

Brain and Society:  
History of Science in Nineteenth-Century Culture  
Humanities Center, Spring 2015

AS. 300. 228  
TuThur 1:30-2:45pm  
Gilman 400

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Gilman 240  
Office Hours: Thur. 3-5pm

### Course Overview

The human brain, with its 86 billion neurons and over 100 trillion connections, is an object of both scientific inquiry and cultural intrigue. The illuminated neural pathways of fMRI scans open a window onto the forefront of biomedical research and the foundations of consciousness. Our understanding of – and fascination with – the brain circulates beyond the walls of neuroscience laboratories: in films and popular media, “neurobics” and brain-exercise apps, and even the new academic fields, neurohistory, neurophilosophy, and neuroethics. The brain’s imbrication in science and society, however, is by no means new.

This course explores the history of modern brain science and its social resonance. Our focus will be the development of cerebral localization in Europe and America across the long nineteenth century: from craniology, the science of measuring skulls developed in the wake of the French Revolution, to the elaboration of the neuron doctrine on the eve of World War I. This trajectory, however, was not a linear march. By exploring the history of the brain *and* society, we will investigate the ideas and institutions, anxieties and aspirations, as well as politics and power that mediated understandings of the brain in the past.

Primary literature is drawn from medical and experimental science, fictional literature, philosophy, and theology. We will also engage with a sampling of secondary literature, visual media, and films. Our goals are twofold. First, we will analyze the *problems* that oriented brain studies and lent conceptual stakes to neurological, biological, and psychological research: the mind-body relationship, free will and determinism, holism and reductionism, and the structure of selfhood. Second, we will situate the brain in the *contexts* that mobilized knowledge about the organ: scientific academies, technological advancements, colonial expansion, education, and national and social rejuvenation. By the end of the course, we will have developed a critical understanding of the brain’s central role in modern intellectual and cultural history.

### Course Requirements

1. Regular attendance and online participation make up **20%** of the grade. Students are expected to read assigned materials and arrive to class prepared to actively participate. In addition, students are required to post a question or comment by each Wednesday evening (9pm) to the discussion board on [backboard.jhu.edu](http://backboard.jhu.edu). The online discussion will serve as a springboard for discussions in class.
2. The midterm essay is 5 pages and constitutes **20%** of the grade. The essay is expository: students will be asked to reconstruct the concepts in primary texts. Topics will be distributed during the fifth week. The essays are due at the end of the seventh week, just before spring break.

3. The literature review is 7 pages and makes up **25%** of the grade. Students will choose one weekly topic and research and compare two pieces of relevant secondary literature, including a journal article and a crowd-sourced document (such as a Wikipedia entry). During the ninth week, there will be a research practicum, during which we will use EBSCO and the Directory of Open Access Journals, and further, discuss how to navigate the revision histories of Wikipedia pages. Reviews are due the 11<sup>th</sup> week of the seminar.
4. The final essay is 10 pages and constitutes **35%** of the grade. Unlike the midterm, final essays are expected to interpret a set of primary texts in relation to at least three pieces of secondary literature. Final essay topics will be distributed during the 12<sup>th</sup> week and are due during the exam period.

All papers must be submitted in class on the day they are due. Papers must be typed and double-spaced, in 12-point Times New Roman font, with 1-inch margins.

### **Required Texts**

Most of the primary literature and all of the secondary literature will be available on the course website at [blackboard.jhu.edu](http://blackboard.jhu.edu). Students should also purchase:

Stevenson, Robert Louis. *The Strange Case of Dr. Jekyll and Mr. Hyde*. 1886.

### **Optional Resources**

The Internet is full of historical resources addressing the history of brain science. The following sites are especially helpful for those interested in learning more:

“Classics in the History of Psychology.” York University. Electronic resource developed by Christopher Green. <<http://psychclassics.yorku.ca/>>

Wozniak, Robert H. “Mind and Body: René Descartes to William James.” *Serendip Studio*, Bryn Mawr. <<http://serendip.brynmawr.edu/Mind/>>

Wyhe, John van. “History of Phrenology on the Web.” <<http://www.historyofphrenology.org.uk/>>

### **Accommodations**

Students who plan to miss class due to religious observances, or students with disabilities seeking assistance, should notify me at the beginning of the term, either after seminar, during office hours, or via email.

### **Plagiarism and Academic Dishonesty**

Plagiarism includes the reproduction of the work of others without quotation marks or attribution; paraphrasing or summarizing the work of others without attribution; using the work of another student as one’s own; and failure to cite sources for information not commonly known. Plagiarism and cheating are serious infractions and will result in: a failing grade for the seminar and referral to the Dean of Student Life.

