Movement Disorders
CLINICAL PRACTICE
REVIEW

Constructing Neurology: Jean-Martin Charcot (1825–1893): A Bicentenary Tribute

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Abstract: Objective: To honor the bicentenary of Jean-Martin Charcot's birth and to consolidate the primary materials from a historical exhibit on the topic at the 2025 International Parkinson and Movement Disorder Congress, this article aims to provide an overview of Charcot's place in the context of 21st century movement disorders neurology.
Background: Charcot (1825–1893) is largely considered the Father of Clinical Neurology, having established the basic discipline of anatomo-clinical correlations in brain and spinal cord disease. His contributions to movement disorders neurology were seminal and remain as anchors of 21st century neurological study.
Methods: Original and secondary sources from international archives and collections served as the material for study and interpretation.
Results: Charcot fundamentally contributed to the clinical descriptions of Parkinson's disease, other parkinsonian syndromes, tremor conditions, tic disorders and chorea. Whereas he performed extensive neuroanatomical studies, he classified most movement disorders as *névroses,* conditions with undetected structural lesions yet to be defined.
Conclusions: Charcot developed a clear classification system for movement disorders that largely remains intact today. He developed a French School of Neurology of both historical and modern fame, and, in introducing the model of an academic clinical hospital research center as multidimensional integration of clinical care, research, and education, he left a legacy that remains the model of the 21st century neurological research center.

Introduction

Contributions to the study of nervous diseases and movement disorders particularly flourished in the second half of the 19th century. At the center of this movement, Jean-Martin Charcot (1825–1893) built a clinical service and a teaching school at the Salpêtrière Hospital in Paris, France (Figures S1 and S2). After having been the largest asylum in Europe for beggars, prostitutes, and people with psychiatric conditions, La Salpêtrière, at the time of Charcot, was a shelter for poor and disabled elderly women.[1] Referred to as the father of French neurology, Charcot, along with his pupils, made landmark contributions to the study of movement disorders and his name is associated with groundbreaking discoveries and various medical eponyms. As part of the international celebrations of the bicentenary of Charcot's birth, the International Parkinson and Movement Disorder Society sponsored a historical exhibit on Charcot and his legacy. This article is extracted from those materials and offers a synthesis of Charcot's lasting contributions to the field of movement disorders and its founders.

Paris at the Time of Charcot

Jean-Martin Charcot was born on November 25, 1825, at 1, rue du Faubourg Poissonnière, a larger street which marks the boundary between the 9th and 10th arrondissements of Paris. He was the eldest of five siblings and grew up in the environment of a middle-class artisan family.[2] In total, he resided at six different places in Paris, four of them being on the right bank of the Seine

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and the last two on its left bank. During Charcot's life, Paris was rebuilt under Napoleon III and Georges-Eugène Haussmann with widened new boulevards, squares and parks, the city emerging as a leading international capital that hosted four world exhibitions between 1855 and 1889. Its population increased fivefold to 2.7 million by 1900, and, during this flurry, Paris became a renowned center of arts, culture and science. Of particular interest for the field of medicine, inventions in photography, cinematography and visual arts centered on France, helping to support an infrastructure for the presentation and visualization of movement disorders and related morbid conditions.

