

**THOMAS JEFFERSON'S
 LETTERS TO FRIENDS
 ABOUT A NEW BOOK BY
 PIERRE FLOURENS**

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INTRODUCTION

In 1824, Thomas Jefferson received as a gift from his friend, the Marquis de Lafayette, a copy of Marie Jean Pierre Flourens's new book, *Recherches experimentales sur les proprietes et les fonctions du systeme nerveux, dans les animaux vertebres* (Paris, Crevot, 1824). In letters to Lafayette, John Adams, and Francis Adrian Van der Kemp, Jefferson described the behavioral effects of experimental removal of the cerebrum and cerebellum of birds, and briefly reflected upon the implications of the French physiologist's observations for contemporary theological and philosophical thought.

Flourens (1794-1867) is best known for his *Recherches* (Figure 1), in which he concluded that the cerebral lobes are the exclusive seat of sensations, perception and volition, and that mental functions are not localized but are distributed throughout the entire cerebral cortex; he also assigned a regulatory action of voluntary movement to the cerebellum. As a protege of Georges Cuvier and member of the *Academie des sciences de l'Institut de France* in Paris, Flourens also played an influential role in evaluating contemporary science. All of these roles came together when he published *Examen de la phrenologie*, his

scathing critique of Gall's local-izationalist doctrine.

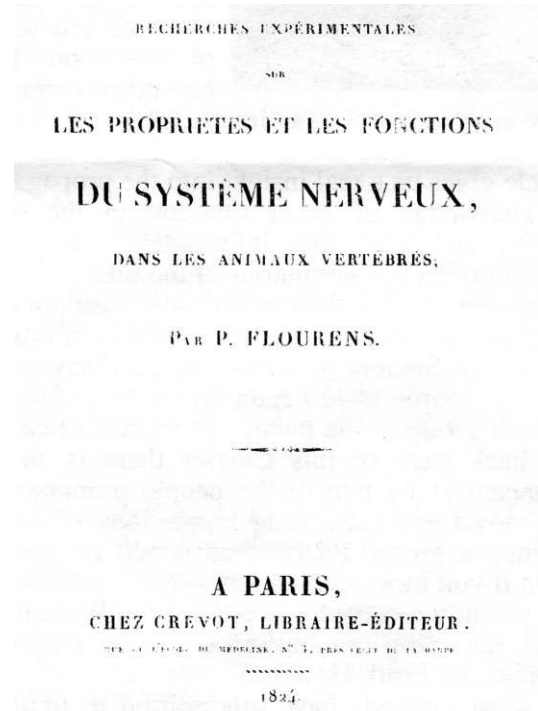
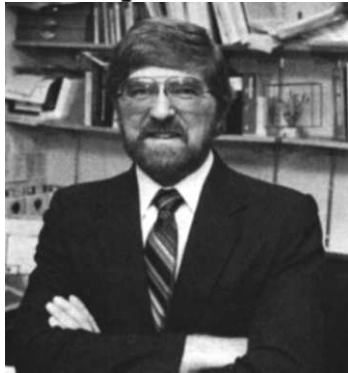


Figure 1 Title page of Flourens's *Recherches*. Courtesy of the History and Special Collections Division, Louise M. Darling Biomedical Library, UCLA.

JEFFERSON

Recognized during his life as one of the most prominent intellectuals of his time, Thomas Jefferson (1743-1826) was elected president of the American Philosophical Society on 6 January 1797, shortly before assuming office as Vice President of the United States, and continued to chair this organization until 1815. His interest in the natural and other sciences was not necessarily a signal characteristic; indeed, at least one of the more advanced contemporary children's books detailed the experiments of Flourens and other scientists (2). What set Jefferson apart was his keen insight into the ramifications of the science he read and then proceeded to describe and advocate in an uncommonly literary voice through an extraordinary volume of correspondence with

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Editor's Column

The article in this issue of the *Carrier* is a very interesting piece of history. Often we neuroscientists are not aware of where our field has come from and how early research was intertwined with dogma and religion (and often still is). Russ Johnson's article gives us a real insight into the propagation of knowledge of brain function in the early 1800s, and how this information was being thought of by the luminaries of the time.

Interest in the history of our discipline is growing, as evidenced by the numbers of posters at the last Society of Neuroscience Convention. Several people have begun an effort to form an interest group in the history of neuroscience. On the back page of this *Carrier* there is an announcement by two of the people prominent in this movement, requesting expressions of interest in such a group. Please read it and respond to them if you have such an interest.

I recently received a question from Warren Lo, M.D. regarding immobilization of the mouse or neonatal rat head. He asked:

"What methods have others used to improve the immobilization of the mouse or neonatal rat head within the stereotaxic frame? The goal is to improve the reproducibility of needle or electrode placement into the hippocampus and to avoid entering the ventricle."

