

French Neurologists during World War I

Olivier Walusinski^a · Laurent Tatu^b · Julien Bogousslavsky^c

^aFamily physician, Brou, and ^bDepartment of Neuromuscular Diseases and Department of Anatomy, CHRU Besançon, University of Franche-Comté, Besançon, France; ^cCenter for Brain and Nervous System Diseases, Genolier Swiss Medical Network, and Department of Neurology and Neurorehabilitation, Clinique Valmont, Glion/Montreux, Switzerland

Abstract

The Great War accelerated the development of neurological knowledge. Many neurological signs and syndromes, as well as new nosological entities such as war psychoses, were described during the conflict. The period between 1914 and 1918 was the first time in which many neurologists were concentrated in wartime neurology centres and confronted with a number of neurological patients never seen before. This concentration led to the publication of papers concerning all fields of neurological sciences, and these reports pervaded scientific journals during the conflict and the post-war years. The careers of French neurologists during the war were highly varied. Some were mobilised, whilst others enlisted voluntarily. They worked as regiment physicians at the front or in wartime neurology centres at the front or at the rear. Others were academics who were already authoritative names in the field of neurology. Whilst they were too old to be officially mobilised, they nevertheless worked in their militarised neurology departments of civil hospitals. We present here the careers of a few French neurologists dur-

ing the Great War, including Charles Foix (1882–1927), René Cruchet (1875–1959), Georges Guillain (1876–1961), Jean Lhermitte (1877–1959), Clovis Vincent (1879–1947), Gustave Roussy (1874–1948), and Paul Sollier (1861–1933).

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‘So many empty seats, dear colleagues, for a first autumn session!’ It was with these words that Augusta Dejerine-Klumpke (1859–1927) opened the 5th November 1914 meeting of the Société de Neurologie de Paris. ‘More than half of our members have joined the Army, heroically ministering to the wounded amongst our valiant soldiers and freely dispensing their science, their talent, their courage, their fraternal devotion, their joyous bravery [...]. May every one of them be present on the day of their return’ [1]. Augusta Dejerine had no idea how long the war would last, how cruel it would be, or the extent to which it would

enrich neurological knowledge, as Pierre Marie (1853–1940) foresaw a few months later: ‘The war will have been an inexhaustible source of new knowledge for us in the most varied of fields. In particular, neurologists must recognise that they have learned a great deal, in a domain where they had much to discover, that of war neurology’ [2]. Numerous papers based on the work of mobilised neurologists would be submitted to medical journals, particularly *La Revue Neurologique*. Between 1914 and 1918, major clinical and paraclinical advances were made and new nosological entities were described, none of which were strictly limited to the field of war neurology. It was the first time that so many neurologists were surrounded by so many cases of neurological injury and disease in specialised hospitals or wartime neurology centres. These specialised centres were officially created in October 1914 at the headquarters of military regions, at regional hospitals and in university cities where the most well-known neurologists were mobilised. In the spring of 1915, neurology centres were created near the front to facilitate the management of neurological patients and to avoid needless transfers to neurology centres at the rear.

Improvisation characterised the first months of the conflict, owing to a disorganised French health service that had not foreseen the nature of the injuries, especially those resulting from shrapnel and affecting the spine or the head, most often the skull. The metal ‘Adrian’ helmet, which reduced the severity of head injuries, was not introduced until the spring of 1915, and then only progressively. The number of soldiers who suffered from neuropsychiatric disturbances was both high and greatly under-estimated. This phenomenon came as a totally unexpected surprise, and managing these patients remained problematic throughout the conflict.

We present here the war careers of a few of the French neurologists who were mobilised between 1914 and 1918 or who worked in militarised departments of civil hospitals.

Neurologists in Militarised Civil Hospitals

The university neurologists in large French cities were too old to be officially mobilised. However, most of them continued to serve in the militarised neurology departments of large hospitals. Jules Dejerine (1849–1917), Pierre Marie, Achille Souques (1860–1944) and Henry Meige (1866–1940), for example, treated injured soldiers in Paris.