Youth and Education

Charcot began the study of medicine in 1843 and worked at the Pitié Hospital under Pierre-Adolphe Piorry (Fig. S3), and at the Charité Hospital under Pierre François Olive Rayer (Fig. S4), a mentor who decisively influenced Charcot's career by introducing him to the scientifically progressive Société de Biologie in 1851. Charcot became chief of clinics with Piorry at the Charité Hospital in 1853 after he had completed a thesis on the differentiation of gout from chronic arthritis at La Salpêtrière in the same year. Charcot passed the "Bureau central (central office)" exam in 1856, meaning he attained the status of hospital physician. He passed the competitive examination to become associate professor (agrégé) on his second attempt in 1860. Ten years after having been a resident at the women's nursing home and asylum at La Salpêtrière Hospital, Charcot was appointed chief physician there in 1862, taking over the Pariset division. Charcot was 37 years old. His friend Edme Félix Alfred Vulpian (Fig. S5) was appointed to head the second entity, the Pinel division. On July 1, 1862, the two friends were in charge of 2635 patients from France.[3] At a time when the nosography of chronic pathology, notably that affecting the nervous system, was in its infancy, "the two young 'agrégés' (associate professors) could be seen working together from room to room of this immense asylum, examining all the patients, gathering all the observations, and compiling an enormous dossier that gradually expanded to include autopsies and histological studies and the precious contribution of laboratory research." They were applying the anatomo-clinical method. In only eight years, from 1862 to 1870, the two friends enriched medical nosography, adding to it the clinical features of multiple sclerosis and Parkinson's disease and describing tabetic arthropathy and medullary localizations, among others. In 1866, Charcot began teaching, in his department and outside the Paris Medical School, mixing theory and clinical elements of chronic disease, notably in the elderly (Charcot, 1867), then in nervous system diseases. After the Franco-Prussian war (1870–1871), he was appointed to the Chair of Pathological Anatomy in 1872, replacing Vulpian who went on to hold the Chair of Experimental Pathology. In 1873, Charcot was elected to the French Academy of Medicine, then in 1883 to the French Academy of Sciences. In 1882, a chair in clinical neurology (Chaire de Clinique des Maladies du Système nerveux) was created especially for Charcot. He remained at La Salpêtrière until the end of his life.[4]

An Early Inspiration: Duchenne de Boulogne

Benjamin Guillaume Duchenne [de Boulogne] (Fig. S6) was famous for his seminal studies starting in 1858 on muscular paralysis in boys, later named Duchenne muscular dystrophy.[5] He was the first clinician to practice muscle biopsy, with an invention he called "l'emporte-pièce" (Duchenne's trocar). In 1855, he formalized the diagnostic principles of electrophysiology and introduced electrotherapy in a textbook titled *De l'électrisation localisée et de son application à la physiologie, à la pathologie et à la thérapeutique*. A companion atlas to this work, the Album de photographies pathologiques, was the first neurology text illustrated by photographs. Duchenne's monograph, the *Mécanisme de la physionomie humaine*—also illustrated prominently by his photographs—was the first study on the physiology of emotion and was highly influential on Charles Darwin's work on human evolution and emotional expression. He also published on progressive locomotor ataxia, glosso-labial-laryngeal paralysis and dedicated himself to the study of dystonic conditions and their treatment with corsets, writing aids, electrotherapy and elastic bands to stretch antagonist muscles. Charcot met Duchenne in the early 1850s at Rayer's clinic and later invited him to continue his research on electrostimulation and electrotherapy at La Salpêtrière. Duchenne's pathological anatomy method, which included the deployment of medical instrumentation and clinical photography, inspired Charcot throughout his life, and they maintained a professional but a poor private friendship until Duchenne passed away in September 1875.[6]

Maladie de Parkinson: Parkinson's Disease

In November 1861, Charcot and Vulpian published a three-part article in the *Gazette Hebdomadaire de Médecine et de Chirurgie* focusing on a case of paralysis agitans reported one month earlier by the Viennese doctor, Johann von Oppolzer (1808–1871), in the local *Spitals-Zeitung*.[7] In their article, Charcot and Vulpian summarized existing efforts to describe shaking palsy, acknowledged the importance of James Parkinson's *Essay on the Shaking Palsy* from 1817 and referred to the disorder as "maladie de Parkinson" (Parkinson's disease.[8] In their ensuing seminal studies, Charcot and his students defined Parkinson's disease as a single clinical entity, established all clinical aspects including bradykinesia, slowed speech, hypersalivation and limb rigidity, differentiating the disease clinically from other neurological disorders. They described the tremorous and the akinetic forms and suggested a refined medical treatment.

Previously, sulfur baths, iodide of potassium and carbonate of iron were remedies to alleviate the symptoms of Parkinson's disease in the 19th century. A major step forward was a treatment introduced by Charcot as early as in the 1860s.[9] He prescribed granules of hyoscyamine, an alkaloid isolated from solanaceous

plants and today known to be a centrally active anticholinergic agent. In a prescription from 1877 (Fig. S7), he suggested taking these granules before each meal and a higher dosage before going to sleep. He recommended to start with six granules and to moderately increase the amount to eight to ten pills a day. Additionally, he recommended taking a small glass of wine with some drops of a rye-based syrup after the meal. Modern neurologists will recall that the earliest dopamine agonist used for treating Parkinson's disease was bromocriptine, derived botanically from rye.

