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# *A Clinical Lesson at the Salpêtrière*

*Hysteria has its laws, its determination, precisely like a nervous ailment with a material lesion. Its anatomical lesion still eludes our means of investigation . . .*

Jean-Martin Charcot, 1890[1(p77),2(p208)]

In June 1870, Jean-Martin Charcot (1825-1893) delivered his first lecture on hysteria, a lesson on hysterical contractures, at the Salpêtrière in Paris, France.[2] His lecture emphasized a scientific approach to hysteria and focused on not only the physical features but also the psychological aspects. Thus, he expressed doubt about reports of miraculous religious cures and likened them to the sudden recovery of hysterical patients. Charcot was influenced by the work of Pierre Briquet (1776-1881),[3,4] who in 1859, based on clinical assessments, published a systematic epidemiologic study describing 430 cases of hysteria seen over a 10-year period. Briquet considered "hysteria as the product of suffering of the part of the brain destined to receive affective impressions and feelings,"[4(p60)] suggested a role for heredity, proposed a predisposing temperament, and identified male cases but noted that they were far less common than female cases. The previous July, Charcot attended the British Medical Society meeting in Leeds, England, where Russell Reynolds delivered a paper that had intrigued him, "Paralysis, and other disorders of motion and sensation, dependent on idea."[5] Reynolds wrote "that some of the most serious disorders of the nervous system, such as paralysis, spasm, pain, and otherwise altered sensations, may depend upon a morbid condition of emotion, of idea and emotion, or of idea alone . . . they sometimes associate themselves with distinct and definite diseases of the nervous centres, so that it becomes very important to know how much a given case is due to an organic lesion, and how much to morbid ideation."[5(p483)]

Charcot extended these earlier proposals about hysteria in his subsequent research; he confirmed the presence of male hysteria, identified early traumatic experiences as triggers, and proposed that hysteria was a dynamic disorder of the nervous system without a clearly identifiable anatomy. Unable to identify a specific anatomical site, he sought to document the clinical features. He was skilled in drawing himself, and his hysteria studies led him to pioneer the use of photography in neurology. In 1876 and 1877, 3 volumes (*Iconographie photographique de la Salpêtrière*)[1] edited by Désiré-Magloire Bourneville (1840-1909) provided case histories and photographs to illustrate the characteristic syndromic features.[1] Charcot described 4 stages of a hysterical seizure, the epileptoid (tonic seizures often preceded by an aura), contortions and acrobatic postures (arc-in-circle, or arching the back into a semicircle), emotional gestures and verbalization, and final delirium. Moreover, he suggested that hypnosis was an experimental technique to study hysteria and used it, not so much for therapy, but to investigate the physiological processes underlying hysteria.

Because Charcot was a renowned professor of neuropathy before beginning his work with hysteria, his interest in this disorder was taken seriously by other physicians. Combining histology with a mastery of the anatomical-clinical method, he had associated locomotor ataxia with lesions of the posterior spinal roots and columns, linked acute and chronic progressive muscular atrophy with lesions of the anterior horn cells, and separated multiple sclerosis from Parkinson disease. He was best known for his studies of amyotrophic lateral sclerosis, known then and now in Europe as Charcot disease.

In 1878, he opened his neurological case demonstrations to an audience of physicians, artists, politicians, and other interested members of the community. His research and case demonstrations attracted many prominent physicians in France, Europe, and America, including Adolf Meyer and James Jackson Putnam, Russell Reynolds and prominent members of the British Medical Society from England, and Sigmund Freud from Austria. (Freud developed an avid interest in these cases, translated Charcot's work into German, spoke often of his 19 weeks' visit to Paris, named one of his sons after Charcot, and recognized the pivotal role that Charcot played in his later work.) Charcot's studies on hysteria were carried out during the Third French Republic. This era (1870-1914), known as *La Belle Époque* (the beautiful times), supported progress in science and creativity in art. It was an optimal historical moment for Charcot's interests to flourish.