If you have any information which would be of use to Dr. Lo, please either send it to me or contact him directly at

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scientists, philosophers, and other intellectual movers and shakers in America and Europe.

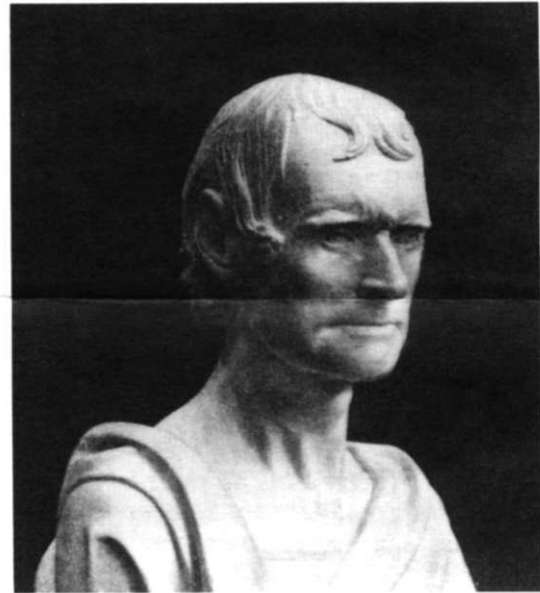


Figure 2 "Thomas Jefferson, Age 82," by John Henry Isaac Browere. The life mask, from which this bust was constructed, was made at Monti-cello on 15 October 1825, the same year as the correspondence under consideration here. Some of Browere's plaster casts survive in the New York State Historical Society, Cooperstown. From Hart (1).

LAFAYETTE

After commanding troops in the Continental Army in 1777 and again in 1780 and 1781, the Marquis de Lafayette (1757-1834) returned to France to become a member of the French Assembly (1789). The latter group declared him a traitor in 1792, forcing him to flee, during which time he was imprisoned by Austrians. He returned to France from exile in 1799.

Lafayette visited America briefly in 1784. He saw Jefferson again when his friend succeeded Benjamin Franklin as minister to France (1785-1789). Until his final visit to the United States (1824-1825), Lafayette had not seen Jefferson since shortly after the fall of the Bastille.

Flourens's book was sent by Lafayette with several other volumes in December 1824. Jefferson responded within a month of its receipt, dispensing with the customary salutation ("Sir") in favor of that which he reserved for Lafayette, "My dear friend":

"I have never been more gratified by the reading of a book than by that of Flourens which you were so kind as to send me. Cabanis (Note 1) had gone far toward proving from the anatomical structure of and action of the human machine that certain parts of it were probably the

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organs of thought, and consequently that matter might exercise that faculty. Flourens proves that it does exercise it, and that deprived of the cerebrum particularly the animal loses all sense, all intellect, and memory, yet lives in health and for indefinite terms. It will be curious to see what the immaterialists (Note 2) will oppose to this. . . your faithful affect [ion ate] friend, Th.J." (4)

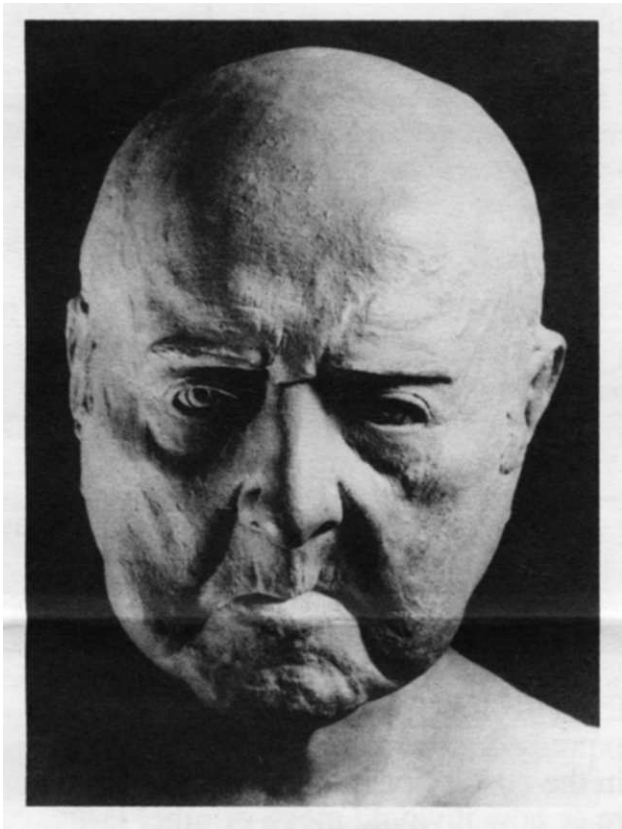


Figure 3 "The Marquis De La Fayette, Age 67," was cast at Browere's workshop in New York City on II July 1825 and finished after another sitting by the subject in the Hall of Independence, Philadelphia, on 19 July of the same year. From Hart.

