

# The life and work of the neurologist Mikhail Kroll (1879-1939). The significance of his work *Neuropathological syndromes* in Spain

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## ABSTRACT

Mikhail Kroll was one of the most outstanding Soviet Russian neurologists of the first third of the 20th century. Born to a Jewish family from Minsk, he was a disciple of Lazar Minor, who in turn had studied under Aleksei Kozhevnikov, the father of Russian neurology. He initially worked with Minor at the Higher Courses for Women in Moscow, and during the 1920s he was an outstanding figure as a promoter of university and neurology in Belarus. In 1923 and 1924, he was one of the physicians who treated the cerebral vascular disease of Vladimir Lenin. From 1932, already in Moscow, he led several neurological institutions and became chief physician at Kremlin Hospital. For many years, he kept a close relationship with German neurology and medical publishing houses. He was an experienced and versatile clinician and neurology professor. His interests turned to the study of aphasias, apraxias, and agnosias, the localisation of brain functions, infections of the nervous system, and chronaxie, among other topics. In 1929, he published the monograph *Neuropathological syndromes* in German; it was translated into Spanish in 1930, and later, in 1933, published in Russian. This work had a considerable impact on neurologists from the Soviet Union and abroad, including professionals from Spain and Latin America. Curiously, a second edition was printed in Spain in 1938, during the final years of the Spanish Civil War, with successive reprints from the 1940s-1950s until 1961. We analyse the possible reasons for its success in Francoist Spain.

## KEYWORDS

Mikhail Kroll, Belarus, clinical neurology, training in Germany, *Neuropathological syndromes*, Spanish editions

## Introduction

Mikhail Kroll (1879-1939) was one of the most relevant members of the Soviet Russian neurological school in the first third of the 20th century. He was one of the closest disciples of Lazar Minor (1855-1942), who in turn had been a student of Aleksei Kozhevnikov, the founder of Russian neurology during the second half of the 19th century.

Kroll was an excellent clinical neurologist whose training was strongly influenced by German neurology, as had also been the case of his master Lazar Minor.<sup>1</sup>

His professional experience was vast, from his initial collaboration with Minor in Moscow until his decisive role in the creation of the Belarusian State University and Belarusian neurology in his home town of Minsk during the 1920s, and again in the Soviet capital in the 1930s, where he was involved in the highest echelons of clinical practice, teaching, and politics.

We analyse his most outstanding work, the book *Neuropathological syndromes*, which gathers a wealth of clinical data about the topics that were in vogue at that time; furthermore, we detail the unusual story of its different editions, published in Germany and Spain

before they were printed in the Soviet Union itself. Obviously, the term “neuropathological syndromes” should be interpreted in our cultural environment as “neurological syndromes.” In the Soviet Russian culture, clinical neurology was known as neuropathology and its practitioners as neuropathologists, which may lead to confusion. What we know today as pathology or anatomical pathology was known at that time as morphology, and the term neurology was reserved to refer to the basic science studying the nervous system.<sup>2</sup>

### Material and methods

I conducted an extensive review of sources written in different languages on the life and work of Mikhail Kroll, and of the characteristics of the successive Spanish editions of his book *Neuropathological syndromes*. In the text, such expressions as neurology and neurologist are employed according to modern usage, and the Russian conceptions of neuropathology and neuropathologist are used only when essential. The literature search used the German transcription of his name, Kroll, which is the most widely used in the international literature; the original Russian/Belarusian surname, Кроль; and the Spanish transcription, Krol' or Krol.

### Development

#### *The early years*

Mikhail Borisovich Kroll (Михаил Борисович Кроль) was born in Minsk on 2 March 1879 to a working-class Jewish family in an economically deprived region. The situation improved after the construction of the railroad between Ukraine and the Baltic Sea, which passed through Minsk and ended in the flourishing coastal city of Liepāja, Latvia (Libau in German), which belonged to the Russian Empire at the time. His parents moved there and Mikhail studied at the Gymnasium Nikolaiev in the Baltic city, where he was awarded a gold medal upon completing his secondary studies, in 1896. The city's population was multicultural, and Mikhail spoke Yiddish, Russian, and German, later also learning French and English at the Gymnasium.

