




René Cruchet (1875–1959), beyond encephalitis lethargica

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ABSTRACT

René Cruchet (1875–1959) was a pediatrician from Bordeaux known for his seminal description of encephalitis lethargica during World War I, at the same time as Constantin von Economo (1876–1931) in Vienna published his own description, which, unlike Cruchet's description, provided precious anatomopathological data in addition to the clinical data. Cruchet was interested in tics and dystonia and called for treatment using behavioral psychotherapy that was, above all, repressive. Cruchet was also a physiologist and an innovator in aeronautic medicine—notably, he helped pioneer the study of “aviator's disease” during World War I. Moreover, he possessed an encyclopedic knowledge, while publishing in all medical fields, writing philosophical texts as well as travel logs.

KEYWORDS

Dystonia; Gilles de la Tourette's syndrome; history of neurology; Parkinson's disease; René Cruchet; tics

René Cruchet (1875–1959) was a pediatrician from Bordeaux whose name is still associated with his description of the first recognized French cases of encephalitis lethargica during World War I (see [Figure 1](#)). A well-known figure in the Bordeaux medical community, he had first taken an interest in tics and what had yet to be called dystonia. He left us with a considerable number of publications in the form of books and articles, not only in medical fields but also philosophical texts on medicine and its practice.

A medical career in Bordeaux

Jean René Cruchet was born in Bordeaux on March 21, 1875, the son of Fernand Cruchet (?–1916) and Adély Feytit (?–1928). Very attached to his native city, he rose through all the ranks that a medical career in Bordeaux had to offer ([Figures 2 and 3](#)). He passed the competitive exam to become a nonresident medical student in 1895, and then the resident exam in 1897, going on to win a hospital competition in 1901. He obtained the gold medal for his thesis, *Étude critique sur le tic convulsif et son traitement gymnastique (méthode de Brissaud et méthode de Pitre)* (Critical study on convulsive tics and gymnastic treatment [Brissaud and Pitre methods]). And, parallel to his medical studies, he obtained an undergraduate degree and then a *doctorat ès lettres* (doctoral degree in languages, literature, or social sciences). His thesis, defended in 1912, was entitled *De la méthode en médecine* (Method in medicine; Cruchet 1912a). He returned to this subject, making significant additions, in a thick philosophical volume published during World War II (Cruchet 1942). As a pediatrician, he was an acerbic critic of “Freudism,” developing solid arguments in a 1927 article (Cruchet 1927b).



Figure 1. René Cruchet (Collection Olivier Walusinski).

In 1902, he was senior resident for “children’s diseases.” In 1907, he passed the *agrégation* exam, opening the way to an academic career. His thesis covered internal pathology and legal medicine. At the same time, he became a hospital physician. He attained the rank of chief physician in 1919, heading up the Hospice de Pellegrin for elderly patients. From there, he became chief physician at Hôpital Saint-André in 1920, where he remained until his retirement. Also in 1920, he obtained the Chair of Pathology and General Therapeutics at the Bordeaux medical school (Cornet 1920) after having substituted for several well-known Bordeaux professors as soon as he became *agrégé*, such as Jean Picot (1864–1916), André Moussous (1857–1926), and Xavier Arnozan (1852–1928). In 1926, he was transferred to the Chair of Pediatric Clinical Medicine. Since 1900, the Bordeaux medical school had been sending him on regular assignments as a university representative to develop exchanges with Germany, Switzerland, Canada, the United States, and Uruguay. In this capacity, he became an ambassador of his city and its wine, as his maternal relatives had ties with the prestigious vineyards of Château Feytit-Clinet in Pomerol and Château Tour Grand Faurie in Saint Émilion (Anonymous 1926).

After spending time in Heidelberg during his residency to study under Wilhelm Erb (1840–1921), he made two trips to Germany in 1900 and 1902, during which he visited all of the 20 universities that were most renowned at that time. He reported on his travels in reports presented on his return, at the University of Bordeaux: *La médecine dans les*



Le Professeur CRUCHET
de la Faculté de Médecine de Bordeaux.

Figure 2. Henri Frantz (1870–?), caricature of Cruchet and his works. Chanteclair 1926 (Collection Olivier Walusinski).

universités allemandes (Medicine in German universities; Cruchet 1901, 1902b). He elaborated on his accounts and observations for the public and published them in 1914 in a dense, 450-page book. For all the universities he visited, he reviewed their history and growth, then added biographies of the most famous professors, finishing with a summary of their activities and general state in 1900.

At Königsberg, he visited the place where his father had been held prisoner for five months, after having survived the battle at Varize in central France on November 29, 1870. Some of his notes reveal his personality. At Bonn, he wrote of “the essentially warring nature of the professors and their students” that made it possible for him to claim in the 1920s that he had foreseen the inevitable confrontation between Germany and France. Whether or not this claim was founded, everything he observed made an impression on him, the numerous students and professors, the vast, modern, and efficient facilities, and so forth.