Parkinsonism—plus Syndromes and Gait Disorders

Expanding beyond the archetypal syndrome of Parkinson's disease, Charcot launched further studies of conditions with parkinsonian features that were clinically different from the classic form. In this same effort, he focused on gait abnormalities and described, along with his student, Pierre Marie (1853–1940), a neuropathic cause of atrophy.[10] Pierre Marie later continued gait studies with a focus on hereditary cerebellar ataxia (Marie's ataxia). Charcot and Pierre Marie together provided a description of peroneal muscular atrophy, a clinical picture that was at the same time also described by the Englishmen, Howard Tooth, and became thus known as Charcot–Marie–Tooth disease. Charcot's investigations into gait disorders illustrate perfectly his exemplary diagnostic approach and objective recording methods. He established a gait laboratory where patients first stepped into an ink pad or carbon-filled tray and then walked on paper, leaving footprint traces that allowed fixed visual documentation of gait patterns in various disorders, impressively summarized in the thesis of Georges Gilles de la Tourette in 1886.[11] Additional drawings (Fig. S8) and Albert Londe's photographic service supplemented this revolutionary approach to the neurological evaluation. Charcot recognized that some patients had bradykinesia and rigidity but had a different typical posture than Parkinson's disease subjects with tremor. In contrast to the hunched and flexed posture, these patients' posture was straighter and even hyperextended, especially in the neck. Although progressive supranuclear palsy and cortico-basal syndrome were not recognized with a nosographic label by Charcot, he was clear in designating a class of unusual subjects with these postural and gait features, usually without tremor, as atypical variants of Parkinson's disease.

Tremors outside of Parkinson's Disease

Beyond Parkinson's disease, tremor studies focused other neurological conditions and were pivotal to Charcot's reputation of meticulous research. Apart from tremors seen in hysteria, ataxia, and alcoholism, his most fruitful publications related to tremors differentiating multiple sclerosis from Parkinson's disease. He described intention tremor for the first time in his lectures on multiple sclerosis in 1868 and differentiated it from rest tremor in Parkinson's disease. Using a variety of recording techniques, he was able to record and show various forms of tremor and the activity (rest, posture, action) most faciliatory to the abnormal movement. Another memorable investigation led Charcot to the metal industry of the fin de siècle Paris where he witnessed the occurrence of a mercury-induced tremor among workers and could present three cases of mercurial intoxication-induced tremor to his audience in a Tuesday lesson in May 1888[12,13] (Fig. S9).

Sclérose en Plaques: Multiple Sclerosis

Charcot's studies on multiple sclerosis took place at about the same time as his studies on Parkinson's disease. Through his own descriptions in 1965[14] and profiting from Vulpian's work in 1865,[15] Charcot focused several teaching lectures in 1868 on the distinct characteristics, pathology, symptomatology and etiology of multiple sclerosis.[16] He also reported on inflammation and the scarring of nerves at respective sites and identified a triad of symptoms, namely nystagmus, intention tremor and scanning speech, as indicators of the clinical diagnosis. This triad was later called Charcot's triad. Also, in 1868, Charcot's student, Leopold Ordenstein (1835–1902), wrote a noteworthy thesis where he clearly differentiated Parkinson's disease from multiple sclerosis (see[9]). One year later, Désiré-Magloire Bourneville (1840–1909) and Léon Guérard (1840–1901) extended the thesis of the latter and summarized the main findings on multiple sclerosis at La Salpêtrière and published the first comprehensive monograph on the clinical and pathological aspects of the disorder[17] (Fig. S10).

Amyotrophic Lateral Sclerosis: Charcot's Disease

In his studies on paralysis and progressive muscular atrophy, Charcot drew on the knowledge of anatomical publications and case studies of Jean Cruveilhier[18] (Fig. S11) and his students as well as the works of Duchenne from the 1850s. His studies of a relatively small number of patients were added to reports gathered by Alix Joffroy (1844–1908) in the late 1860s[19] and the publications of François Alexis Albert Gombault (1844–1904) in the early 1870s.[20] This combined series led him to conclude that the motor component of the spinal cord consisted of a two-part system where lesions in one or the other led to different clinical

outcomes, though both involved weakness as the clinical hallmark. In the situation where both components were involved with degeneration, because of the gray matter involvement caused amyotrophy and the white matter damage (lateral sclerosis) involved spasticity, he called this motor neuron disease amyotrophic lateral sclerosis in 1874. In naming the disorder by the two salient pathologies, Charcot emphasized his anatomo-clinical discipline in matching neurological signs to distinct anatomical lesions. World-wide, the disorder became known as Charcot's disease.[21]