In October 1914, the *La Salpêtrière* hospital was transformed into a military neurology centre, where Jules Dejerine and his spouse Augusta Dejerine-Klumpke would work. By the end of 1915, the centre had close to 300 beds [3]. Although his health was fragile, Jules Dejerine worked relentlessly to provide care to the wounded soldiers: ‘*He refused to rest, a necessity at his age, and because he overworked himself, at a time when the symptoms of the disease that would take his life were making themselves felt, he, too, could be considered a victim of national duty, a war victim. He had his first attack of uraemia upon returning from the meeting of military neurologists in Doullens on 26th January 1916*’ [4]. Dejerine was suffering from terminal kidney failure and died of acute pulmonary oedema on 26th February 1917.

Pierre Marie took his place as the head of the militarised department at *La Salpêtrière*. Once he had ruthlessly and swiftly removed any memory of his predecessor, he directed his students in the study and treatment of war injuries. With his *chef de clinique* Charles Chatelin (1884–1948) and the surgeon Thierry de Martel (1875–1940), he took a particular interest in skull injuries: ‘*Due to the significance and frequency of skull injuries, they clearly merited special study. In my department at La Salpêtrière, we examined nearly 5,000 cases of skull injury in 1915 and 1916*’ [5]. He emphasised the role of wartime brain injuries in understanding neurological pathology: ‘*War injuries have shown us a different set of facts: lesions of the cortex, with more or less complete exclusion of white matter. Consequently, this new pathology is infi-*

nately closer to the data of experimental physiology than was the old cerebral pathology' [5].

The militarised neurology department of the Parisian *La Pitié* hospital was directed by Joseph Babiński (1857–1932), who also served in the military hospital set up in the *Lycée Buffon*, where he worked alongside the neurologist Jules Froment (1878–1946). Their collaboration led to several publications, in particular on nervous disturbances involving autonomic disorders [6]. A number of Babiński's *internes* and colleagues left to serve on the front lines; some of them lost their lives.

Despite all these dramatic events, the *Société de Neurologie*, which had been dormant, progressively resumed its activities at the beginning of 1915. Babiński and his Parisian university colleagues played a major role in these meetings, which were essentially focused on war neurology and presided over by Augusta Dejerine-Klumpke.

Georges Guillain and Jean-Alexandre Barré, an Effective Partnership

After serving as an *interne* under Fulgence Raymond (1844–1910) and Pierre Marie, Georges Guillain (1876–1961) made the decision, rare at the time, to complement his Parisian training with a visit to the neurology departments of major American universities [7]. He became a hospital physician in the French system in 1906 and passed the *agrégation* exam towards professorship in 1910 (fig. 1).

Guillain was 38 when war was declared. Although he had been exempted from military service in 1899 for 'weakness', he voluntarily enlisted on 21st September 1914 and became a *médecin aide-major de 2e classe*. In January 1915, he was assigned to the *Val-de-Grâce* hospital in Paris, and in March 1916, he was transferred to the hospital in Amiens and to other hospitals in northern France during the Battle of the Somme. In June 1917, he became director of the medical and sci-



Fig. 1. Georges Guillain in 1921 (private collection).

entific department of the Bouleuse evacuation hospital in Marne (north-western France), which was both a mobile hospital and a school for war medicine and surgery. Soon thereafter, he became the chief physician at the neurology centre of the Sixth Army. At the end of the war, he was in charge of the Longvic medical centre for aviation units [8]. Throughout the war years, Guillain accumulated a considerable mass of new clinical and biological data in all branches of neurology, which led to numerous publications during and after the conflict.

Guillain's work on war neurology is indissociable from that of Jean-Alexandre Barré (1880–1967). After serving as an *interne* in Nantes and completing his military service in 1901, Barré was accepted as an *interne* in the Parisian hospitals in 1906. Working alongside Joseph Babiński, he discovered neurology and abandoned his plans to become a surgeon. Finishing his training with Pierre Marie and Achille Souques, he defended an innovative thesis in 1912 [9]. When war was declared, Barré was Babiński's assistant. As a reserve military physician since 1902, he first served in the ambulance unit 12/11 and was then successively assigned to various military hospitals in the

Nord region. In October 1917, he was transferred to the *Centre de neurologie de Nantes*. Having attained the rank of *médecin major*, he became director of the *Centre de neuro-psychiatrie* of the Eastern Region in September 1918 [10].