In Berlin, he noted that the La Charité hospital had a neuropsychiatric clinic in which the two specialties had been brought together. Undoubtedly bearing letters of introduction



Figure 3. Caricature of René Cruchet (private donation to the French Académie de Médecine).

from his professors in Bordeaux, notably Albert Pitres (1848–1928), he was hosted by German professors at each stop of his itinerary. They not only showed him around the universities and hospitals, they invited him into their homes. He reported on some of his conversations during dinners held by Ernst Siemerling (1857–1931), Friedrich Loeffler (1852–1915), Robert Koch (1843–1910), Eduard Hitzig (1838–1907), and many others. He later recorded that Hitzig (in Halle), whom he found “affable and charitable,” did not understand Brissaud, the brilliant physician who had died recently (Cruchet wrote his book around 1912). To him, Brissaud was an “eccentric,” a kind of “medical novelist” whose writings left him indifferent. In his opinion, Professor Raymond, Charcot’s successor, paled by comparison to the great master; he was “an elegant salon-goer who brought medicine down to that level,” totally devoid of any originality. He held Pitres and Pierre Marie in much higher esteem (Cruchet 1914).

Although he held a chair in pediatrics, Cruchet was interested in all fields of medicine, especially neurology. Throughout his career, he conducted scientific research not only on pediatrics but also on neurology and physiology. Only his most emblematic works can be discussed here, given that, between his first presentation to the Society of Anatomy and Physiology of Bordeaux in 1895 and the end of the war, he published 213 medical articles, which he himself pointed out in 1920 in the preamble to the list of his titles and works. Without modesty, he wrote, “I confess sincerely that I find nothing remarkable about this mass of publications, enormous indeed”; and later, “The controversies, at times heated, that my ideas have sparked in France, notably on tics and spasms, diffuse encephalomyelitis, referred to as lethargic, and hysteria, are solid proof that my thinking is relevant. The dissemination of my ideas abroad is even more telling” (Cruchet 1920b).

Thesis: *Étude critique sur le tic convulsif et son traitement gymnastique*

Whereas his pediatrics professor André Moussous helped him compile and compare clinical cases, Cruchet owed the subject of his thesis to Albert Pitres, a neurologist at the Bordeaux medical school who had been a resident under Jean-Martin Charcot (1825–1893) in 1876. He titled his thesis *Étude critique sur le tic convulsif* (Critical study of convulsive tics). In the first chapter, Cruchet (1902a) used an in-depth historical overview to map out the subject that interested him and attempt to distinguish between the various types of tics. The terminology was often inaccurate, fluctuating from era to era since the seventeenth century. The word “tic” encompassed the contraction following facial palsy, facial neuralgia, and “*tic douloureux*” referred to by older authors (trigeminal neuralgia). It also included “the common tic which is only a bizarre and unpleasant habit” and “tonic or clonic convulsive tics” such as “mental torticollis or mental tic of the neck” described by Édouard Brissaud (1852–1909) (Brissaud 1895).

This latter group contains types what of we now call dystonia: blepharospasm, hemifacial spasm, spasmodic torticollis, and oromandibular dystonia. For these conditions, Cruchet turned to Brissaud’s analysis, which referred to a phenomenon with a mental cause based on the observation that most patients could stop the involuntary, intermittent contractions by using one of their hands “as an antagonist”—for example, by placing a hand on the side of the chin to keep their head from turning (Broussolle et al. 2015). Cruchet also noted but did not detail a “purely mental [form] or idea tic that does not have any outward sign”; he was not interested in this form of tic. Finally, he believed it was necessary to eliminate partial epilepsy in each case, at a time when electroencephalograms were not yet available.

He went on to examine the neurological localization at the origin of the various tics in a long discussion that is today hard to follow. For the common tic, he established a parallel with reflexes, deducing a spinal or bulbospinal origin. For other “convulsive tics,” the origin was cortical because the phenomenon was mental.

Tiquose and bad habits

Between his thesis and the war, Cruchet wrote publication after publication on what he called tics. In 1909, he wrote a volume for general practitioners in the *Consultations médicales françaises* collection entitled *La tiquose*. “Any simple or complex movement that is sudden and frequently repeated without any apparent reason or purpose at irregular intervals constitutes a tic,” he wrote. For him, any normal movement could be transformed into a tic. Curiously, he mistakenly linked a discriminating criterion to tics: “A critical feature is that the subject is unable to prevent the execution of a tic even though they recognise this movement as absurd.” Currently, one of the criteria ascribed to tics is that they can, in fact, be temporarily inhibited by a voluntary effort, although they may recur with greater intensity thereafter. Cruchet held to the principle that there was no continuum between the “habitual tic” and the “convulsive tic” or dystonia. For him, the first “was an action movement” whereas the second was an attitude or a “fixed movement” (Cruchet 1909). And yet he used the word “tic” for both of them!