Charcot's focus on hysteria came about fortuitously and unexpectedly. An administrative decision in 1870 resulted in the transfer of care of a group of patients with epilepsy and hysteria, not thought to be insane, to Charcot's medical ward. The closure of a psychiatric ward in the condemned Saint Laure building brought him into contact with these patients; cases thought to be insane had been transferred to another psychiatric unit. The decision was necessitated by the 1838 law that defined conditions of hospitalization for mental illness and led to the separation of the sane from the insane on hospital units. Charcot said it was this event, the transfer of "a service of nearly 150 beds where we can study all forms of epilepsy and severe hysteria,"[2(p180)] that led him to shift his focus to these interesting clinical problems. That shift of interest was encouraged by Bourneville (known for describing tuberous sclerosis complex), who had previously interned with Charcot, been assigned to the epilepsy/hysteria ward, and moved back with the patients under his care from the old ward to the new one. He stimu-

lated Charcot's interest in hysteria and provided an opportunity for Charcot to write about it in his weekly medical journal, *Progrès Médical*. Charcot was also joined in the study of these patients by Joseph Babinski (1857-1933), who was his chief house officer in the late 1880s. Witnessing the frequency of seizures in patients with hysteria, Charcot proposed the diagnostic term *hystero-epilepsy*. Gradually he realized, in dialogue with Babinski and others, that individuals with hysteria were assuming the postures of other patients with epilepsy on the unit and realized that separating them from patients with epilepsy was essential. After Charcot's death, Babinski aggressively rejected his teacher's views on hysteria.[2] He developed neurological methods to distinguish hysteria from epilepsy, especially his extensor toe sign, which he felt absolutely differentiated them.[6]

On Tuesday each week Charcot saw consultations, and on Fridays he offered formal lectures and conferences. At his case conference, he would replicate hysterical symptoms under hypnosis, shift them around the body, and induce artificial equivalents of the 4-stage attack (grande hystérie). Pierre Andre Brouillet (1857-1914) immortalized 1 such demonstration in 1887.[2,7,8] Brouillet was a genre artist of the Belle Époque period and a student of Jean-Léon Gérôme (1824-1904).[8] He produced history paintings, portraits, or group portraiture canvases in the academic tradition as opposed to the avant-garde impressionism of his day. His Charcot lesson attracted favorable notice in reviews of the salon d'art of 1887 where it was first displayed; it was later sold to the Academy Beaux-Arts for 3000 francs. A lithographic reproduction by Louis Eugene Pirodon (1824-1908) was popular; Freud hung one in his offices in Vienna and above his analytic couch when he moved to London. There were also newspaper versions of the painting.

Charcot's demonstrations drew such widespread public attention that they were held in an auditorium with benches to seat 400. They were attended by medical staff and other interested persons. The backdrop to the platform in the auditorium where Charcot stood was the 1878 Tony Robert-Fleury (1837-1911) painting, *Pinel Delivering the Insane*,[9] which shows Pinel freeing the women from chains; 1 woman lies on the ground in the midst of a convulsion. Apparently, the setting for the Brouillet painting is a large room that no longer exists in the Salpêtrière, thought to be in the Pariset section of the building near his office. Hypnosis was induced by his assistants before a session began, most commonly using the sound of a gong or a swinging pendulum. Charcot used hypnotic suggestion to induce a hysteria attack. In the painting (Figure), a woman, Blanche Wittman, stands between Charcot and Babinski. She assumes a dystonic posture with her neck turned to her left and her left arm and hand held in a rigid, contorted posture (thumbnail). Opposite her is an 1878 painting by medical artist Paul Richer (1849-1933) of a woman convulsing, assuming the arc-in-circle posture. Written on the corner of the Richer painting are the words *periode de contortions* (during the contortions). Babinski supports Blanche; the female clinic supervisor (Marguerite Bottard) extends her arms toward her and she and a younger nurse (Mlle Ecary) look on in anticipation of her falling onto the bed and demonstrating the final stages of a hysterical attack.