Locomotor Ataxia

In the early 1860s, Charcot and Vulpian published articles on locomotor ataxia or tabes dorsalis. At the time, the disorder was known as a neurological condition characterized by progressive degeneration of the spinal cord, but its etiological relationship with syphilis was not known[22] (Fig. S12). Charcot favored the term locomotor ataxia, introduced by Duchenne in 1858/1859 rather than tabes dorsalis, originally utilized by the German neurologist Moritz Heinrich Romberg (1795–1873) in the 1840s. A few years later, Charcot and his intern Charles Bouchard (1837–1915) (also known for describing the Charcot-Bouchard aneurysm) presented a clinical and pathological case of a 51 year old woman, affected by syphilis since the age of 20, who suffered from fulgurating pains and ultimately passed away.[23] They also described the modes of progression of the disease and the detailed histopathological exams of the entire nervous system, demonstrating damage to the posterior medullary tracts and examining the possibility of initial micro-arterial damage. Charcot's most memorable contributions then came from 1868 on when he described arthropathies and gastric crisis that occur as a consequence of locomotor ataxia and specific spinal cord lesions.[24] They are today referred to as Charcot's joints or Charcot's arthropathy[25] (Fig. S13). The case cited included syphilis in the past; however, in such cases Charcot considered that syphilis likely weakened the patient so that she was vulnerable to developing locomotor ataxia, but the actual etiology was, as with all primary neurological disorders, hereditary in origin.

Choreas

Initially highlighted as a "dancing mania," chorea were often described in the context of observations of involuntary, purposeless or inexplicable movements, convulsions and tics. After Thomas Sydenham (1624–1689)[26] and later George Huntington (1850–1916) in 1872[27] had provided substantial clinical observations, Charcot made significant efforts to add his own observations and presented cases from the Salpêtrière in various publications in the 1880s.[28] Although he failed to separate Sydenham's chorea from Huntington's disease (Sydenham's chorea and Huntington's disease were differentiated clinically by William Osler in 1894), he made important contributions to the description of chorea and separated chorea from tics. Guided and inspired by Charcot, Gilles de la Tourette (1857–1904), Henri Meige (1866–1940), Édouard Brissaud (1852–1909) and Georges Guinon (1859–1932) published landmark studies on choreiform affections.

Dystonias

The Charcot school studied forms of dystonia in isolated instances, although generalized hereditary dystonia is not clearly found in his descriptions. Henry Meige syndrome with lower facial dystonia was recognized and was labeled variably as a névrose (a neurological disorder with a still-to-be-defined pathological basis) or as a manifestation of hysteria (Fig. S14). In the generation after Charcot, other focal dystonias were studied and were mostly described as occupational dystonias occurring with specific jobs or activities; the geste antagoniste[29] (Fig. S15) was recognized, but its presence suggested a psychiatric origin to early 20th century neurologists. The careful work of Ernst Herz (1900–1965) in the 1940s buttressed by highly detailed written documents and time-lapse cinematography in the Charcot-tradition moved dystonia out of psychiatry and back into neurology. Like Charcot's time-lapse photography, his cinematographic studies decomposed movement into individual muscle activation patterns that convinced neurologists of the distinct entity of dystonia.

Hysteria and Movement Disorders

From the late 1870s on, Charcot devoted a particular effort to the study of hysteria. The clinical features of hysteria he observed were varied but specific, including focal neurological signs such as hemiparesis, hemianesthesia, contractures of the extremities, or bizarre involuntary movements (Fig. S16). For a long period, Charcot considered hysteria as a hereditary and organic disorder, but also noted that environmental factors like physical and emotional stress could serve as triggering factors. The fruitless search for a cerebral lesion causing the disturbances gradually, over 20 some years, led Charcot to substitute a psychological etiological paradigm for a lesional one, which had been in place for a long time. Charcot distinguished between hysteria and consciously simulated neurologic disorders, although he was aware that the two disorders could occur in the same patients or be hard to distinguish at times. The classic arc-de-cercle or opisthotonos (Fig. S17), a phenomenon which occurs in connection with hysteric seizures[30] was highly ascribed to the women of the Salpêtrière service, but Charcot presented solid evidence that hysteria is also a male disease, a topic that he cherished because he was the first main proponent of such a diagnosis (Fig. S18).