Guillain and Barré were brought together by the war and worked in the same medical units. Their collaboration was very fruitful, as evidenced by the impressive number of papers collected in their 1920 *Travaux Neurologiques de Guerre*: ‘We were able to study the injuries of the nervous system at a very early stage and collate an exceptional body of documents on certain physiological and clinical questions’ [11]. In October 1916, they drew on the physics knowledge of André Strohl (1887–1977), a doctor of both physics and medicine, for their description of the ‘*syndrome of radicular neuritis with hyperalbuminosis of the cerebrospinal fluid without cellular reaction*’ [12]. After the war, Guillain and Barré returned to this publication, to which they owe much of their posthumous fame.

During their shared experience of war, Guillain and Barré improved the techniques of neurological examination and developed new tests of spinal reflectivity that helped in determining where along the spine lesions had occurred. They contested the hysterical aetiology attributed to nervous problems that developed following exposure to exploding munitions. Guillain did not deny the existence of hysteria attacks but argued that they were relatively infrequent: ‘*Like all neurologists, I have observed what are known as hysterical or functional disturbances that can be cured rapidly through suggestion and persuasion; I have also seen exaggerated or simulated disturbances, but one mustn’t confuse the matter with overly simplistic diagnostics. These disturbances are far from frequent*’ [13].

Like many of their colleagues, Guillain and Barré performed an in-depth study of spinal cord injuries. The considerable mortality associated with these injuries led the pair to emphasise early management, including systematic surgical ex-



Fig. 2. René Cruchet (1875–1959) (private collection).

ploration, to treat the associated vertebral fracture and improve the diagnosis of spinal lesions. However, the two physicians admitted they could do little when faced with secondary bacterial meningitis, a frequent cause of death. To sum up his philosophy of war neurology, Guillain wrote: ‘*In our neurological work, we attempted to wed the lessons of physiology with those of clinical medicine and to perfect our investigative methods by the study of new signs and thereby construct a rational foundation for establishing a prognosis; we also tried to determine in patients with nervous system injuries, the indications for and against surgery*’ [14].

René Cruchet and the Controversy Surrounding Encephalitis Lethargica

René Cruchet (1875–1959), an *interne* in the Bordeaux hospitals, became an assistant professor in 1907. A paediatrician by training, he had long been interested in abnormal movements. In his doctoral thesis, he was the first to propose a possible organic origin for Gilles de la Tourette syndrome [15]. His 1907 book, which dealt exclusively with dystonia, was the first of its sort [16] (fig. 2).

During World War I, Cruchet served as a regiment physician in the emergency units at the front. He was injured on 23rd February 1916 during the Battle of Verdun, which left him with ruptured eardrums caused by a nearby shell explosion. He was decorated by the honorary order of the 288th infantry regiment with the following citation: *'Working under fire, organised the reception and evacuation of the numerous injured soldiers that filled his emergency unit. Calm, courageous and competent leader'* [17]. After his injury, Cruchet was assigned to various neurology centres and then put in charge of reorganising the Bar-le-Duc military hospital. During his time in Meuse (north-eastern France), he met the *médecin auxiliaire* André Breton (1896–1966), a writer and future surrealist theoretician, who was posted at the Saint-Dizier military hospital.

With the help of François Moutier (1881–1961) and Albert Calmette (1863–1933), he would bring to light a new neurological disease with all the appearances of an epidemic. On 1st April 1917, he submitted a paper on forty cases of subacute encephalomyelitis to the *Société Médicale des Hôpitaux de Paris*, for which the corresponding paper was published on 27th April 1917: *'In the successive centres where I directed neuropsychiatric departments as a specialised médecin major, I remarked the undeniable frequency of a different type of encephalomyelitis than the forms usually observed'* [18]. Thirteen days later, the article by Constantin von Economo (1876–1931), for whom this form of so-called encephalitis lethargica would be named, was published [19]. *'In his first description, the Viennese author indicated a precise and constant symptomatology, which undoubtedly explains why his work caught the attention of the medical public, whereas the description of the French authors, who more accurately showed the polymorphous symptomatology of the disease, did not initially seem to correspond to a well-defined morbid state'* [20]. Cruchet knew how to identify, in

