Though Aretaeus of Cappadocia, who lived in the 1st century CE, is credited with the first description of trigeminal neuralgia, the credit for the first successful surgery (ganglionectomy) for this condition has been given by Gildenberg to William Rose of King’s College in London, in 1890. Mr. Rose’s approach was via the infratemporal fossa containing the foramen ovale and exiting mandibular division of the trigeminal nerve.

Of note, more than 100 years earlier, Veillard and Dussans of France attempted unsuccessfully to transect the infraorbital nerve subcutaneously for trigeminal neuralgia, and Maréchal, surgeon to Louis XIV (1638–1715), attempted to transect the infraorbital nerve subcutaneously in 2 patients, but stopped the procedures due to excessive bleeding. Parenthetically, Nicolas André, a contemporary of Maréchal, was known to have applied caustic substances to the infraorbital nerve on the face, but neither he, Veillard, nor Dussans attempted intracranial approaches. One year after Rose’s publication in 1890, Victor Horsley and colleagues reported avulsing sensory branches of the trigeminal nerve for this disease. Sperati has also mentioned that in 1871, Joseph Pancoast severed branches of the trigeminal nerve “where they emerged from the base of the skull.” Rutkow stated that division of the second and third branches of the trigeminal nerve at the foramen ovale was known as Pancoast’s operation, because Pancoast published on the topic.

One important contribution to the beginnings of surgery for trigeminal neuralgia has more or less been forgotten. In the present report we describe what we believe to be the first successful operation for trigeminal neuralgia, performed by the New York City surgeon John Murray Carnochan in 1858, 32 years prior to the publication of Rose.

John Murray Carnochan (Fig. 1) was born in Savannah, Georgia, on July 4, 1817, to John Carnochan and Harriet Frances Putnam, and could boast descent from General Israel Putnam (1718–1790), who fought with distinction at the Battle of Bunker Hill (June 17, 1775) during the Revolutionary War. His father was a merchant, and one of the wealthiest planters in Georgia. Due to his poor health as a child, his parents elected to send the young Carnochan to Scotland, where he lived with his father’s relatives on the Carnochan homestead. He attended and graduated from the University of Edinburgh in 1834 and began medical school in Edinburgh, until he was called back to the US, where he finished his medical training at the College of Physicians and Surgeons in New York City, and he received his M.D. in 1836. Additionally, Carnochan trained with Dr. Valentine Mott of New York, who had studied under Sir Astley Cooper.

Immediately following his medical training in the US, Carnochan returned to Europe to attend lectures of leading surgeons in London, Edinburgh, and Paris, including Velpeau (1795–1867) and Roux (1857–1934). In 1841, he enrolled in the École de Médecine in Paris and spent a total of 6 years in this city. In 1847 he returned to and began a practice in New York City, and was de-
The "gray matter" of the Gasserian ganglion was a flection, he excised the entire maxillary division of the that gave him a worldwide reputation. After careful re-

of Spotsylvania Court House.

sions, he performed amputation of the lower limb at the

avoided full amputation of the forearm. 6

in one patient and the radius in another, and in both cases

with posttyphoid necrosis. In 1854, he removed the ulna

he successfully removed the entire mandible in a patient

to the origin of the deep femoral artery. That same year

Carnochan severed and ligated the femoral artery distal

presented to him. For this, with an original operation, Dr.

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Maryland, who consulted him in 1856. The operation was

performed on October 16 of the same year, under chloro-

form anesthesia, and, with the patient sitting and resting

his head on the chest of an assistant

an incision from the internal angle of the eye, on the infe-

rior edge of the orbit, opposite the anterior lip of the lachrymal

groove, carried downwards and slightly outwards, for about an

inch, to a point opposite to the furrow on the lower portion of

the ala of the nose; another incision, which also terminated at

this point, was made, commencing about half an inch below the

external angle of the eye, opposite the edge of the orbit, thus

forming a V incision, in the area of which is situated the fora-

men infraorbitale. The flap thus resulting was thrown upwards,

and the branches of the second branch of the fifth sought for;

some of these being found, they served as a ready guide to the

trunk of the nerve. 2

Carnochan, with various chisels, elevators, and mallets,

then traversed the maxillary sinus, and using a sponge
tied to a piece of whalebone, removed the maxillary nerve

from its groove and then excised the Gasserian ganglion.