The common tic, frequently observed in children, was for Cruchet a habitual tic. Without any discussion, he cited the popular belief that a blinking ocular tic may occur following the presence of a foreign body under the eyelid or after making a game of voluntary blinking or

imitating another ticcer. In a popular book published in 1911, with a second edition in 1930, Cruchet the pediatrician advised parents and teachers on “bad habits”—that is, behaviors in children that, according to him, caused lasting neuropsychiatric pathologies (Cruchet 1911). He listed the descriptions of various localizations of tics in the face and limbs, including nail-biting and trichotillomania as tics. He distinguished “visceral tics,” including snoring, sniffing, yawning, sneezing, coughing, and laryngeal and phonatory sounds, including in this last category coprolalia.

It should be noted that Cruchet considered thumb-sucking, rhythmic movement disorder, stuttering, polydipsia, bed-wetting, sleep-walking, and masturbation as “bad habits” in children that needed to be vigorously corrected. His explanation is as follows:

Any bad habit, that is, one that damages either the body’s outer conformity or its physical or moral health, can only be explained in two ways. The first entails excessive emotionalism, by virtue of which an act, once it enters one’s consciousness, tends to be reproduced solely because of the initial first impression it causes. The second explanation lies in an insufficient will, which, in the presence of a sensation experienced normally, is unable to drive it away, even while recognizing it as dangerous. (Cruchet 1911, 66–67)

Everything thus came down to how a child was raised, which should hold any spontaneous impulses in check: “Tics are bad habits due to a lack of authority and control,” he wrote.

Cruchet railed against Freudism, an approach far removed from his principles:

Tics are attributed to narcissism, that is, this form of autoerotism characterized by the fact that subject adores themselves. A tic occurs in the part of their body where there is an erogenous zone, a sensation of pleasure. . . . One could never have imagined that the child’s legendary innocence was in fact concealing native lust and perversity.

The therapeutic methods he suggested ranged from a straight-jacket type restraint to application of an eye ointment or wash containing cocaine or camphor to gymnastic exercises that he called the Brissaud method and the Pitres method.

The Brissaud method was explained by Henry Meige (1866–1940) and Eugène Feindel (1862–1930) in their book *Les tics et leur traitement*, published in 1902 (Meige and Feindel 1902). It combined exercises of imposed immobility and controlled, slow, regular movements that the authors qualified as correct. The efforts imposed were to be progressive in duration and complexity but repeated and perfected over long sessions in front of a mirror. The corresponding psychotherapy was based on suggestion and persuasion similar to the treatment recommended for pithiatism by Joseph Babiński (1857–1932). Babiński (1906) coined the word “pithiatism” from the Ancient Greek πείθω (peithō - I persuade) and ἰατός (iatós - curable) to replace the term “hysteria.” This new designation indicated that hysteria was a kind of simulation curable by suggestion, without any psychological etiology. The Pitres method focused on rehabilitation involving voluntary breath control, turning the ticcer’s attention away from the tic, and making liberal use of persuasion, always fundamental in these methods.

Treatise on spasmodic torticollis

In 1907, Cruchet published a voluminous 836-page treatise entitled *Traité des torticolis spasmodiques* (Treatise on spasmodic torticollis; Cruchet 1907). His growing reputation

between the wars was largely based on this torticollis monograph. He wrote of multiple kinds of spasmodic torticollis, given that he considered his work as the first attempt to assess “neuropathic torticollis” not as a single disease but as a syndrome including several different clinical forms, each with its own treatment. He listed: “1) neuralgic torticollis; 2) professional torticollis; 3) paralytic torticollis; 4) true and symptomatic spasmodic torticollises; 5) essential and symptomatic rhythmical torticollises; 6) neck tics; and 7) habitual torticollis and mental torticollis.”

He asserted he was the first to identify neuralgic torticollis, a defensive attitude, comparing this clinical picture to facial neuralgia. The professional form was due to a repeated movement or position sustained for a long time, as in the case of writer’s cramp. He established a similarity between paralytic torticollis and facial palsy that can result in a spastic residual contraction. Spasmodic torticollis was similar to facial spasms and could “present as spasmodic bradykinesia, an entirely new disease or one that has not attracted notice until now, our description being the first, as validated by the English School” (1920b).

What he referred to as rhythmical torticollis, or rhythmic movements of the neck, can occur during infectious diseases (e.g., typhoid fever, meningitis, tetanus, malaria) or “constitute a habit at sleep onset.” Neck tic was “a bad habit” whereas “mental torticollis [was] an attitude based on a bad habit.”