ADAMS

John Adams (1735-1826) and Thomas Jefferson met at the Second Continental Congress, where Adams recruited the Virginian to draft the Declaration of Independence. In 1800, Jefferson defeated his nemesis Alexander Hamilton and the incumbent President; Adams then avoided Jefferson's inauguration, following this snub with years of silence. An early attempt at reconciliation was foiled by Abigail Adams in 1804. It was not until 1811 that mutual acquaintances and friends, including the Philadelphia physician, Benjamin Rush, broke the impasse between the rivals. Adams and Jefferson began corresponding on the first of January, 1812, and continued a thoughtful and

politically passionate epistolary friendship until they died within a few hours of each other on the fourth of July, 1826.

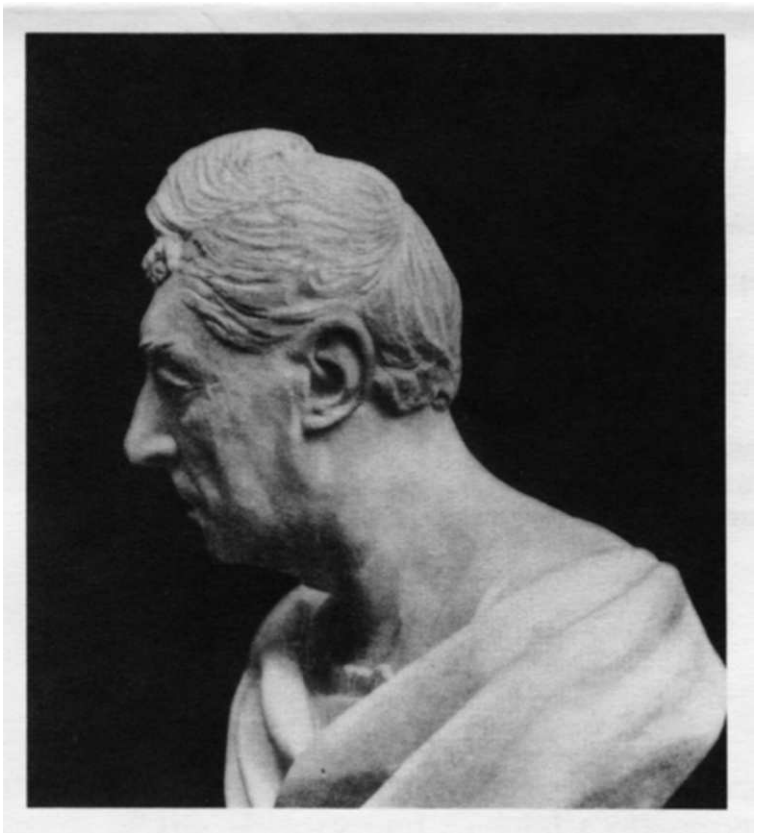


Figure 4 The life mask, "John Adams, Age 90." The former President's last portrait was executed by Browere 22-23 November 1825 in Quincy, Massachusetts. From Hart.

In writing to Adams in January 1825, Jefferson complained of his own crippled wrist and Adams's failing eyesight and other frailties, typically drawing relationships between the body and intellect:

"The account I receive of your physical situation afflicts me sincerely; but if body or mind was one of them to give way, it is a great comfort that it is the mind which remains whole, and that its vigor, and that of memory continues firm." I have lately been reading the most extraordinary of all books, and at the same time the most demonstrative by numerous and unequivocal facts. It is Flourens's experiments on the functions of the nervous system, in vertebrated animals....He takes out the cerebrum completely, leaving the cerebellum and other parts of the system uninjured. The animals loses all it's (*sic*) senses of hearing, seeing, feeling, smelling, tasting, is totally deprived of will, intelligence, memory, perception, etc., yet lives of months in perfect health, with all it's (*sic*) powers of motion, but without moving but on external excitement, starving even on a pile of grain unless

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"crammed down its throat; in short in a state of the most absolute stupidity. He takes the cerebellum out of others, leaving the cerebrum untouched. The animal retains its sense, faculties and understanding, but loses the power of regulated motion, and exhibits all the symptoms of drunkenness. While he makes incisions in the cerebrum and cerebellum, lengthwise and crosswise, which heal and get well, a puncture in the medulla oblongata is instant death; and many other interesting things too long for a letter. Caba-nis had proved by the anatomical structure of certain portions of the human frame, that they might be capable of receiving from the Creator the faculty of thinking; Flourens proves they have received it; that the cerebrum is the thinking organ; and that life and health may continue, and the animal be entirely without thought, if deprived of that organ. I wish to see what the Spiritualists (Note 3) will say to this. Whether in this state the soul remains in the body, deprived of its essence of thought? or whether it leaves it, as in death, and where it goes?" (5)