Charcot and Notable Students Participating in Studies of Movement Disorders

The young secretary and junior colleague, Georges Gilles de la Tourette (Fig. S19), came onto the Charcot service in 1884. He studied chorea in the early 1880s, and compared it to Jumping Frenchmen of Maine, Latah, and Myriachit.[31] Building on this reading knowledge and his exposure to a series of children as well as adults with repetitive movements and uncontrolled vocal utterances, he noticed a frequent association with echolalia and coprolalia.[32] Under Charcot's influence but with the allowance to publish with his name as first author (1885), he gained recognition when he wrote the major treatise on tic disorders and their comparison to other movement disorders. One year after Gilles de la Tourette's publication in 1885, Guinon and Joseph Grasset (1849–1918) added to the neurological literature, with the association between tics and obsessional thoughts and behavior to the tic disorder phenotype. Tics were distinctive in their rapidity and repetitive nature. Time-lapse photography was used to demonstrate the flowing and repetitive movements typical of tics[33] (Fig. S20).

When Henry Meige (1866–1940), one of the last externs of Charcot, commenced his studies on tics, facial spasms were already a well-researched condition at the Salpêtrière. In 1910, he summarized his own studies and described a condition characterized by facial spasms and other uncontrollable facial movements.[34] He distinguished these symptoms from tics, and described a distinct clinical picture later termed Meige's syndrome. Because the posture had been captured by the Flemish artist, Pieter Bruegel the Elder (Fig. S21), the syndrome also became known as Bruegel's syndrome.[35] Some years before, Charcot's beloved student, Édouard Brissaud, one of the publishers of the famous Traité de médecine and mentor of Meige, described chorée variable des dégénérés (Brissaud's disease) and later in 1908 with his pupil Jean-Athanase Sicard (1872–1929) the alternating brain syndrome (hemifacial spasm and contralateral hemiparesis) which bears their names.[36]

The Salpêtrière as the Model for Future Neurological Teaching Hospitals

With a desire to lead and educate, Charcot was a well-respected teacher and enjoyed his paternal scientific image before his patients, trainees and colleagues (Fig. S22). His educational approach included the dissemination of research and observations through the publication of monographs, doctoral theses and journal articles. In fact, he was himself the mastermind behind the foundation of many important scientific journals,[37] of which the Archives de Neurologie in 1880 and the Revue Neurologique in 1893 by his students Pierre Marie and Édouard Brissaud, is still the official publication of the Société Française de Neurologie. Additionally, he delivered special lectures to students and physicians, the most famous being the Tuesday lectures (Les Leçons du Mardi), show-and-tell patient interviews and demonstrations by Charcot allowing spontaneous conversation and discovery, and the formal Friday lectures focused on a single disorder or topic with comprehensive didactic discipline. Both series drew students and colleagues from all over Europe with added visitors from the Americas and Far East. Whereas the patients themselves were the focal point, Charcot made use of sketches, medical illustrations, photography, sculpture pieces, early lantern slides, and preserved pathological specimens to document morbid neurological conditions (Figs. S23 and S24).[38] The different laboratories and divisions, investigative and therapeutic, became the model for the modern multidisciplinary neurological units of contemporary care, blending research, technology, patient care and education into an enterprise for cross-fertilization and medical progress.

The Power of Visual Documentation

Neurology and, in particular, the specialty of movement disorders, are anchored in visual documentation. Charcot was noted for his adage:

> *Let someone say that a doctor is strong in physiology or anatomy, that the doctor is highly intelligent; these are not real compliments. But if you say: "There is one with a keen eye, who knows how to see"—that is perhaps the greatest compliment you could give (1888).*