the steady flow of injured World War I soldiers, those suffering from psychomotor slowing and somnolence subsequent to an influenza-like illness. He emphasised the variability of the disease's neurological signs and its progression, which was most often spontaneously favourable without treatment. The lack of means for biological and anatomic-pathological explorations limited him to clinical descriptions. Cruchet became involved in a long controversy with Economo to establish his paper as the seminal description of encephalitis lethargica [21, 22]. Economo's description was documented by exceptional anatomic-pathological examinations and was probably more relevant, as well. He suspected, without being able to demonstrate as much, that lesions in the pre-optic area of the hypothalamus had caused the agrypnia that he observed in some patients. It was not until after World War II that the type of lesions observed by Economo would be interpreted as affecting an anatomical sleep induction centre.

In fact, cases of lethargy were not new; the pathology had already been described under various names by Albrecht von Hildesheim in 1695 and then by Angelo Dubini (1813–1902) in 1846 [23, 24]. What was novel was the scale of the epidemic that occurred during World War I.

The Intrepid: Clovis Vincent

Clovis Vincent (1879–1947), born into a family of physicians in the region around Orléans (north-central France), became an *interne* in 1903. He studied under Fulgence Raymond, Achille Souques and Babiński. He defended his thesis in 1910 and became a hospital physician in 1913.

He was exempted from military service in 1900 for 'weakness' but did complete a short service in 1901–1902 as a medical student. He was mobilised on 2nd August 1914, at the age of 35, as a *médecin auxiliaire* for the stretcher-bearers of the Fifth Army Corps and rapidly moved up to

médecin aide-major de 2e classe [25]. Henri Mondor (1885–1962) bore witness to Vincent's boldness on the battlefield: 'He was already known throughout an entire infantry division for his reckless intrepidity and his singular personality.' He came to the aid of the injured, be they French or German, without regard for danger: 'One night, he found himself a few metres from the Germans and surrounded by grenade explosions. Nonetheless, Vincent threw himself into digging up soldiers buried alive by a mine explosion. Ravina [André Ravina, 1892–1973] saw him halt for a moment, take out his watch, smile strangely and exclaim: "And to think that there are people who, at this time in Paris, are just leaving the theatre!"' [26]. In October 1914, Clovis Vincent was assigned to the 46th infantry regiment with whom he participated in the Battle of Vauquois during the winter of 1914–1915. During one of the attacks, after the death of all the officers of his battalion, the physician Vincent led the troops into battle, dragging the hesitators and the laggards forward while at the same time taking care of the many injured soldiers. His heroic conduct earned him the *Légion d'Honneur* and his first citation: 'An admirable officer and one admired by the entire regiment on the days from 28th February to 1st March; under intense bombing, bandaged those seriously wounded including one killed at his side by artillery fire; followed attacking troops to a heavily fortified position and headed up the sections which had lost their officers. Went into position with the attacking troops' [27].

In April 1915, Vincent took over the direction of the neurology centre of the ninth military region, in Tours (central France), from Maxime Laignel-Lavastine (1875–1953). He was promoted to *médecin major de 2e classe* in January 1916. As soon as he arrived at the Tours neurology centre, he was 'struck by the specific characteristics of war-related hysterical phenomena: intensity, tenacity, tendency for relapse; based on a principle borrowed from Babiński, I developed and implemented a method that was much more powerful

and effective than the methods used up to that point' [28]. This aggressive method, nicknamed 'torpillage' (torpedoing) by the soldiers treated, was contested both by soldiers and by a number of Vincent's physician colleagues. Clovis Vincent left the Tours neurology centre after the widely publicised case of Baptiste Deschamps, a soldier who refused torpillage and went on trial before a military court in May 1916 [29]. Clovis Vincent always felt that his experience as a regiment physician on the front lines gave him credibility that no one else had in the interpretation of hysteria attacks subsequent to projectile explosions [30]. His departure from Tours was due to not only the numerous objections to his torpillage therapy following the Deschamps affair but also his hierarchy's refusal to grant the new equipment he had requested for his department, which had been set aside for persistent, difficult-to-treat cases of hysteria.