Week 1 Mind, Body, and the Modern Concept of Consciousness

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- Jan. 27 Sacks, Oliver. *The Man Who Mistook His Wife For a Hat*. London: Duckworth, 1985. 7-22.
- Descartes, René. *The Passions of the Soul* [*Les Passions de l'âme*]. 1650. In *The Philosophical Works of Descartes*. Trans. E.S. Haldane and G.R.T. Ross. New York: Cambridge University Press, 1931). 332-351.
- Locke, John. "Of Identity and Diversity." In *An Essay Concerning Human Understanding*. 1690. Book II, ch. 27.

Jan. 29 No Class

Optional reading:

- "Descartes and the Pineal Gland." Stanford Encyclopedia of Philosophy. <<http://plato.stanford.edu/entries/pineal-gland/#2.1>>
- "The Immateriality of the Soul and Personal Identity." Stanford Encyclopedia of Philosophy. <<http://plato.stanford.edu/entries/supplement.html>>

Week 2 Phrenology and the Origins of Cerebral Localization

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- Feb. 3 Gall, Franz. *On the functions of the brain and of each of its parts: with observations on the possibility of determining the instincts, propensities, and talents, or the moral and intellectual dispositions of men and animals, by the configuration of the brain and head*. 1822-1826. Trans. W. Lewis Jr. Boston: Marsh, Capen and Lyon, 1935. Selections
- Feb. 5 Combe, George. *The Constitution of Man, Considered in Relation to External Objects*. Edinburgh: McNeil, 1827. 41-81.
- Poe, Edgar Allen. "The Imp of the Perverse." 1845.

Optional reading:

- Ackerknecht, Erwin and Henri Vallois. *Franz Joseph Gall, Inventor of Phrenology and his Collection*. Madison, WI: University of Wisconsin Press, 1956.

Week 3 The Unity of the Soul and Faculty Psychology

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- Feb. 10 Kant, Immanuel. "Transcendental Aesthetic" and "Analytic of Concepts: The A Priori Grounds of the Possibility of Experience." In *Critique of Pure Reason* [*Kritik der reinen Vernunft*]. 1781, 1787. Trans. Norman Kemp Smith. New York: Macmillan, 1929. 65-91, 151-59.
- Feb. 12 Hegel, Georg. "Observation of the Relation of Self-Consciousness its Immediate Actuality — Physiognomy & Phrenology." In *The Phenomenology of Spirit* [*Phänomenologie des Geistes*]. 1807. Trans. Arnold V. Miller. New York: Oxford University Press, 1977. 185-210.

Optional reading:

- "Kant's View of the Mind and Consciousness of Self." *Stanford Encyclopedia of Philosophy*. <<http://plato.stanford.edu/entries/kant-mind/#2>>

Week 4 The Sensory-Motor Nervous System and the Reflex Arc

- Feb. 17 Bell, Charles. *Idea of a New Anatomy of the Brain; Submitted for the Observations of His Friends*. London: Strahan and Preston, 1811. Selections.
- Magendie, François. “Experiments on the Functions of the Spinal Nerve Roots.” [“Expériences sur les fonctions des racines des nerfs rachidiens.”] *Journal de physiologie expérimentale et pathologique* 2 (1822): 366-371.
- Müller, Johannes. *Elements of Physiology* [*Handbuch der Physiologie des Menschen*, Vol. 5]. 1833. Trans. William Baly. London, 1842. Selections.
- Feb. 19 Hall, Marshall. *New Memoir on the Nervous System*. London, 1843. Selections.
- Dewey, John. “The reflex arc concept in psychology.” *Psychological Review* 3, no. 4 (1896): 357-70.

Optional reading:

Leys, Ruth. *From Sympathy to Reflex: Marshall Hall and His Opponents*. New York: Garland Publishing, 1990.

Week 5 Associationism, Intentionality, and Physiological Psychology

*Midterm paper topics distributed*

- Feb. 24 Spencer, Herbert. *Principles of Psychology*. London: Longman, 1855. Selections.
- Wundt, Wilhelm. *Principles of Physiological Psychology* [*Grundzüge der physiologischen Psychologie*]. 1874. Trans. Edward Titchener. London: Swann & Sonnenschein, 1904. 1-26.
- Feb. 26 Brentano, Franz. “The distinction between mental and physical phenomena.” In *Psychology From an Empirical Standpoint* [*Psychologie vom empirischen Standpunkte*]. 1874. Trans. Ted Honderich. New York: Routledge, 2014. 81-105.

Week 6 The Electrical Brain: From Mesmerism to Cerebral Excitation

- Mar. 3 Darnton, Robert. *Mesmerism and the End of Enlightenment in France*. Cambridge, MA: Harvard University Press, 1968. 2-45.
- Mar. 5 Fritsch, Gustav and Eduard Hitzig. “On the Electrical Excitability of the Cerebrum.” [“Über die elektrische Erregbarkeit des Großhirnes.”] Trans. Don Cantor. *Archiv für Anatomie, Physiologie und wissenschaftliche Medizin* 37 (1870): 300–332.
- Ferrier, David. *The Functions of the Brain*. London: Smith, Elder, & co, 1876. 255-289.