In this light, Charcot and visual documentation operated in full synchrony at the Salpêtrière where neurological study always included visual communication. Paul Richer (1849–1933) and Albert Londe (1858–1917) played pivotal roles in Charcot's teaching philosophy, as they both visualized his observations and helped to create teaching materials. Born in Chartres, Richer joined Charcot at La Salpêtrière in 1878 and became chief of the laboratory of the Clinique des Maladies du Système Nerveux from 1882 to 1896. From 1903, He taught "body morphology" at the École Nationale des Beaux-Arts and shared Charcot's passion for drawing patients and their morbid conditions. He was also a co-founder of the Nouvelle Iconographie de la Salpêtrière, a rich source of illustrated articles including photographs, lithographs and drawings. Londe, on the other hand, was a pioneer of medical photography[39] and was hired by Charcot in the late 1870s specifically to develop both indoor and outdoor studios at the Salpêtrière. He documented physical and muscular movements of patients (Fig. S25) and used a camera with 12 lenses to record sequential movements of humans developed by Londe (Figs. S26 and S27).[40] Medical cinematography was not part of

the repertoire of the Salpêtrière, although younger colleagues, like Gheorghe Marinescu (1863–1938), visiting Paris and the photographic studios at the Salpêtrière took moving picture cameras back to their homeland for development.[41]

A Last Summer Voyage

An eager traveler with great interest in art and culture, Charcot left Paris on August 12, 1893, by train for one of his many expeditions, this time to the Morvan, a rural region some 250 km southeast of Paris. Already seriously ill, he was accompanied by two former pupils, Maurice Debove and Isidore Straus, and a professional guide. After visiting Avallon, Vézelay, Pierre-Perthuis and Quarré-les-Tombes, the group arrived in the evening of August 15 at the Hôtel des Settons by the lake of Settons (Fig. S28).[42] In the morning hours of August 16, 1893, Charcot died of heart failure with a pulmonary edema. The funeral ceremony was held at the Saint-Louis Chapel of La Salpêtrière (Fig. S29)[43] and the coffin was taken to the Montmartre cemetery where Charcot was buried in his family tomb. His death was announced in many international newspapers and obituaries followed subsequently. His friends arranged for a bronze statue which was erected at the front entrance of the Salpêtrière, but it was later melted down by the French authorities to provide metal for the German WW2 effort.

An Undying Fame at Two Hundred Years

Charcot's legacy is not only a monumental oeuvre on neurological disorders, their meticulous documentation and dissemination and its association with many famous medical eponyms, but also an investigational exactness and a teaching approach that fostered curiosity, scientific exchange and the rise of many scientific offsprings. From 1862 to 1893, Charcot had 32 internes including renowned figures such as Bouchard, Bourneville, Victor Cornil, Jules Cotard, Georges Debove, Charles Féré, Alix Joffroy, Albert Pitres, Brissaud, Pierre Marie, Gilles de la Tourette, Georges Guinon, Fulgence Raymond, Achille Souques, Paul Blocq, Gilbert Ballet, Adolphe Dutil and Pierre Janet. In addition, many international physicians in their early careers got themselves to Paris to study with Charcot, among them Charles-Edouard Brown-Séquard, John Hughlings Jackson, Silas Weir Mitchell, Sigmund Freud, Aleksej Yakovlevich Kozhevnikov and Georges Marinesco.[44]

With an unparalleled talent to empower careers and personalities of his students, Charcot created a fruitful scientific ecosystem and made La Salpêtrière an internationally renowned powerhouse for the study of neurological conditions that maintained its leading position long after Charcot had gone (Fig. S30).

Specifically, in movement disorders, his impact is felt in the 21st century particularly because of his emphasis on visual documentation, his reliance on the anatomo-clinical method to link specific signs to specific lesions, and his emphasis on hereditary factors and phenotypic-genotypic studies.[45] In celebrating 2025 as the bicentenary of Charcot's birth, a return to the words offered by Édouard Brissaud and Pierre Marie at the centenary of his death is still highly suitable:

> But here we should be talking mainly about the neurologist, or rather about the creator of neurology. Before him, darkness and chaos. With him, clarity and order. [46]

Author Roles

(1) Research project: A. Conception, B. Organization, C. Execution; (2) Statistical Analysis: A. Design, B. Execution, C. Review and Critique; (3) Manuscript Preparation: A. Writing of the first draft, B. Review and Critique.

C.R.: 1A, 1B, 1C, 2: NA, 3A, 3B
C.G.G.: 1A, 1B, 1C, 2: NA, 3A, 3B
O.W.: 1A, 1B, 1C, 2: NA, 3A, 3B

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. ■

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Supporting Information

Supporting information may be found in the online version of this article.