He was then assigned, as per his request, to the 44th infantry battalion in April 1917 as a regiment physician and to the 98th infantry regiment in June 1917 [25]. During his time with the 98th infantry regiment, he once again distinguished himself by his bravery on the battlefield. This earned him the *Croix de guerre* with a second citation: '20th August 1917; throughout the day on the battlefield, gave proof of a remarkable dedication, successively moving between all the emergency units of the front line, seeking out those units closest to the action, monitoring the transport of injured soldiers, and all of this in spite of the barrages and machine gun fire of the enemy. By his exceptionally brave attitude, earned the admiration of his entire regiment' [27] (fig. 3).

After a brief time working in the Zuydcoote military hospital in November 1917, Clovis Vincent was assigned to the military hospital at the *Lycée Buffon* in Paris on 28th January 1918, where he worked with his teacher Babiński. He would play an active role in fighting the Spanish influenza epidemic.



Fig. 3. Clovis Vincent as a military physician in uniform in 1917 (private collection).

The Moderate: Paul Sollier

Paul Sollier (1861–1933), after serving as an *interne* under Désiré-Magloire Bourneville (1840–1909), Jules Dejerine and Victor Cornil (1837–1908), became in 1891 *chef de clinique* for mental diseases in the department headed by Auguste Voisin (1829–1898). In 1897, he founded a hydrotherapy facility in Boulogne-Billancourt on the edge of the Bois de Boulogne, west of Paris, where he tried new therapeutic methods, precursors of current cognitive behavioural therapy techniques. His most famous patient was the writer Marcel Proust (1871–1922), who was treated in 1905 [31].

Paul Sollier completed his military service in 1880 in an infantry regiment. When World War I was declared, this respected 53-year-old neuropsychiatrist was, in theory, no longer subject to military obligations [32]. He nonetheless had a brilliant career in the reserve army and the Territorial Army, reaching the rank of *médecin major de 2e classe*, and he decided to enlist voluntarily. Assigned in August 1914 to the ambulance unit 20/6, he moved in December 1914 to the *Hôpital auxiliaire 45* in Lyon. He was finally named direc-

tor of the neurology centre of the 14th region in Lyon in April 1915 and at that point became *médecin major de 1ère classe* [33]. Sollier organised the neurology centre and its annexes located in various cities between Lyon and Grenoble. In addition to setting up conventional departments for hydrotherapy, isolation, electrotherapy and rehabilitation, he applied his principles of behavioural therapy developed before the war.

Paul Sollier took an interest in all fields of neurology and neurosurgery. In 1918, he published a treatise on war neurology that would remain a reference in the field [34]. His training led him to take a special interest in cases of war-induced hysteria; he adopted an empathetic approach towards these patients, which contrasted with the brutal methods of Clovis Vincent. He called for returning to the therapeutic approach of Guillaume Duchenne de Boulogne (1806–1875), who used gentle faradisation. For Sollier, the hysteric was not a malingerer: *‘The true, complete simulation of nervous disturbances is very rare; exaggeration is much less rare’* [34]. Sollier clearly opposed Babiński’s concept of pithiatism in a number of detailed arguments: *‘Whether the inhibition, exhaustion, and cellular-level molecular shock are*

caused by commotion or emotion, the symptoms that result essentially correspond to what, from a clinical point of view, is considered hysteria, in the pathophysiological sense I give this term, but they differ depending on whether the inhibiting agent has reached the different levels of the central nervous system: spinal cord, subcortical centres or cerebral cortex' [35].

The Enigmatic: Gustave Roussy

Gustave Roussy (1874–1948), born in Vevey in Switzerland, began his medical studies in Geneva and entered the Parisian hospitals as an *interne* in 1902. A student of Dejerine and Pierre Marie, he grew interested in anatomical pathology under the initial influence of André Thomas (1867–1961) and then received training from Jean Darrier (1856–1938) and Charles-Emile François-Franck (1849–1921). His thesis focused on the clinical and anatomic-pathological description of thalamic syndrome, which would come to be called Dejerine-Roussy syndrome [36]. After his French naturalisation, he passed the *agrégation* exam and became an assistant anatomical pathology professor in 1910.