Cruchet centered his presentation on 357 observations that he discussed in detail, including photographs in certain cases, not failing to make therapeutic recommendations he believed would cure some patients (Figures 4 and 5). Cruchet’s classification did not have the longevity he had predicted for it. A psychological cause is no longer accepted. In addition to idiopathic forms, forms of symptomatic dystonia exist that are associated with pyramidal, extrapyramidal, and/or encephalic signs as in Wilson disease, Huntington’s chorea, ataxia-telangiectasia, Fahr disease, certain cerebral peduncular infarctions, and postencephalic Parkinsonism.

The tribulations of war

Mobilized in August 1914 as *médecin aide-major de 1^{ère} classe* (the rank of lieutenant), Cruchet first worked in the 5/68 field hospital. He was injured on February 23, 1916, in Verdun. His eardrums were ruptured on both sides following the explosion of a large-caliber shell. He was promoted in 1916 to the rank of *médecin-major de 2^{ème} classe* (the rank of captain), becoming chief physician at the Commercy neuropsychiatric center, and then the Verdun neuropsychiatric center. Becoming chief physician of the 288th infantry regiment, he took over the Bar-le-Duc neuropsychiatric center in 1917 before directing the 13/5 field hospital of the 5th Army Corps.

In the second half of 1917, he was the chief triage physician for the reception and triage unit no. 38 in Froidos during the terrible fighting on Mort-Homme and the high point known as Hill 304. In October 1917, he became the director of medical studies at the instruction center of the Second Army in Maujouy. In February 1918, he became chief physician at the Libourne hospital, then the Jonzac hospital. He finished the war as senior physician of the Bayonne/Mont-de-Marsan sector (southwestern France), a position he held until February 1919 (Cruchet 1920b). He was awarded the *Chevalier de la Légion d’honneur* medal in 1920 for military service. He was promoted to *Officier de la Légion d’Honneur* in 1934, when he was a reserve physician with the rank of lieutenant colonel (French National



FIG. 41.

FIG. 42.

Attitudes de H. Fou, 18 ans, atteinte de torticolis spasmodique diffus.

Figure 4. A case of spasmodic torticollis and its alleviating maneuver seen by Cruchet (*Traité des torticolis spasmodiques*, 1907, Collection Olivier Walusinski).

Archives 2021). Cruchet drew on this painful experience to write a short work entitled *La crainte du danger chez le combattant* (The fear of danger in soldiers) in 1918 (Cruchet 1918).

Cruchet was the delegate for the University of Bordeaux at the celebrations marking the reopening of the University of Strasbourg on November 22, 1919 (Fontan 1959).

Encephalitis lethargica

On April 1, 1917, Cruchet, at that time working at the Bar-le-Duc neuropsychiatric center, presented a paper to the Hospital Medical Society in Paris covering 40 cases of subacute encephalomyelitis observed in a period of nine months, or 3% of the wounded and sick patients he had examined. It was published on April 27, 1917, with two famous coauthors: François Moutier (1881–1961), a student of Pierre Marie (1853–1940) at La Salpêtrière Hospital, and Albert Calmette (1863–1933), a bacteriologist at Institut Pasteur.



FIG. 43. — Eugène V..., atteint de torticollis spasmodique diffus.



FIG. 44. — Le même corrigeant sa déformation.

Figure 5. A case of spasmodic torticollis and its alleviating maneuver seen by Cruchet (*Traité des torticollis spasmodiques*, 1907, Collection Olivier Walusinski).

The onset was characterized by extreme weariness, physical and mental weakness and headache. The fever was mild: “these patients, aged between twenty-five and forty-five years, all give the impression of being severely infected or intoxicated, with their inert facial expression, their emotional indifference, their semi-torpor, their weight loss, their ashen tint, sometimes semi-jaundiced, their lack of appetite” (Cruchet, Moutier, and Calmette 1917).

Then, on April 17, 1917, Constantin von Economo (1876–1931) presented a paper at the Society of Psychiatry and Neurology of Vienna in Austria, relating seven cases of a new form of encephalitis that he had identified and named “encephalitis lethargica.” As he noted,

We are dealing with a kind of sleeping sickness having an unusually prolonged course. The first symptoms are usually acute, with headaches and faintness. This is followed by a state of somnolence, often associated with active delirium, from which the patient can be awakened easily. He is able to give appropriate answers and understand the situation. This delirious somnolence can lead to death, rapidly or over the course of a few weeks. On the other hand, it can persist unchanged for weeks or even months, with periods of fluctuating levels of unconsciousness, ranging from simple sleepiness to deep stupor or coma. These periods may last hours, days, or even longer. (von Economo 1917, 581)

His observations were published on May 10, 1917, in the journal *Wiener klinische Wochenschrift* (von Economo 1917). The name given by von Economo would be adopted internationally, much to Cruchet's chagrin. He continued to use the term "diffuse encephalomyelitis," whereas English authors referred to "epidemic stupor." Jean Lhermitte (1877–1959) proposed "primary ophthalmoplegic encephalitis with narcolepsy" or "primary poliomesocephalitis with narcolepsy" (de Saint-Martin 1918).

