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Jean-Martin Charcot and Parkinson's disease: Teaching and teaching materials

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ABSTRACT

James Parkinson's 1817 seminal article was not well known in France until 1861, when Jean-Martin Charcot and his friend, Alfred Vulpian, published a detailed description in French of paralysis agitans. Their article provided clinical information to help French physicians make an accurate diagnosis by considering gait, shaking and rigidity as well as masked facies. As Charcot always had a strong desire to teach, this article describes his lessons on Parkinson's disease from 1868 to 1888, and also examines the teaching approach he used to pass on his latest findings to his students and colleagues. Charcot also used his role as thesis advisor to disseminate Parkinson's work, and seven of the theses he oversaw, which until now have been overlooked, reveal another facet of his teacher-student relationship. These dissertations provided Charcot with an opportunity to highlight what he had already identified concerning what is today referred to as 'Parkinson-plus syndromes'. Finally, this report concludes with an historical survey of the teaching materials that Paul Richer and Albert Londe developed for the Master at La Salpêtrière to provide him with visual documentation.

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In 1817, James Parkinson (1755–1824) wrote the first clear medical description of the disease that now bears his name. In the years that followed, a few cases were reported, with varying degrees of accuracy, in Great Britain and Germany [1]. In France, Germain Sée (1818–1896) in 1850 [2] and Armand Trousseau (1801–1867) in 1859 [3] referred to 'paralysis agitans', the name given by Parkinson to one of the differential diagnoses for chorea. However, the pathology did not become a discrete entity until the work of Charcot and his students in the second half of the 19th century. The hagiographic hyperbole of Victor Cornil (1837–1908) in referring to the

diseases described by Charcot gives a sense of how the latter was viewed by his contemporaries: "You have so profoundly reexamined the study of these diseases that one is tempted to believe you were the first to describe them" [4].

In this report, a brief review of Charcot's rise to the position of professor, and his achievements in this role, is followed by a description of how he taught each of the cardinal signs of the disease—tremor, hypertonia and bradykinesia—that he helped to establish as an individual entity. Charcot provided his students with numerous suggestions for research topics, and the theses in which they developed these topics were an

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Box 1. Charcot-inspired theses on Parkinson's disease

Jean-Martin Charcot was a jury member for the following theses. Léopold Ordenstein (born 23 July 1835 in Offstein, Grand Duchy of Hesse), 'Sur la paralysie agitante et la sclérose en plaques (On paralysis agitans and multiple sclerosis)', 1867; No. 234

Jury: Béhier, president; Gosselin, professor; Charcot, Raynaud, associate professors

Fulgence Raymond (born 29 September 1844 in Saint-Christophe, French administrative department: Indre et Loire), 'Etude anatomique, physiologique et clinique sur l'hémichorée, l'hémianesthésie, et les tremblements symptomatiques (Anatomical, physiological and clinical study of hemichorea, hemianaesthesia and symptomatic shaking)' [but no specific discussion on parkinsonian shaking], 1876; No. 157

Jury: Charcot, president; Chauffard, professor; Bouchard, Anger, associate professors

Albert Boucher [born 9 December 1852 in Metz, trainee military physician (aide-major) at the Val-de-Grâce military hospital], 'De la maladie de Parkinson (paralysie agitante) et en particulier de la forme fruste [Parkinson's disease (paralysis agitans), in particular its mild form]', 1877; No. 75

Jury: Charcot, president; Gavaret, professor; Bouchardat, Damaschino, associate professors

Paul-Désiré Leroux (born 22 June 1880 in Créances, French administrative department: Manche), 'Contribution à l'étude des causes de la paralysie agitante (Contribution to the study of causes of paralysis agitans)', 1880; No. 267

Jury: Charcot, president; Panas, professor; Lancereaux, Fernet, associate professors

Gaston Lhironde (born 22 July 1855 in Saint-Julien le Faucon, French administrative department: Calvados), 'Antécédents et causes de la maladie de Parkinson (Antecedents and causes of Parkinson's disease)', 1883; No. 236

Jury: Charcot, president; Proust, professor; Landouzy, Rendu, associate professors

Paul Blocq (born 4 January 1860 in Toul, French administrative department: Meurthe et Moselle), 'Des contractures (Contractions)', 1888; No. 128

Jury: Charcot, president; Fournier, professor; Brissaud, Chauffard, associate professors

Adolphe Dutil (born 18 February 1862 in Villefranche du Queyran, French administrative department: Lot et Garonne), 'Contribution à l'étude clinique des tremblements hystériques (Contribution to the clinical study of hysterical shaking)', 1891; No. 159

Jury: Charcot, president; Brouardel, professor; Chauffard, Ballet, associate professors

Eugène Béchet (born 30 July 1862 in Avranches, French administrative department: Manche), 'Contribution à

l'étude clinique des formes de la maladie de Parkinson (Contribution to the clinical study of forms of Parkinson's disease)', 1892; No. 351

Jury: Charcot, president; Proust, professor; Ballet, Poirier, associate professors.

In addition, this important thesis for which Charcot was not a jury member:

Paul de Saint-Léger (born 27 March 1855 in Cherveix, French administrative department: Dordogne), 'Paralysie agitante (Maladie de Parkinson), étude clinique [Paralysie agitans (Parkinson's disease), clinical study]', 1879; No. 121

Jury: Lasègue, president; Peter, professor; Debove, Legroux, associate professors.

additional means of dissemination for the Master (Box 1). Several of these have been selected as examples that, while mostly forgotten today, focus on atypical forms of the disease. Finally, the visual aids that complemented Charcot's teachings, for which he owed Paul Richer (1849–1933) and Albert Londe (1858–1917) for their skill and innovations, are also presented here.

1. Charcot, his teaching and La Salpêtrière Hospital

Jean-Martin Charcot entered La Salpêtrière for the first time in 1852. The hospital was at that time a rest home for elderly women called the Hospice de la Vieillesse-Femme. Charcot was to complete his fourth year there as an *interne* (medical student living and working in a hospital) under Eugène Cazalis (1808–1882), an obscure physician whom Charcot never referred to during his long career. Responsible for several hundred elderly and infirm women, Charcot brought together the observations of chronic rheumatism and gout that would eventually form the material necessary for writing his inaugural thesis, defended on 13 March 1853. He went on to become *chef de clinique* (senior *interne*) for 2 years at Hôpital La Charité in the department of Pierre-Adolphe Piorry (1794–1879). In 1856, Charcot became a physician at the Central Office of the Paris hospital system. After failing the *agrégation* exam (to become an associate professor) in 1857, he succeeded 3 years later in 1860. He was appointed hospital physician at La Salpêtrière in 1862 at the same time as his friend, Alfred Vulpian (1826–1887), was assigned to another, smaller department. Charcot explained the advantages of being a physician at La Salpêtrière this way: "Here we have benefits one does not find in most ordinary hospitals, in that the conditions are right for fruitful study of diseases with slow progression" [5]. In 1866, Charcot transformed an old kitchen at the hospital into a place of study and teaching. This was the first step toward developing the research/teaching center that La Salpêtrière would eventually become.

That same year, Charcot inaugurated '*des cours libres*', classes outside of the university program, which he held in his

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