Charcot assumes an authoritative attitude and gestures as he engages the audience. Sixteen of his current and former physician associates encircle him in the front rows, facing him in reverse order of seniority. The older generation is near the back of the portrait along with philosophers, writers, and friends of Charcot. Opposite Charcot, Georges Gilles de la Tourette, wearing a white apron, leans toward him. Bourneville is shown near the center of the room. On the table beside Charcot, on his right, are a reflex hammer and what is thought to be a Duchenne electrotherapy apparatus. Richer, pen in hand, carefully draws Blanche Wittman's body contortions. Others in the painting include Léon le Bas, the hospital administrator; Jean-Baptiste Charcot, his son, then a medical student; Jules Claretie, journalist, author of an 1881 novel about hysteria (*Les Amours d' un Interne*), and administrator of the Comedie Francais; and Pierre Marie, who subsequently assumed the Charcot chair. Outside the window, one looks onto buildings where older

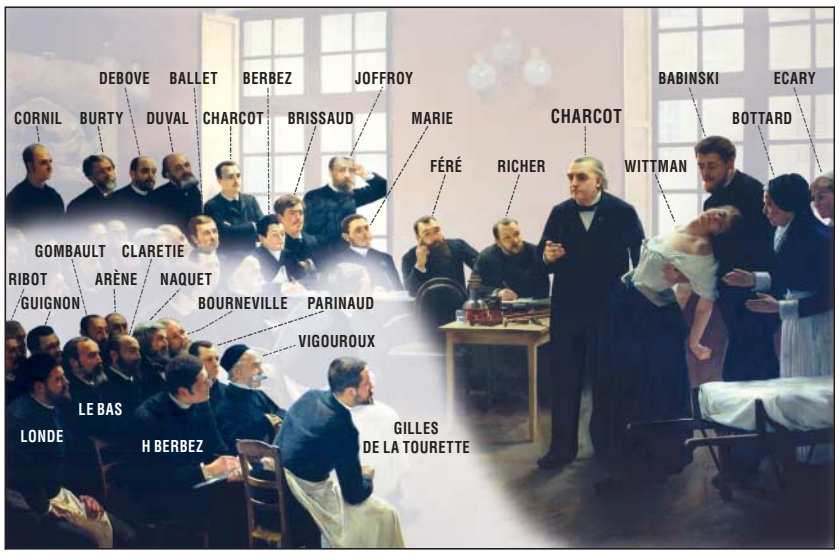


**Figure.** *A Clinical Lesson at the Salpêtrière* is a large group portrait that hung in the salon de Paris in 1887. The following individuals are shown: Jean-Martin Charcot, Professor, Diseases of the Nervous System; Marie (Blanche) Wittman, patient; Joseph Babinski (1857-1933), chief house officer; Marguerite Bottard, nursing director; Mlle Ecary, nurse; Paul Richer (1849-1933), medical artist and physician; Charles Samson Féré (1852-1907), psychiatrist and Charcot's assistant and secretary; Pierre Marie (1853-1940), assumed Charcot permanent chair in 1917; Alix Joffroy (1844-1908), anatomical pathologist; Edouard Brissaud (1852-1909), interim professor for one year after Charcot's death; Paul Berbez, physician and student of Charcot; Jean-Baptiste Charcot (1867-1936), son and medical student; Gilbert Ballet (1853-1917), Charcot's last chief resident; Mathias Duval (1844-1907), professor of anatomy; Maurice Debove (1845-1920), eventual dean of the medical school; Philippe Burty (1830-1890), art collector and writer; Victor Cornil (1837-1908), politician; Georges Gilles de la Tourette (1857-1904), assistant neurologist, described Tourette syndrome; Romain Vigouroux, chief of electrodiagnostics; Henri Parinaud (1844-1905), ophthalmologist who described oculoglandular syndrome; Henry Berbez, extern; Désiré-Magloire Bourneville (1840-1909), Charcot publisher, physician who described tuberous sclerosis complex; Alfred Joseph Naquet (1834-1916), physician and politician; Jules Claretie (1840-1913), journalist and writer; Paul Arène (1843-1896), novelist; Albert Gombault (1844-1904), anatomist; Léon le Bas, chief hospital administrator; Georges Guignon (1859-1932), Charcot's last chief resident; Théodule Ribot (1838-1916), psychologist; Albert Londe (1858-1917), chief medical photographer.