After finishing his secondary studies, the young Kroll was admitted to the School of Medicine of the Imperial Moscow University. In his fourth year of university, he started attending classes in clinical disciplines at the Devichye Pole medical campus, where he met Lazar Minor, from Vilnius, who was a lecturer in neurology and



**Figure 1.** Lazar Minor and his disciples Mikhail Kroll (centre) and Vasily Kramer (right), 1910.<sup>2</sup>

psychiatry (Figure 1).<sup>2</sup> Minor attracted Kroll's interest with his innovative ideas and zeal for neurology.<sup>3,4</sup> Like Kroll, Lazar Minor was also of Jewish origin and had studied abroad with Karl Westphal (1833-1890) and Emanuel Mendel (1839-1907) in Berlin, and with Jean-Martin Charcot (1825-1893) in Paris. He is mainly known for describing Minor disease, which manifests as sudden pain and paraparesis or paraplegia caused by haemorrhage of the spinal cord; epiconus syndrome; familial essential tremor, and Minor sign in sciatica.<sup>1</sup> Under Minor's direction, in his fourth year, he wrote his first scientific publication “On central haematomyelia without changes to the spine.”<sup>3,4</sup>

Mikhail Kroll graduated from Moscow University in the summer of 1901, and presented the work just two months later at the 8th Congress of the Society of Russian Physicians, dedicated to the memory of Nikolai Pirogov

(1810-1881). Kroll maintained a close relationship with his master throughout his professional career.<sup>3,4</sup> Being a polyglot helped him to be successful in his studies and to make a living by teaching languages and translating foreign literature.<sup>5</sup>

After finishing his university studies, Mikhail Kroll was invited to continue his scientific activity at the School of Medicine of the Moscow University, where he worked as an intern at the therapeutic clinic, and also joined the Alekseevskaya neurology clinic at the Devichye Pole campus, directed by Minor, and the department of nervous diseases of Yauza Hospital, located in Moscow.<sup>3,4</sup>

The university administration soon recognised the young physician's skills, and in 1904 he was sent to Western Europe to expand his studies so that he could obtain the title of professor. The precise places where he stayed are not known, but he received the majority of his neurological training in Germany.<sup>3</sup>

He returned to Russia in 1906, shortly after Minor had been appointed head of the department of nervous diseases of the Higher Courses for Women (Higher School for Women) in Moscow, also located on the Devichye Pole campus; Minor invited Kroll to work in his department, where after three years, he became assistant and later adjunct professor.<sup>3,4</sup>

From 1907, after returning from his time abroad, Kroll became interested in the problems of the localisation of brain functions, and in 1911 presented the work "On the clinical and topographical diagnosis of aphasia and apraxia disorders" at the 1st Congress of the Russian Union of Psychiatrists and Neurologists in Moscow, dedicated to Sergei Korsakov (1854-1900). In 1913, he presented the work again at the 17th International Congress of Medicine in London, which contributed to his international recognition. The final outcome of this line of research was his doctoral thesis "Materials for the study of apraxia," with which he obtained the academic titles of doctor in medical sciences and professor in 1918.<sup>3,5,6</sup>

When the First World War started, he volunteered to go to the front line and was designated head of the Psychiatry Unit of the Red Cross and Red Crescent Movement at the Western Front in Minsk. After the February Revolution of 1917 and the end of military operations in the summer of the same year, he returned to lecturing at the department of nervous diseases directed by Minor

at the Higher Courses for Women, where he remained until 1924. A few years later, the institution became the Second Medical Institute of Moscow. After the triumph of the October Revolution, Kroll also participated in the organisation of healthcare in the young Soviet Republic and, by order of the People's Commissariat for Health of the Russian Soviet Federative Socialist Republic (RSFSR), he supervised the activities of neurological departments and psychiatric hospitals in the city of Moscow.<sup>3,5</sup>

#### *The Belarusian university*

The Belarusian State University was created in Minsk in 1921. Minor and Kroll, who were born in this republic and were members of the Belarusian Scientific and Cultural Society in Moscow, joined the commission that organised the scientific aspects of the university, as well as the School of Medicine. At that time, Kroll lived in Moscow and could only visit Minsk periodically, although he always kept on top of matters related to the School of Medicine and the university as a whole. He would not definitively move to the Belarusian capital until 1924.<sup>3,5</sup>

