

Aphasia Insights!

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“The existence of Mr. Dax’s dissertation, before it was mentioned to me by his son, was as unknown at Montpellier as it was in Paris ... But I wish to establish that it was impossible for me to guess the existence of a paper that was brought to light two years after my first publications on the subject of *aphemie*.” pp. 1067.

Berker E, Berker A, Smith A. [Translation of Broca’s 1865 Report](#), Localization of Speech in the Third Left Frontal Convolution. *Arch Neurol* 1986; Vol 43: Oct 1986, pp. 1065-1072.

Aphasia Nation, Inc. is committed to educating the wider public about stroke and aphasia and the “*Aim High for Aphasia!*” international Aphasia Awareness campaign.

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Pierre Paul Broca: Founder of French Anthropology & Explorer of the Brain.

By Tom Broussard, Ph.D.

Pierre Paul Broca (28 June 1824 – 9 July 1880) was a French physician and [anthropologist](#). He is best known for his research on [Broca's area](#), a region of the [frontal lobe](#) that is named after him. His work revealed that the brains of patients with [aphasia](#) have damage in the left frontal region of the cortex. This was the first anatomical proof of localization of language ([Wikipedia](#)).

Paul Broca was born on 28 June 1824 in [Sainte-Foy-la-Grande, Bordeaux](#), France, the son of Jean Pierre Broca, a medical practitioner and former surgeon in [Napoleon's](#) service, and Annette Thomas, a well-educated daughter of a Protestant preacher. Broca received basic education in his hometown school, earning a bachelor's degree at the age of 16. He entered medical school in Paris when he was 17, and graduated at 20, when most of his contemporaries were just beginning as medical students ([Wikipedia](#)).

He was awarded a medical doctorate in 1849, and in 1853 Broca became

professor and was appointed surgeon at the [Bicêtre Hospital](#). In 1868, he was elected a member of the French [National Academy of Medicine](#) and appointed the Chair of clinical surgery. He served in this capacity until his death from an aneurism at the young age of 56 years old ([Wikipedia](#)).

[Broca's 1861 paper](#) confirmed that the damage to the loss of speech is located in the “posterior third of the inferior frontal convolution as the cerebral localization of the motor component



Pierre Paul Broca
(1824 – 1880)

of speech” (Bach-y-Rita, 1990) in what is now called the “Broca’s area.”

Broca studied his patients with lesions who had lost their language and coined the word *aphemia* that eventually became *aphasia* as currently known. He carefully described the detailed symptoms that

are therefore “not the faculty of language, it is not the memory of words, it is not the actions of the nerves ... it is something else, it is a particular faculty ... as the faculty of coordinated movements, ... or simply the faculty of spoken language, ... since there is no articulation possible without it” (Broca, 1861).

Broca presented this 1861 paper regarding his first and most famous aphasic patient, Louis Victor Leborgne who was brought to Broca’s infirmary on April 11, 1861 with grave injuries. As Broca recorded, “I gathered all the

information in the history of this man, who had been at Bicêtre for twenty-one years” (Broca, 1861).

As Broca recorded, “He could no longer produce but a single syllable, which he usually repeated twice in succession; regardless of the question asked him, he always responded: *tan, tan*, combined with varied expressive gestures. This is why, throughout the hospital, he is known only by the name *Tan* (Broca, 1861c)” (Dronkers, 2007).

He understood everything he was told, but no matter what the questions were, “he always answered: *tan, tan*, and accompanied this with varying movements with which he was able to express most of his ideas” (Broca, 1861).

Leborgne (*Tan*) died on April 17, 1861. His autopsy was conducted by Broca within 24 hours, and soon after that his brain was put into alcohol. Broca had decided not to cut Leborgne’s brain and saved it for posterity.

His brain is at the [Musee de l’Homme, Museum of Man](#) in Paris along with many of the brains of Broca’s aphasic patients.

The scientists of today have been using high resolution magnetic resonance imaging ([MRI](#)) and were used with the brains of both Leborgne and another one of Broca’s patients, Lazare Lelong.

The [2007 MRI study](#) allows the scientists to re-inspect the brains (and with new understanding) that Broca had seen with his own hands 140 years before (Dronkers, 2007).

However, controversy in science erupted when [Marc Dax](#), a physician in southern France, wrote a paper in

1836 about the same issue of language localization as Broca had written in 1861. Dax died a year later and his work was never exposed to the scientific community.

However, Gustave Dax, Marc Dax’s son, was studying medicine in Paris and saw Broca’s 1861 report about localization and that the language faculty was “[bilaterally located](#)” meaning that there might have been two language areas, one on each hemisphere (Buckingham, 2006).

Two years after Broca’s 1861 paper, Gustave Dax submitted his paper (1863) with his own data to the Academy and claimed that his father’s 1836 announcement was the first in science about cerebral localization.

Gustave didn’t hear anything back for two years from the science community yet managed to publish his paper just six weeks before another of [Broca’s papers was published in 1865](#), when Broca confirmed that the language center was localized just in the left hemisphere (Buckingham, 2006).

There are [72 names of scientists, engineers, chemists and mathematicians engraved on the Eiffel Tower](#) in recognition of their contributions to France. Broca’s name is inscribed on the South-West side of the [Eiffel Tower](#) (also known as the [Grenelle](#) side) as the [Founder of French Anthropology and Explorer of the Brain \(Schiller, 1979\)](#).

Signed: *The Johnny Appleseed of Aphasia Awareness*

The author is a three-time stroke survivor and aphasia. He could not read, write or speak well and it took him years to recover.

He is Founder and President, Aphasia Nation, Inc., a non-profit organization whose mission is educating the wider public, national and international, about aphasia and plasticity, the foundation of all learning.

Image Credit: Dr. Pierre Paul Broca,

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