women who consecrated their lives to the care of the patients lived.

The theatrical setting of these case demonstrations raised controversy at the time, and Charcot was accused of creating a circus atmosphere where, at the sound of the gong, his trained hysterics performed for him. Despite these complaints and reports that his staff prepared the patients to please him, Charcot insisted that these events were not staged performances, although he admitted that "it is a characteristic of hysterical patients to exaggerate their phenomena and they are more prone to do so when observed or admired."[2(p173)] Charcot remained convinced that hysterical symptoms were real, and Blanche Wittman confirmed his views when interviewed about herself in 1906.[7] As she grew older, she said that her hysterical fits subsided. She remained at the Salpêtrière and worked in the photography laboratory and later in the radiology department. At the 1906 interview, she said she did not feel exploited and denied that she feigned illness, saying to her interviewer that Charcot was strict with those who feigned illness and that he had no patience with those who sought to trick him. Although Ellenberger[10] writes that Wittman is said to have had a dual personality and that the more mature Blanche 2 disclosed that she was permanently present and fully aware during the entire performance Blanche 1 acted out, this is not discussed in the 1906 interview. Charcot's attitudes toward women have been questioned. Yet Charcot worked to incorporate women professionally into neurology, advanced areas of women's health, and sought to dispel the belief that hysteria occurred exclusively in women.

In recognition of his accomplishments, Charcot was made a member of the French Academy of Sciences in 1883. Charcot died in 1893 of congestive heart failure while touring with his former students. There was worldwide attention to his death. William Osler at Johns Hopkins University wrote: "Now and again there is given to medicine a man whose life makes an enduring impression. . . . In this select circle, by virtue of extraordinary labors, the suffrages of our Guild, the world over had placed Jean-Martin Charcot."[11(p87)] He wrote that the memory of Charcot is secure, will rest safely, and will be cherished.

Hysteria is no longer a psychiatric diagnostic category and now is mainly a subject for medical historians.[12] In the *DSM-IVTR*, several diagnoses replace it, somatization disorder, conversion disorder, and psychogenic pain disorder among them. Phillip Slavney's[13] *Perspectives on "Hysteria"* provides a current guide to case formulation and treatment; the author notes that his book may be the last medical book published with the title *hysteria*.

Charcot claimed that hysteria is a fluctuating, dynamic, functional disorder of the brain. Recent neuroimaging studies provide some support for Charcot's proposals regarding conversion disorder. Such studies involve a small number of subjects and are suggestive but not conclusive. These studies suggest that activation patterns when feigning illness and conversion motor disorder differ.[14,15] Feigners showed hypofunction of the *right* anterior dorsolateral prefrontal cortex, but patients showed hypoactivity of the *left* anterior dorsolateral prefrontal cortex. These studies also suggest that sensory systems are intact in conversion hysteria, suggesting that higher cortical levels are involved,[16] and that activation of higher cortical regions is involved in symptom formation. Thus, attentional or motivational influences might alter sensorimotor processes. Black et al[17] summarize imaging studies in regard to inhibition of the somatosensory cortex by the frontal cortex consistent with the role of frontostriate loops in the modulation of motor intention and sensory awareness. They review the role of functional disconnectivity in structural brain lesions and, potentially, in hysteria, where shifts in neural state might be linked to adverse emotional experiences. These authors propose that the mapping of the brain in conversion disorder may be pertinent to understanding brain correlates of self-consciousness.