In 1921, he was designated first dean of the School of Medicine, a position he combined from 1924 with the directorship of the Belarusian State Institute of Physiotherapy and of the department of nervous diseases of the School of Medicine, in addition to a position on the university's board of trustees.<sup>7</sup> He may be considered the founder of the Belarusian school of neurology, where Elena Fedorova and Daniil Markov were close collaborators.<sup>6</sup> In 1924, he was also appointed editor of the journal *Belarusian medical thought*, which addressed problems associated with neurology and medical teaching. From his position, Kroll promoted the "Belarusisation" of teaching, with classes to be taught in the Belarusian language. Communication and collaboration with his foreign colleagues afforded him international recognition and enabled the publication of articles in foreign medical journals, especially in Germany.<sup>3,5</sup> In 1930, the School of Medicine became the Minsk Medical Institute, of which he was appointed director.<sup>5</sup>

In the political sphere, between 1924 and 1932 he was a member of the city hall of Minsk and in 1930 he joined the Communist (Bolshevik) Party of the USSR.<sup>3</sup> In 1931, he was elected as a member of the National Academy of Sciences of Belarus and selected as vice-president of the

Scientific Medical Council of the People's Commissariat for Health of Belarus.<sup>4</sup>

#### *Vladimir Lenin's disease*

As an experienced clinical neurologist, Mikhail Kroll was one of the 30 Soviet and German physicians who attended Vladimir Lenin (1870-1924) for almost 2 years after his first stroke in May 1922. After Lenin's death in January 1924, a commission was created to coordinate research into the neuroanatomical basis of mental capacity and talent, which was directed by Minor and in which Kroll participated. With this aim, the Moscow Brain Research Institute was created in 1928 to gather and preserve the brains of leading figures from the scientific, cultural, and political spheres. It was based on the Pantheon of Brains project that Vladimir Bekhterev (1857-1927) had conceived for Leningrad. Lenin's brain was the first of the collection, and the brain of Mikhail Kroll was also preserved there.<sup>3,8</sup>

#### *Last years in Moscow*

In 1932, Kroll returned to Moscow to lead the Department of Nervous Diseases of the Second Moscow State Medical Institute, known as Pirogov, for little over a year, replacing his master Minor, who had just retired but continued as lecturer at the centre. From 1933 until his death, he was director of the clinic for nervous disorders of the All-Union Institute of Experimental Medicine (VIEM, for its Russian initials) and director of the clinical section of this institute. Between 1934 and 1938, he was also chief physician of the Hospital of the Fourth Medical and Healthcare Directorate of the People's Commissariat for Health of the USSR, also known as the Kremlin Hospital, where he actively participated in the treatment of distinguished figures of the Communist Party and government of the Soviet Union (Figure 2).<sup>3,7</sup>

From 1932, Kroll became editor-in-chief of the journal *Neuropathology and Psychiatry*. He was also editor of the neurology, "neuropathology", psychiatry, and psychology section of the first edition of the *Great medical encyclopedia*.<sup>3,6</sup> In 1934, he was elected president of the Moscow Society of Neurologists and Psychiatrists and in 1935, president of the executive board of the All-Union Society of Neurologists and Psychiatrists. At the same time, he was president of the Academic Council of the People's Commissariat for Health of the USSR and president of the Expert Commission on Neurology



Figure 2. Mikhail Kroll.<sup>3</sup>

and Psychiatry of the Higher Attestation Commission of the USSR. In 1939, he was selected as a corresponding member of the USSR Academy of Sciences. During those years, he was also elected to the Moscow City Council.<sup>3,4</sup>

In 1938, Kroll participated in the second expedition that travelled to the Russian Far East to study tick-borne encephalitis. When he died in 1939, he was being treated for radiculitis, which might have been a sequela of encephalitis acquired during the expedition, as this is a clinical manifestation of this infection. This would be unsurprising, as two other members of the same expedition died due to encephalitis. He worked as clinical consultant in research performed on behalf of the VIEM's clinic for nervous disorders, which he directed.<sup>9,10</sup> In 1940, a monograph was published on the subject, written by Kroll in collaboration with the entomologist Evgeny Pavlovsky (1884-1965) and the virologist Anatoly

Smorodintsev (1901-1986), the coordinators of the 1938 expedition.<sup>11</sup> During the summer and autumn of 1938, Mikhail Kroll also participated in the treatment of Red Army soldiers who had been injured in combat against Japanese troops in the Lake Khasan area, close to the border with North Korea.<sup>5</sup>