He also mentioned that the patient was seated in a solid
chair opposite a good light. Fourteen months after the op-

eration, Carnochan received a letter that Rousset was still

pain free.16 Regarding this original surgical treatment of

trigeminal neuralgia, Francis stated that:

I may venture to say that this has never been done before by

any other man, and many years will elapse ere another surgeon,

though surcharged with an apoplexy of anatomical theories will
dare to leave the practical details of an earthly sphere and enter

willingly the tufted chamber of the human mind. 6

Also in 1856, the same year of his first operation for

trigeminal neuralgia, and near Belleville, New Jersey,

Carnochan married Estelle Morris (1838–1922), who

was the daughter of Major William W. Morris (d. 1905).

Major Morris was the grandson of Gouverneur Morris

(1752–1816) of Revolutionary War fame, who was also

the author of the Constitution’s Preamble. Carnochan’s

wife was an accomplished artist who illustrated many of

his papers and books.12 Carnochan went on to perform

at least 2 additional procedures for trigeminal neuralgia,
one in a 54-year-old male native Italian chocolate maker,

and the other in a 55-year-old female native of England.

Both of these patients also had long-term cessation of

their neuralgic symptoms following surgery.

During his lifetime, Carnochan served as professor of

surgery at the New York Medical College and as Surgeon-
in-Chief to the State Emigrant Hospital on Ward’s Island,

which at that time was the largest hospital in the country.15

He maintained this position for almost 25 years.12 For 2

years, he was health officer of the Port of New York. He

was a prolific writer and published numerous technical

monographs, such as a “Treatise on Congenital Disloca-
tions” (New York, 1850), and “Contributions to Opera-
tive Surgery” (New York, 1877–1886). The 1877 edition

of this latter text (Fig. 2) was dedicated to Samuel David

Gross (1805–1884), the famous trauma surgeon. The pref-
uoce to this textbook, written by Carnochan, reads:

While respect for life will dictate to the surgeon the greatest

prudence—will counsel him to attempt no operation which he

would not be willing to perform on his own child, it will also
teach him, that if the extremes of boldness are to be shunned,
pusillanimity is not the necessary alternative. The surgeon

Fig. 1. Portrait of John Murray Carnochan (1817–1887).
John Murray Carnochan and surgery for trigeminal neuralgia

who has not sufficient courage to propose a useful operation and sufficient skill to perform it, is as open to censure as the reckless practitioner who is swayed by the unworthy lure of notoriety.4

Interestingly, Carnochan was physician to William Marcy “Boss” Tweed (1823–1878) at the Ludlow Street Jail (New York City’s federal prison at that time), and informed newspaper reporters following Tweed’s autopsy that the cause of death while in jail “was great nervous prostration, brought about by his prolonged confinement in an unhealthful locality”—the moldy jailhouse on Ludlow Street—“and by the unfavorable result of the efforts recently made to effect his release.”1 Also of note, Carnochan was the local family physician to President Grover Cleveland (US president from 1885 to 1889 and 1893 to 1897), and was hurriedly sent for when Cleveland became critically ill.9 Present at Cleveland’s death were Carnochan and Drs. Bryant and Lockwood, both of New York City. These 3 physicians signed a statement confirming President Cleveland’s death.

Francis described Carnochan as easy, affable and courteous; while his personal appearance is intellectual, dignified, and eminently prepossessing. There is, however, an air of perfect self-possession on the eve of serious operations, which greatly inspires confidence.6

Carnochan died in New York City on October 28, 1887, at the age of 70, and was survived by his wife and 5 children. He should properly be remembered as the first surgeon to perform successful neurosurgery for trigeminal neuralgia. Additionally, with publications such as his monograph on cerebral localization1 and ligation of the common carotid artery,12 he should also perhaps be considered an early pioneer of neurosurgery.

Disclaimer

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

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2. Carnochan JM: Exsection of the trunk of the second branch of the fifth pair of nerves, beyond the ganglion of Meckel, for severe neuralgia of the face: with three cases. Am J Med Sci 69:ART. XII, 1858

Fig. 2. Title page of Carnochan’s 1877 textbook “Contributions to Operative Surgery and Surgical Pathology.”