Charcot proposed that hypnosis was an experimental model system that may be useful in understanding the neurophysiology of hysteria. Recent neuroimaging case studies of conversion disorder provide partial support for Charcot's proposals. Positron emission tomography studies of cerebral blood flow during hypnotically induced paralysis[18] showed activation of brain regions virtually identical to brain regions activated in a study of hysterical paralysis.[14] In both instances, blood flow increased in the contralateral orbitofrontal cortex and anterior cingulate but not in the motor cortex, which is consistent with prefrontal inhibition of motor cortex. Charcot's neurological studies of hysteria and hypnosis were largely ignored in the 20th century. Perhaps he will fare better in the 21st.

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## REFERENCES


1. Didi-Huberman G. *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpêtrière*. Hartz A, trans. Cambridge, Mass: The MIT Press; 2003.
2. Goetz CG, Bonduelle M, Gelfand T. *Charcot: Constructing Neurology*. New York, NY: Oxford University Press; 1995.
3. Briquet P. *Traite Clinique et Therapeutique de L'Hysterie*. Paris, France: Bailliere; 1859.
4. Mai FM, Merskey H. Briquet's concept of hysteria: an historical perspective. *Can J Psychiatry*. 1981;26:57-62.
5. Reynolds JR. Paralysis, and other disorders of motion and sensation, dependent on idea. *BMJ*. 1869;2:483-485.
6. Okun MS, Koehler PJ. Babinski's clinical differentiation of organic paralysis from hysterical paralysis: effect on US neurology. *Arch Neurol*. 2004;61:778-783.
7. Signoret JL. "A Clinical Lesson at the Salpetriere" (1887) by Andre Brouillet [in French]. Slater M, trans. *Rev Neurol (Paris)*.1983;139:687-701.
8. Brouille A. André Brouillet: 1857-1914 [commissariat de l'exposition, Philippe Bata]. Autotte P, trans. Poitiers, France: Musées de la Ville de Poitiers; 2000.
9. Harris J. Pinel delivering the insane. *Arch Gen Psychiatry*. 2003;60:522.
10. Ellenberger HF. *The Discovery of the Unconscious*. New York, NY: Basic Books, Inc; 1970.
11. Osler W. Jean-Martin Charcot. Johns Hopkins Hospital Bulletin. September, 1893: 87-88.
12. Micale MS. *Approaching Hysteria: Disease and Its Interpretations*. Princeton, NJ: Princeton University Press; 1995.
13. Slavney P. *Perspectives on "Hysteria"*. Baltimore, Md: The Johns Hopkins University Press; 1990.
14. Marshall JC, Halligan PW, Fink GR, Wade DT, Frackowiak RS. The functional anatomy of a hysterical paralysis. *Cognition*. 1997;64:B1-B8.
15. Spence SA, Crimlisk HL, Cope H, Ron MA, Grasby PM. Discrete neurophysiological correlates in prefrontal cortex during hysterical and feigned disorder of movement. *Lancet*. 2000;355:1243-1244.
16. Hoechstetter K, Meinck HM, Henningsen P, Scherg M, Rupp A. Psychogenic sensory loss: magnetic source imaging reveals normal tactile evoked activity of the human primary and secondary somatosensory cortex. *Neurosci Lett*. 2002; 323:137-140.
17. Black DN, Seritan AL, Taber KH, Hurley RA. Conversion hysteria: lessons from functional imaging. *J Neuropsychiatry Clin Neurosci*. 2004;16:245-251.
18. Halligan PW, Athwal BS, Oakley DA, Frackowiak RS. Imaging hypnotic paralysis: implications for conversion hysteria. *Lancet*. 2000;355:986-987.