On 2 March 1939, when he turned 60 years old, he left his job as chief physician at the Kremlin Hospital to dedicate himself exclusively to science. Five months later, on 6 August, while he was being treated at the Kremlin Hospital due to the above-mentioned radiculitis, he suddenly died due to a heart attack. He was buried at the Novodevichy Cemetery in Moscow, close to his former workplace at the Devichye Pole campus.<sup>3,5</sup>

#### *Participation in the first international neurology congresses*

Kroll was one of the Soviet neurologists enjoying the greatest international recognition. Thus, in 1931, he was head of the Soviet delegation at the First International Neurological Congress in Bern, where he presented communications on the diagnosis of tumours of the central nervous system, muscle tone, chronaximetry, the sympathetic nervous system, and traumatic neurosis.<sup>6,12</sup>

At the Second International Neurological Congress, held in London in 1935, Kroll once more led the Soviet delegation, in addition to acting as one of the vice-presidents of the event. In this framework, he gave a lecture on sympathetic hyperreflexia after a spinal injury, which André Thomas called “répercussivité sympathique”. He was accompanied to the congress by Lazar Minor and Ivan Pavlov, who awakened great interest with his lecture in the plenary session on the different types of higher nervous activity and their association with neurosis and psychosis.<sup>3,6,13</sup>

Mikhail Kroll was also named as one of the vice-presidents in the programme of the 3rd International Neurological Congress, held in Copenhagen between 21 and 25 August 1939. He died two weeks before the congress. Another vice-president, Gonzalo Rodríguez Lafora, was probably also unable to attend, because he was exiled in Mexico since 1938.<sup>14</sup>

#### *The anti-cosmopolitan campaign*

Upon his death, Mikhail Kroll received official recognition in Russia, but a decade later he was harshly criticised in the context of an anti-cosmopolitan campaign that started in the last days of the Stalinist period. Within

this campaign, outstanding neurophysiologists were censured in the Pavlovian session of June-July 1950, dedicated to the problems of physiology training by I.P. Pavlov. One of the consequences was the joint meeting of the Presidium of the USSR Academy of Medical Sciences and the executive board of the All-Union Society of Neurologists and Psychiatrists, held in October 1951 to examine the recommendations of the previous session. In this meeting, several psychiatrists and also Mikhail Kroll posthumously received harsh criticism. They condemned his admiration for bourgeois science, as he had been trained in the Russian Empire and was familiar with foreign medicine, which led him to distort Pavlov's teachings and to underestimate the relevance of the progressive research of Russian scientists, not accepting the realities of the revolutionary process. We must not forget the antisemitic background of this campaign, and Kroll's Jewish heritage.<sup>1,3,15</sup>

#### *Scientific activities*

Mikhail Kroll published 120 scientific works, including three monographs whose scientific and practical values still remain.<sup>5</sup> He summarised his vast clinical experience and scientific observations in two significant general neurological texts. First, in 1929, while he was still lecturer and director of the Clinic for Nervous Disorders of the Belarus State University, he published his book *Neuropathological syndromes*, in German, with the publishing house Julius Springer in Berlin.<sup>16</sup> A year later, the book was published in Spanish,<sup>17</sup> and appeared in Russian<sup>18</sup> in 1933 (Figure 3). It was re-edited in Russian in 1936, and in 1966, an abridged and revised version was published under the name *Basic neuropathological syndromes*; appearing alongside his name was that of his long-time collaborator Elena Fedorova, the author of this update.<sup>19</sup> This book has been a reference work for several generations of neurologists from his country and abroad.<sup>5</sup> Kroll was also co-author of a second textbook, the two-volume *Treatise on nervous disorders*, of which three editions appeared in 1933-1934, 1937, and 1939.<sup>20</sup> Co-authors were Mikhail Margulis (1879-1951) and Nikolai Propper-Grashchenkov (1898-1965), and for a long time, the book was a reference work for Soviet neurologists. In this book, Kroll wrote about higher brain functions, movement disorders, electrical excitability, and electrodiagnosis.<sup>3</sup>