He was working at the Villejuif hospice when World War I broke out. Initially a physician in an ambulance unit of the Tenth Army, Roussy was very early on worried by the high number of neuropsychiatric disturbances among the soldiers. He was convinced of the purely hysterical character of the problems these soldiers developed. Roussy argued for organising neurology centres for the armies, to be located close to the front lines, in order to classify patients early on and avoid needless evacuations to the neurology centres at the rear: *'In the immense majority of cases, these manifestations and disturbances can be easily cured, but the patients must be treated with a specific method and in a suitable environment'* [37].

In June 1915, Roussy became director of the neurology centre of the tenth military region at

the Doullens Citadel in Somme (northern France). In 1917, he was appointed head of the neurology centre of the seventh region in Besançon. In these different assignments, Roussy focused on traumatic neurological pathologies, in particular spinal cord injuries, from both clinical and anatomic-pathological perspectives. However, as he was always particularly concerned with war-induced hysterical disturbances and their potential moral contagiousness, he decided to set up a specialised unit to continue the work undertaken at the Tours neurology centre by Clovis Vincent; this unit was *Hôpital complémentaire N°42*, a psychoneurosis centre in Salins-les-Bains in Jura (eastern France). With his colleagues Jules Boisseau (1871–1961) and Michel d'Oelsnitz (1877–1946), Roussy published several articles on his conception of war neuroses and their treatment, and these articles were compiled in a work published in 1917 [38] (fig. 4). His aggressive technique of 'electric psychotherapy' was similar to the one used by Clovis Vincent, who criticised Roussy for having copied him and for not understanding the reality of the front lines. Vincent told him as such: *'I thus had to leave to continue to fulfil the task that I had set for myself during this war. And I went to recollect myself on the front lines, the real front, not the one where you can drive around the streets of cities in an automobile, but the front where the you find the trenches and the brave "poilus"'* [39].

His obsession to track down malingerers led to the same difficulties faced by Clovis Vincent. Soldiers who refused to undergo electrotherapy were brought before a military court. The trial held in Besançon in January 1918 put a definitive end to the deviations and excesses in the treatment of war neuroses [40]. Despite his promotion to *médecin major de 1ère classe*, Roussy's hierarchy did not support him when he was attacked by the press for his extreme treatment methods.

During World War I, Gustave Roussy remained defined by this duality between the rigour of his anatomic-clinical works and his sometimes unhealthy obsession with hunting malingerers.



Fig. 4. *Hôpital complémentaire N° 42* of Salins-les-Bains, a wartime psychoneurosis centre managed by Gustave Rousy in 1917–1918 (private collection).

The Poetic: Charles Foix

Like many medical students at the time, Charles Foix (1882–1927) had the right to a shortened military service and completed his service in 1902 in an infantry regiment. Passing the Paris *internat* exam in 1905, he became a student of Édouard Brissaud (1852–1909), Jean-Anastase Sicard (1872–1929) and Pierre Marie. He continued to serve as a physician in the reserve army and became *médecin aide-major de 2e classe de réserve* in 1912.

Foix had just been named a hospital physician when the war broke out. On 3rd August 1914, he was mobilised as a physician for the ambulance unit 2/61. Then, on 30th January 1915, he was assigned to the Parisian military government while he was recovering after a bout of typhoid fever. During this time, he was once again in contact with the militarised neurology departments of the Parisian hospitals, particularly that of his

teacher Pierre Marie. Also during this time, he worked on wartime aphasias, notably those resulting from lesions to the left hemisphere. With the help of Ivan Bertrand (1893–1965), Charles Foix and Pierre Marie established a schematic cerebral map that allowed better anatomo-clinical correlations. They made detailed descriptions of the different types of aphasia resulting from lesions of the supramarginal gyrus and the angular gyrus.