As Charles Achard (1860–1944) noted in 1921, historical surveys suggested that similar epidemic illnesses had been observed previously. Thomas Sydenham (1624–1689) reported the 1673–1675 febris comatosa epidemic outbreak (Sydenham 1676). Alexander Camerarius (1696–1736) reported a "Schlafkrankheit" epidemic in 1712 in Tübingen (Camerarius 1715). In 1830, Friedrich A. Gottlob Berndt (1793–1854) of Greifswald first reported the term "encephalitis lethargica" in "soporose" cases after scarlet fever in children (Berndt 1830; Crookshank 1919). A mysterious disorder characterized by fever and continuous somnolence, named "nona," was initially described in northern Italy and adjacent areas of central Europe in the winter of 1889/90. It was perhaps a form of meningoencephalitis associated with influenza or, potentially, the first occurrence of encephalitis lethargica (sleeping sickness). Nevertheless, Cruchet repeatedly insisted he was the first to recognize the disease, rather than the more famous von Economo—which was, in fact, true (Achard 1921).

According to Cruchet, the clinical picture was polymorphous, bringing together fever, pronounced torpor, paralysis of cranial nerve pairs (especially the ocular nerves), convulsions, abnormal movements, and so on. If the progression did not end in death (30%–50% of cases), the convalescence was marked by Parkinsonian aftereffects and other abnormal movements, such as oculogyric crises and dystonia. Soon after von Economo presented his paper, during the winter of 1918–1919, the severe Spanish flu epidemic was spreading rapidly. In parallel, there was a significant increase in the number of encephalitis lethargica cases from 1917 to 1930 throughout the world, predominately in Europe, North America, and the Soviet Union (Lutters, Foley, and Koehler 2018; Pearce 1996). Encephalitis lethargica was often undiagnosed or misinterpreted as a form of flu. This has complicated interpreting the data after the fact.

Cruchet's report initially attracted little attention. In contrast to von Economo's meticulous case reports, Cruchet had not included detail accounts of individual patients; nor did he report when or exactly where he had observed them. His first full paper did not appear until June 4, 1919, by which time encephalitis lethargica was well known (Cruchet 1919). It was not until 1928 that Cruchet published the details of his first 64 observations, as if to justify the eponym that he wanted to see used: "von Economo-Cruchet disease." He argued, "it is clear that nothing is missing in epidemic encephalomyelitis as it is classified today. An infectious origin, various clinical forms, progression, termination with various aftereffects, particularly post-encephalic Parkinsonism, pathological anatomy—everything is there and no ambiguity is possible."

However, Cruchet initially doubted the infectious origin and the contagiousness of the disease, in contrast to most authors at the time. Finally, he gave only a partial version of the facts; in his paper presented on April 1, 1917, he did not show any anatomopathological data, unlike von Economo, who was an esteemed anatomopathologist, to which his cytoarchitectonic atlas of the cerebral cortex published in 1925 attests (Demetriades 2012; von Economo 1925).

On April 17, 1917, von Economo first described the disseminated centers of “polioencephalitis,” which were nonhemorrhagic, nonnecrotic, and localized in mesencephalic gray matter (Figure 6). A few weeks later, von Economo and Richard Wiesner (1875–1954) tried to demonstrate transmission in monkeys, hoping to confirm the infectious nature of the condition they had described, but the monkey did not develop a relevant disease. This point is still debated today (Foley 2009).

In 1929, von Economo published his second monograph on the subject, perhaps in response to Cruchet’s monograph, given that he rejected Cruchet’s claims in the first chapter. He may also have been responding to a monograph by the German Felix Stern (1884–1942) (Stern 1926). In his monograph, von Economo expressed doubts that what he had described in 1917 was the same morbid entity that Cruchet had described a few weeks before him. von Economo argued that Cruchet had described a collection of difficult but unrelated cases rather than a single disease. This reignited Cruchet’s anger (von Economo 1929, 1931).

Already in 1926, von Economo had localized focal lesions in the periaqueductal gray matter and the hypothalamus, which he hypothesized were regions implicated in sleep and wakefulness (von Economo 1926). It was not until the 1950s—when Horace Magoun (1907–1991) and Giuseppe Maruzzi (1910–1986), then Nathaniel Kleitman (1895–1999), Eugene Aserinsky (1921–1998), William Dement (1928–2020), and Michel Jouvet (1925–2017) published their findings—that von Economo’s hypotheses began to be discussed. Most of his model is considered to be incorrect (da Mota Gomes 2020; Lavie 1993).

Cruchet returned many times to his clinical description of encephalitis lethargica—for example, in 1929 to document forms in which psychiatric symptoms were predominant: memory disturbance, psychotic episodes, and panic attacks in addition to episodes of prolonged sleep, Parkinsonian syndrome, and dystonia (Cruchet 1929c). His last publications on this subject were in 1947 and 1948, providing further clarification that served as a conclusion for him (Cruchet 1947, 1948).