VANDER KEMP

Francis Adrian Van der Kemp (1752-1829) was installed as a pastor at Leyden, where he met John Adams in the summer of 1780. This graduate of Groningen University was interested in and supported the American Revolution; his political pamphlets and public political agitation led to his banishment in 1787 at age 35. Van der Kemp moved to New York with letters of introduction from Adams. He stepped down from the pulpit and devoted his time to experimenting with agriculture, organizing a Society of Agriculture and Natural History, translating Dutch Colonial records at the solicitation of Governor De-Witt Clinton, and writing numerous political and philosophical essays, of which only a few saw publication. Van der Kemp carried on a voluminous correspondence with the political luminaries of the day. His correspondence with Jefferson on mutual interests in natural history and theology began in 1812 and continued intermittently until the latter's death (6).

Jefferson inspired Van der Kemp to seek his own copy of Flourens's work when he wrote on 11 January 1825:

"Your favor [letter] of Dec. 28 is duly received, and gladdens me that you continue to enjoy health. It is a principle [illegible] of the evils of age. I wish that the situation of our friend Mr. Adams was equally

"comfortable. But what I learn of his physical condition is truly deplorable. His mind however continues strong, his hearing perfect & spirits good. But both he and myself are at that term of life when there is nothing before us to produce anxiety for its continuance....

"I have lately been reading a most extraordinary book, that of M. Flourens on the function of the nervous system, in vertebrated animals. He proves by too many, and too accurate experiments, to admit contradiction, that from such animals the whole contents of the cerebrum may be taken out, leaving the cerebellum, and the rest of the system uninjured, and the animal continues to live, in perfect health, an indefinite period. He mentions particularly a case of ten and one-half months survivance of a pullet. In that state the animal is deprived of every sense of perception, intelligence, memory, and thought of every degree; it will perish on a heap of corn unless you cram it down its throat. It retains the power of motion, but feeling no motive it never moves unless from external excitement. He demonstrates in fact that the cerebrum is the organ of thought, and possesses alone the faculty of thinking. This is a terrible tub thrown out to the Athanasians (Note 4). They must tell us whether the soul remains in the body in this state, deprived of the power of thought? Or does it leave the body, as in death? And where does it go? Can it be received into heaven while its body is still living on earth? These and a multitude of other questions it will be incumbent on them to answer otherwise than by the dogma that everyone who believeth not with them, without doubt shall perish everlastingly. The materialist (Note 5), fortified by these new proofs of his own creed, will hear with derision these Athanasian denunciations. It will not be very long before you and I know the truth of all this, and in the meantime I pray for the continuance of your health, contentment and comfort." (7)

JEFFERSON'S LIBRARY AND THE BOOK

In April 1815, Jefferson completed the sale to Congress of his collection of over 6000 volumes, replacing the Capitol's library which had been burned by the British the previous year. Most of the proceeds went to pay the former President's debts. Soon thereafter, Jefferson wrote to John Adams, "I cannot live without books." (8) He commenced outfitting a new personal library, part of which is still at Monticello. The remainder, including Flourens's Recherches, was sold at auction in 1829(9).

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The Library of Congress has records going back to the 1940s locating books from the 1829 sale with the intent of purchasing the volumes for the Jefferson Collection. James Gilreath, American History specialist in the Rare Book and Special Collections Division, reports that the Flour-ens work does not appear in these receipts (Personal communication, July 18, 1993). The book might have been among the two-thirds of the Jefferson library destroyed by fire in the Capitol on Christmas Eve 1851. Whatever the reason, the whereabouts of Jefferson's personal and presumably inscribed copy of Flourens's *Recherches experimentales sur les proprietes et les fonctions du systeme nerveux* are unknown.

NOTES

1. Jefferson's library included a presentation copy, signed in 1803 by the French physician-philosopher and member of the American Philosophical Society, of Pierre Jean Georges Caba-nis's *Rapports du physique et du moral de l'homme* (Paris, Crapart, 1803) (3).
2. Immaterialism: The doctrine that material things do not exist objectively but only as mental processes.
3. Spiritualism: The philosophical doctrine that all reality is in essence spiritual. Opposed to materialism. One of the doctrines of Idealism, which holds that the objects of perception are actually ideas of the perceiving mind and that it is impossible to know whether reality exists apart from the mind.
4. Athanasius (ca. 296-373): Archbishop of Alexandria, champion of the Christian doctrine of the Trinity.
5. Materialism: In philosophy, the doctrine that matter is the only reality and that everything in the world, including thought, will, and feeling, can be explained only in terms of matter.

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9. **Poor, N.P.** (1829) *President Jefferson's Library*. Washington: Gales and Seaton.