[14] In 1930, Cushing was awarded the Lister Medal for his contributions to surgical science. As part of the award, he delivered the Lister Memorial Lecture at the Royal College of Surgeons of England in July 1930.[15][16] Cushing was elected to the Royal Swedish Academy of Sciences in 1934, and a Fellow of the Royal Society of London.[17] He served as president of the History of Science Society in 1934.[18]

In 1988, the United States Postal Service issued a 45 cent postage stamp in his honor, as part of the Great Americans series.[19]

Aside from Cushing's many accomplishments, he developed many surgical instruments that are still in use today, most notably the Cushing Forcep. This instrument is used to grasp the thick tissues of the scalp during crainal surgery. He also developed a surgical magnet while working with the Harvard Medical Unit in France during World War I to extract bullets from the heads of wounded soldiers.

The Harvey Cushing/John Hay Whitney Medical Library[20] at Yale University contains extensive collections in the field of medicine and the history of medicine. In 2005, the library released portions of its collection online, including the Peter Parker Collection which consists of a collection of portrait engravings and 83 mid-19th-century oil paintings rendered by artist Lam Qua of Chinese tumor patients, and a biography of Harvey Cushing by John F. Fulton. In 2010, Yale placed on display Cushing's collection of brain specimens.[21] There is also a collection of his papers at the National Library of Medicine.[22]

Family

He married Katharine Stone Crowell, a Cleveland childhood friend, on June 10, 1902. They had five children: William Harvey Cushing; Mary Benedict Cushing, who married Vincent Astor and later James Whitney Fosburgh;[23] Betsey Cushing, who married James Roosevelt and later John Hay Whitney;[24] Henry Kirke Cushing; and Barbara "Babe" Cushing, the socialite wife of Stanley Grafton Mortimer and later William S. Paley.[25]

See also

- History of medicine
- Timeline of medicine and medical technology
References

11. "Services for Surgeon Held in Cleveland Cemetery". *The New York Times*. October 11, 1939. Retrieved March 22, 2010. Harvey Williams Cushing, noted brain surgeon and neurologist, who died in New Haven, Conn., on Saturday, was buried here today on a knoll, a plot adjoining that of John D. Rockefeller, in Lake View Cemetery. Burial a brief private service read by the Rev. ...
16. For a picture of Cushing's Lister Medal, and an offprint of the lecture, see Harvey Cushing, M.D. Legendary Neurosurgeon ehistorybuff.com (accessed February 17, 2009)
19. Scott catalog # 2188.
20. Digital Library Collections of the Cushing/Whitney Medical Library at Yale University

References and external links

- Guide to the Harvey Williams Cushing Papers, Manuscripts and Archives, Yale University Library
- National Academy of Sciences Biographical Memoir
- Harvey Cushing: A Journey Through His Life