Week 7 Localization and Racial Types: Brain Science in the Age of Colonialism

*Midterm papers due*

- Mar. 10 Broca, Paul. “Remarks on the seat of the faculty of articulate language, followed by an observation of aphemia.” [“Remarques sur le siège de la faculté du

langage articulé, suivies d'une observation d'aphémie." ] *Bulletin de la Société Anatomique* 6 (1861): 343-357.

Mar. 12 Gould, Steven Jay. *The Mismeasure of Man*. 2<sup>nd</sup> ed. New York: W.W. Norton, 1996. 105-140.

Conklin, Alice. *In the Museum of Man: Race, Anthropology, and Empire in France, 1850-1950*. Ithaca, NY: Cornell University Press, 2013. 19-57.

Optional reading:

Schiller, F. *Paul Broca: Founder of French Anthropology, Explorer of the Brain*. New York: Oxford University Press, 1979.

### *Spring break*

Week 8 

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Dualities of Mind and Brain

Mar. 24 Stevenson, Robert Louis. *The Strange Case of Dr. Jekyll and Mr. Hyde*. 1886.

Mar. 26 Brown-Séquard, Charles Edouard, "The Dual Character of the Brain." 1874. *Smithsonian Miscellaneous Collections* 15, no. 5 (1877): 1-21.

Harrington, Anne. *Medicine, Mind, and the Double Brain. A Study in Nineteenth-Century Thought*. Princeton, NJ: Princeton University Press, 1987. 70-104.

Week 9 

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Communications and Physiology: The Telegraphy of the Nervous System

*Research practicum for literature reviews*

Mar. 31 Otis, Laura. *Networking: Communicating with Bodies and Machines in the Nineteenth Century*. Ann Arbor, MI: University of Michigan Press, 2001. 11-48.

Apr. 2 Bergson, Henri. *Matter and Memory [Matière et mémoire]*. 1896. Trans. N. Margaret Paul and W. Scott Palmer. New York: Zone Books. Chs. 2-3.

Week 10 

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Charcot, Hysteria and the Science of Sexual Deviance

Apr. 7 Charcot, Jean Martin. *Charcot, the clinician - the Tuesday lessons: excerpts from nine case presentations on general neurology delivered at the Salpêtrière Hospital in 1887-88*. New York: Raven Press, 1987. Selections.

Didi-Huberman, Georges. *Invention of Hysteria: Charcot and the Iconography of the Salpêtrière*. Trans. Alisa Hartz. Cambridge, MA: MIT Press, 2003. 13-28, 115-174.

Apr. 9 Smith, Cynthia Eagle. *Sexual Science. The Victorian Construction of Womanhood*. Cambridge, MA: Harvard UP, 1989. 16-48.

Optional reading:

Goetz, C.G., et al. *Charcot: Constructing Neurology*. New York: Oxford University Press, 1995.

Ellenberger, Henri. *The Discovery of the Unconscious*. New York: Basic Books, 1970. 53-109.

Week 11 From Nerves to Drives: The Origins of Psychoanalysis

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*Literature review due*

Apr. 14 Freud, Sigmund. *On the Interpretation of Dreams [Die Traumdeutung]*. 1900. Trans. Joyce Crick. New York: Oxford University Press, 1999. Ch. 2

Apr. 16 Guenther, Katja. "The Disappearing Lesion. Sigmund Freud, Sensory-Motor Physiology, and the Beginnings of Psychoanalysis." *Modern Intellectual History* 10, no. 3 (2013): 569-601.

Week 12 The Neuron Doctrine: Between Cells and Science Fiction

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*Final paper topics distributed*

Apr. 21 Cajal, Santiago Ramón y. *Recollections of My Life*. Trans. E. Horne Craigie and Juan Cano. Cambridge: MIT Press, 1989. Selections.  
Wade, Nicholas and Marco Piccolino, "Noble Stains." *Perception* 35 (2006): 1-8.

Apr. 23 Cajal, Santiago Ramón y. *Vacation Stories: Five Science Fiction Tales*. Laura Otis. Champaign, IL: University of Illinois Press, 2001.

Week 13 The Neurosciences in Culture Today: Critical Perspectives on the Present

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Apr. 28 Dumit, Joseph. *Picturing Personhood: Brainscans and Biomedical Identity*. Princeton, NJ: Princeton University Press, 2004. 22-52.

Apr. 30 Changeux, Jean-Pierre and Paul Ricoeur. *What Makes Us Think?* 1998. Trans. M.B. DeBevoise. Princeton, NJ: Princeton University Press, 2000. 3-32.