Parkinsonian states and bradykinetic syndrome

Many patients who survived the acute phase of encephalitis lethargica developed neurological aftereffects in the months and years that followed, mainly extrapyramidal syndrome. Cruchet’s team of colleagues in Bordeaux—including the clinical medicine professor Henri Verger (1873–1930), the naval psychiatrist Angelo Hesnard (1886–1969), and Dominique Dedieu-Anglade (1867–1950), a psychiatrist at the Château-Picon asylum—took turns in 1924 giving clinical lessons at the Bordeaux medical school on “post-encephalic bradykinetic syndrome.” These lessons were published the following year (Verger et al. 1925).

The expression “bradykinetic syndrome” was coined by Cruchet and entailed a physiognomy characterized by an immobile, inexpressive face with a fixed stare, very slow movements without incoordination, rapid reaction to surprise stimulation or “paradoxical kinesia,” and a tendency to experience catatonia (Schilder et al. 2017). Cruchet refuted the term “Parkinsonism.” He saw Parkinson’s disease as involving shaking during rest, initially unilateral, with asymmetrical bradykinesia that developed progressively and became less marked during walking. For Verger and Cruchet, bradykinetic syndrome was related to rigidity as Charcot and Alfred Vulpian (1826–1887) defined it in 1861 (Charcot and Vulpian 1861), but they considered their description to be better.

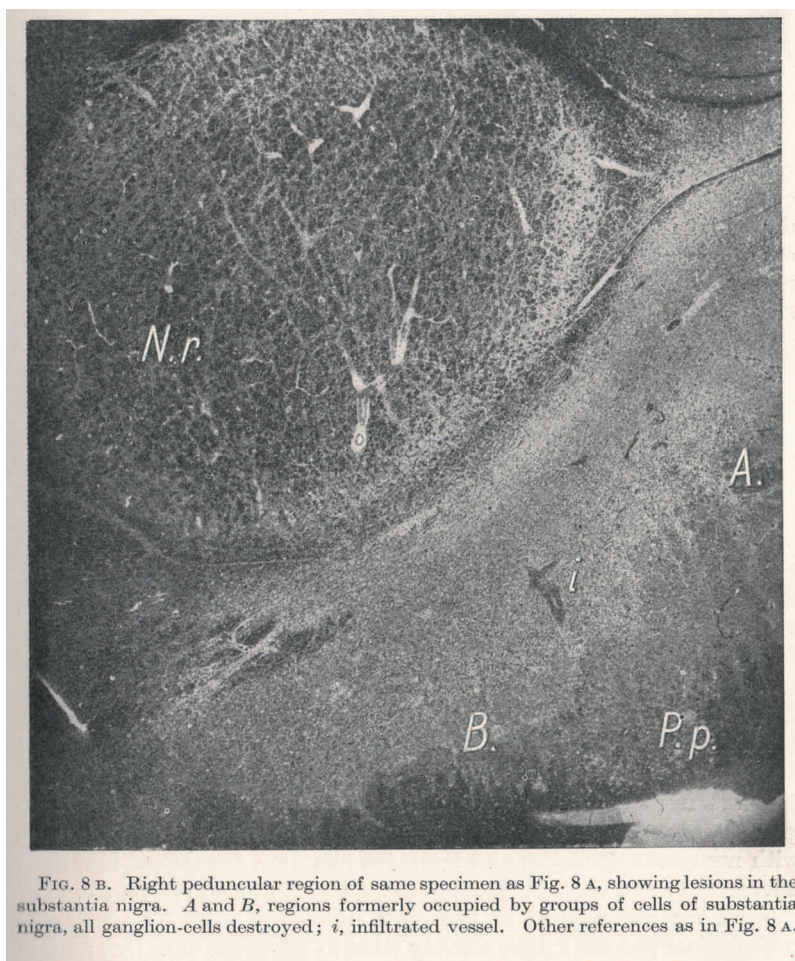


Figure 6. Anatomopathological examination by C. von Economo (*Encephalitis lethargica, its sequellae and treatment*, 1931, Collection Olivier Walusinski).

In the aftereffects of encephalitis, symmetry predominated, as well as an irregular progression of improvements that could alternate with worsening symptoms. Dystonia, such as “spasmodic torticollis,” could appear suddenly, which did not seem to deter Cruchet in his psychological view of these symptoms, which he described as “spasmodic bradykinesia.” Shaking was often absent. Various types of ocular paralysis that progressed over time and oculogyric crises also distinguished this disease. In certain cases, the elbows held close the body, hunched back, and festination were replaced by hyperlordosis, as in Steele-Richardson-Olszewski disease (progressive supranuclear palsy) or corticobasal degeneration (Figure 7).