On 2nd August 1916, Charles Foix was named *médecin aide-major de 1ère classe*; in September 1916, he was assigned to the Eastern Army at Zeitenlik Hospital No. 3 in Salonika (Thessaloniki); infectious diseases, in particular malaria, were treated at this hospital. In April 1917, he was assigned to the ambulance unit 10/10, which covered the Veria Pass area in Greece. In September 1917, the death of his *internat* friend Henry Salin (1884–1917) from illness was particularly painful for Foix.



Fig. 5. Charles Foix after the war (private collection).

Foix was promoted to *médecin major de 2e classe* in April 1918 and was finally assigned in September 1918 to Zeitenlik Hospital No. 2, the Salonika neurology centre [41].

He remained in the East until February 1919 and took advantage of this time by giving free rein to his passion for writing: 'He was a lover of poetry and wrote the trilogy of Dionysus in Salonika, in January 1919' [42]. The time he spent in the East was an important source of inspiration: 'That is where his inner life was born, poetry and soon pure poetry, or mysticism. The earth is saturated with antiquity; the Vardar flows through its warm mists, and Olympus is there. This, along with the ancient trees and the waterfalls of Veria, a Macedonian oasis, would sustain the decor of his

thoughts [...] Three volumes: Trilogies, Prométhée, Les Bassarides. The characters are gods that he had recognised in Thrace: the God of Fire, the God of Madness, and Orpheus the Pure, Orpheus the Lacerated, Orpheus the Crucified, like Prometheus' [43] (fig. 5).

Lhermitte and Alajouanine: On the Way to Becoming Major Names

Jean Lhermitte (1877–1959) was a student of Gustave Roussy and Fulgence Raymond. During his medical studies, he completed a year of military service in an infantry regiment. In 1914, he was head of the laboratory of Professor Pierre Marie at the *La Salpêtrière* hospital. Mobilised in the medical group of an artillery unit before becoming *médecin aide-major de 2e classe*, he was assigned to the infantry regiment in October 1914 [44].

In April 1915, he joined the neurology centre of the eighth military region directed by the neuropsychiatrist Henri Claude (1869–1945). The two men actively collaborated in exploring neuro-endocrinological disturbances and disturbances of the autonomic nervous system. In 1917, they published the observation of an asthenic soldier, presenting with polyuria without glucosuria and bitemporal hemianopsia; shortly thereafter, he fell into a profound 'narcoleptic' sleep. When he awoke, he exhibited anterograde and retrograde amnesia accompanied by paradoxical euphoria. He died of tuberculosis shortly thereafter. His autopsy revealed 'a retrochiasmatic tumefaction'; this allowed Claude and Lhermitte to establish the foundations for understanding infundibulo-tuberal syndrome [45]. This well-known seminal publication had a famous literary destiny. The writer Blaise Cendrars (1887–1961) reproduced the autopsy report, with only a few changes, as that of his hero Moravagine in the novel of the same name, published in 1926 [46]. Jean Lhermitte's interest in neuropsychiatry after the war

was evident as early as 1917 in the book he published with Gustave Roussy, which remains among of the reference works on war psychoneuroses [47].

Théophile Alajouanine (1890–1980), the other major name in neurology during the interwar period, was among the physicians whose studies were interrupted by the conflict. Although his military service was deferred in 1910 due to infectious endocarditis, he enlisted in 1914. Like many medical students, he was named *médecin auxiliaire*, first assigned to a regiment of *Tirailleurs sénégalais* and then to a territorial infantry regiment. His bravery in serving injured soldiers on the battlefield earned him the *Croix de guerre*. In September 1916 and until the end of the conflict,

he was assigned to various medical units of the Eastern Army [48].

Alajouanine's wartime medical publications did not deal with neurology, but rather with infectious diseases, which occurred on an epidemic scale and significantly reduced troop numbers. He presented cases of dysentery with secondary colonic gangrene, as well as observations of dysentery caused by flagellated parasites, to the medical society of the Eastern Army. It was only once the war was over and once Alajouanine had become a neurologist that he would take advantage of his military experience in his study of the long-term progression of wartime skull injuries and the typology of their sequelae [49].

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Olivier Walusinski, MD
 20 rue de Chartes
 FR–28160 Brou (France)
 E-Mail walusinski@baillement.com