Supplemental Figure S1. The Salpêtrière Hospital in Paris as seen in the 17th century by Adam Perelle (1638–1695), Wellcome Collection.

Supplemental Figure S2. The Salpêtrière Hospital in Paris, view to the chapel, photo taken in 2015 by Christian Riederer.

Supplemental Figure S3. Pierre-Adolphe Piorry (1794–1879).

Supplemental Figure S4. Pierre François Olive Rayer (1793–1867).

Supplemental Figure S5. Edme Félix Alfred Vulpian (1826–1887).

Supplemental Figure S6. Duchenne (1806–1875) and one of his patients.

Supplemental Figure S7. Prescription by Charcot dating back to 1877. Housed in the Library of the American College of Physicians, Philadelphia.
Supplemental Figure S8. Drawing by Charcot of gait, Leçons du Mardi 1887, from the collection of Olivier Walusinski.
Supplemental Figure S9. Based on tremor recordings with the sphygmograph, Charcot developed graphic displays of tremor in archetypal disorders for teaching and showed this Supplemental Figure to his audience on May 22, 1888. From top to bottom: action tremor after a sequence without tremor during rest in Multiple Sclerosis; the pattern of mercury; intoxication tremor, showing an intermittent rapid and low amplitude tremor; typical rest tremor of PD that resolves with activity; rest tremor of PD persistent during activity.
Supplemental Figure S10. Drawing of a patch of sclerosis in the fresh state showing debris and the disintegration of myelin, from the publication of Bourneville and Guerard, 1869.
Supplemental Figure S11. Jean Cruveilhier (1791–1874).
Supplemental Figure S12. Charcot and a patient with locomotor ataxia, presumably the only existing photo showing Charcot. Anonymous photo from around 1875, from the collection of Olivier Walusinski.
Supplemental Figure S13. Salpêtrière patient, La Nouvelle Iconographie de la Salpêtrière, plate 27. Vol 7, 1894. Medical photographs typically showed patients nude or minimally clothed and utilized readily available props in the hospital photographic studio.
Supplemental Figure S14. Hysterical blepharospasm, Albert Londe, Nouvelle Iconographie.
Supplemental Figure S15. Example of geste antagoniste, from Brissaud 1895.
Supplemental Figure S16. Jean-Martin Charcot demonstrating hysteria in a hypnotized patient at La Salpêtrière. Etching by A. Lurat, 1888, after the original painting by André Brouillet, 1887, Musée de l'histoire de la médecine, Paris.
Supplemental Figure S17. Drawing of a classic arc-de-cercle by Paul Richer.
Supplemental Figure S18. Sequential study from a hysterical attack of a man made by Albert Londe in 1885.
Supplemental Figure S19. Georges Gilles de la Tourette, photo by Albert Londe.
Supplemental Figure S20. Sequence of eight photographs of a tiqueur, Nouvelle Iconographie de la Salpêtrière. Note that the patient is male and therefore part of the outpatient or short-term neurological unit, since the Salpêtrière was a women's hospice.
Supplemental Figure S21. De Gaper, by Pieter Bruegel The Elder.
Supplemental Figure S22. Charcot teaching drawn by Paul Richer around 1882. Given their rather unprompted character, the Tuesday lessons were collected and published by Charcot's pupils based on handwritten notes and comments.
Supplemental Figure S23. A "Juif de Tétouan" suffering from Parkinson's disease, one of the many famous sketches by Charcot taken during a voyage in Maroc in 1889, Nouvelle Iconographie de la Salpêtrière.
Supplemental Figure S24. "Un type de paralysie agitante" by Paul Richer, 1879, private collection of Olivier Walusinski.
Supplemental Figure S25. Photography of a patient with Parkinson's disease by Albert Londe (1890s).
Supplemental Figure S26. Outdoor setting for sequence photography at La Salpêtrière with Albert Londe behind the camera.
Supplemental Figure S27. Indoor setting for sequence photography at La Salpêtrière.
Supplemental Figure S28. The hotel where Charcot died at the Lac des Settons, collection of Olivier Walusinski.
Supplemental Figure S29. Funeral ceremonies in the St. Louis chapel, showing patients filing before the casket in procession, Monde Illustré, August 26, 1893, collection of Olivier Walusinski.
Supplemental Figure S30. Charcot, photographed by Nadar.
Data S1. COI_disclosure.