Finally, although there was a certain slowing of intellectual functions, no progressive mental deterioration occurred after several years of illness. This encephalitis disproportionately affected younger subjects, including children. Cruchet related how he had the

opportunity to examine one of the first cases he had observed in 1916 near the front line, a fisherman from Saint-Jean-de-Luz (southwestern France), where Cruchet later went to see him. After seven years of illness, the patient was completely unable to work because of complete bradykinetic syndrome. The links between encephalitis lethargica and secondary Parkinsonian syndrome are still in dispute and subject to various explanations 100 years later (Vilensky, Gilman, and McCall 2010a, 2010b).

Cruchet explained his interpretation in English in the *New York Medical Journal* (Cruchet 1920a), *The Lancet* (Cruchet 1925b), then the *British Medical Journal* (Cruchet 1925a, 1927a). He described the polymorphic aftereffects of epidemic encephalitis and what distinguished them from Parkinson's disease. On April 23, 1929, he gave a lecture in English in Edinburgh, having been invited by Edwin Bramwell (1873–1952). The subject was the psychiatric aftereffects of encephalitis (Cruchet 1929b). This invitation bears witness to the international audience he had gained for himself.

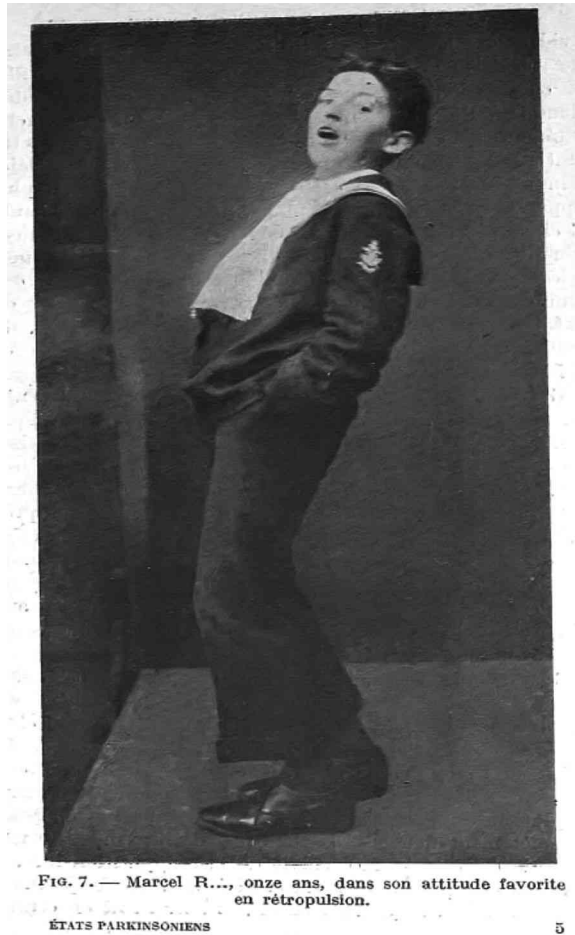


FIG. 7. — Marcel R..., onze ans, dans son attitude favorite en rétropulsion.

ÉTATS PARKINSONIENS

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Figure 7. An illustration from the book by Verger et al. (1925), *Les états parkinsoniens et le syndrome bradykinétique* (Post-encephalitic attitude, reminiscent of Steele-Richardson-Olszewski disease, Collection Olivier Walusinski).

Finally, we should note that Verger and Cruchet also recognized their bradykinetic syndrome “in lacunar patients”—that is, those “with multiple, successive occurrences of ischaemic softening.”

Further discussion of encephalitis lethargica and its severe consequences is beyond the scope of this article. Two recent works discuss in detail this pathology, which has become very rare for reasons that are not yet understood. More information is available in the books of Paul Foley (2018) and Joel Vilensky (2011).

On Morvan’s disease

In 1939, Cruchet and Paul Delmas-Marsalet (1898–1977) published a clarification on “Morvan’s disease” (Cruchet and Delmas-Marsalet 1939), not fibrillary chorea, which is an autoimmune ion channel pathology, but rather syringomyelia (Walusinski and Honnorat 2013). After a beautifully written homage to Augustin Morvan (1819–1897) for his seminal description of analgesic panaris, Cruchet and Delmas-Marsalet recognized the similarity between this pathology and syringomyelia and hypothesized a lesion in the intermedio-lateralis tract to explain the trophic disturbances in syringomyelia. Regarding one of their clinical cases, they made an initial attempt to suggest a link with acrodynia.

Hysterical syndrome

In 1951, Cruchet published a brochure entitled *Le syndrome hystérique* (Hysterical syndrome; Cruchet 1951) that brought together and classified various publications since the beginning of the century, particularly in the journal *Paris médical* (Cruchet 1912b) and Cruchet’s pediatrics publications, such as the book *La pratique des maladies des enfants* (Practical guide to childhood diseases), a collaborative work in nine volumes, published in several editions from 1909 to 1925 (Cruchet and Apert 1909–1925).

Cruchet remained aligned with his teacher Pitres (1891), denying any simulation during the hysterical episode, seeing it rather as a reaction to emotional trauma. It was characterized by the subject’s indifference to severe symptoms, such as paralysis and anesthesia. He recommended reading Marcel Proust (1871–1922) “because he detailed the countless nuances of this emotional trauma with an abundant sentimental and subjective palette so rich, subtle, and colorful that his writings remain a nearly inexhaustible source of documentation for psychologists wishing to learn more.”

Cruchet opposed the concept of pithiatism proposed by Babiński (1906) and saw no triggering suggestion in all of the injured soldiers he treated who were suffering from mutism or campitocormia. He instead cited an accident occurring some time after an emotional trauma out of proportion with what one can normally handle. He did not deny the role of imitation, referring to psychosis by imitation. He saw emotional trauma as causing a state of transient mental confusion that “disturbed normal psychological relations between the operations of the mind, of which memory is an essential element.” He drew his conclusions from the treatment of more than 2000 soldiers examined during the war, barely mentioning the care he provided to children who were made to work from an early age and suffered abuse. In 1935, during a visit to the United States, he gave his opinion on the case of a secretary who had become a starlet, Patricia Maguire, who had been hospitalized for three

years for a state of lethargic somnolence. His conclusion was that she was suffering not from encephalitis lethargica but, rather, from hysteria, based on the argument that he had personally seen numerous similar cases in France (Traut 1935).

Aviator's disease

In September 1915, Cruchet took his first flight in an airplane built by Maurice Farman (1877–1964): “The impressions of a first flight are delicious, exquisite, and unforgettable” (Cruchet and Moulinier 1911). In 1910, he began to research aviator physiology, presenting his first paper on “aviator’s disease” to the French Academy of Sciences in April 1911 (Cruchet and Moulinier 1920a). Once again, his tone was insistent: “We are the first to describe aviator’s disease which has rapidly gained legitimacy in the French and foreign literature.”

Rapid descents from altitudes of 2000 or 3000 meters with an open cockpit exposed aviators to blood pressure variations, heart palpitations, and visual disturbances. Cruchet’s 1920 book, translated the same year into English (Cruchet and Moulinier 1920b), distinguished between prewar aviators and those who had exposed themselves to every risk during air combat. Clearly, this work has historical relevance. Cruchet should be recognized as one of the first physicians to take an interest in the new discipline of aeronautic medicine. We should also note that during the same period von Economo became an accomplished pilot, helping to train pilots in the Austro-Hungarian army during the war. He also flew reconnaissance missions during this time (Sak and Grzybowski 2013; van Bogaert and Theodoridès 1979).

A death befitting a professor

Cruchet and his wife, Marguerite Baron, had five children. On April 14, 1959, he died of a stroke that occurred while he was giving a lecture (Rohmer 1959). In 1987, the local government of his native city named a street after him in the new Lac District. The National Academy of Sciences, Literature, and Arts of Bordeaux created the Prix René Cruchet, awarded since 1960.

Conclusion

Cruchet’s publications cover numerous fields of medicine other than neurology; it is not possible to review them all here. For example, he wrote several articles on blood transfusions, such as *Etude étiologique des accidents dans la transfusion sanguine de sang hétérogène, rôle de l’agglutination* (Etiological study of accidents in heterogeneous blood transfusion and the role of agglutination; Cruchet and Caussimon 1925). He had high hopes for a 1928 book that quickly proved unfounded: *La transfusion du sang de l’animal à l’homme* (Blood transfusions from animals to humans) (Cruchet, Ragot, and Caussimon 1928).

Cruchet was a shrewd observer who noticed that, among the thousands of ill and injured soldiers he treated not far from the frontline during World War I, an epidemic disease had emerged that was not yet clinically described. This is remarkable. He lacked the anatomopathological knowledge of his challenger, Constantin von Economo, who was on the other side of the conflict. With this expertise, von Economo was able to clearly portray the clinical

picture of this new entity. He thus enjoys the posthumous fame of this description, something Cruchet so wanted for himself (Cruchet 1929a). Indeed, imbued as he was with his knowledge, his writings and the ongoing disputes with his detractors, whom he often accused of plagiarism, reveal an excessively self-confident personality. This trait can also be explained by his desire as a provincial physician to prove the quality of his work to his Parisian counterparts. Since the nineteenth century, the medical school in the capital had considered itself superior to other French medical schools.

During his career, this avid traveler published works of history and geography (Cruchet 1924, 1934, 1936, 1939, 1952). Drawing on his second doctoral degree, he also published works of philosophy (Cruchet 1921, 1955). The broad range of his output attests to the universal knowledge he strived to attain in the tradition of the eighteenth-century encyclopaedists.

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