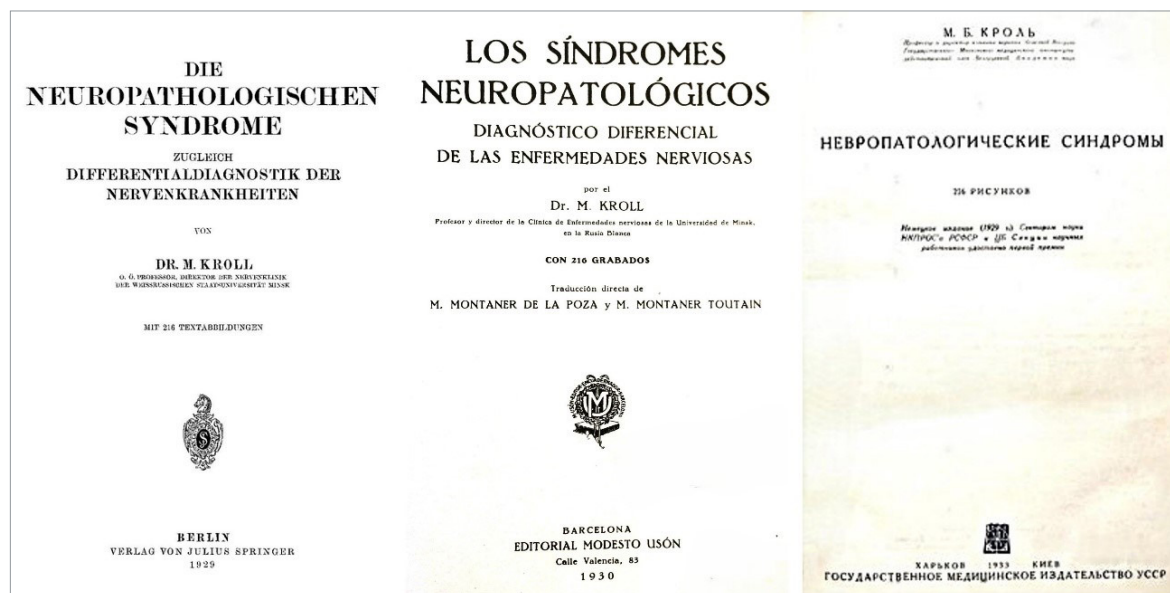


Figure 3. First editions of the book *Neuropathological syndromes* in German (1929),<sup>16</sup> Spanish (1930),<sup>17</sup> and Russian (1933).<sup>18</sup>

Mikhail Kroll's scientific activity was intense throughout his life. He studied neurological syndromes, localisation of brain functions (which were one of the reasons for which he was invited to participate in the treatment of Lenin's disease), the pathophysiology of the nervous system, and aphasic, apraxic, and agnostic disorders.<sup>5</sup> He began to work in the latter field in 1907, upon his return to Russia; as previously mentioned, he gave lectures on the topic at several congresses. Furthermore, apraxia was the subject of his doctoral thesis in 1918. His most important works in this field are widely addressed in his book *Neuropathological syndromes*. In these works, he highlighted the close association between gnosis, praxis, and language functions.<sup>4,17,21,22</sup> In 1933, in a work honouring Otfried Foerster (1873-1941) on the occasion of his 60th birthday, Kroll and the neurophysiologist David Stolbun (1904-1938) wrote that there was not enough evidence to consider constructive apraxia as a new and special form of apraxia, although it was a valuable new line of research capable of revealing more aspects of apraxic disorders.<sup>23</sup>

He also researched the Magnus-De Kleijn tonic neck reflex (Figure 4),<sup>16,24,25</sup> muscle tone, and chronaxie,<sup>26</sup> the above-mentioned phenomenon of "répercussivité sympathique," hyperkinesis, ataxia,<sup>27</sup> blood-brain barrier disruption,<sup>28</sup> and nervous system tumours<sup>29</sup> and infections, such as tick-borne encephalitis,<sup>11</sup> rabies, typhus,<sup>30</sup> and leprosy.<sup>31</sup> Furthermore, he published cases of double athetosis (Figure 4), hemilateral chorea, cheiromegaly in syringomyelia, and cervical rib syndrome.<sup>32</sup> In the last 15 years of his career, he became particularly interested in neurological rehabilitation.<sup>4,6,17</sup>

#### Personality

Kroll was essentially a clinical neurologist and lecturer, as well as an organiser of medical training. He was a complex and controversial figure who, although he trained in the Russian Empire and abroad, was politically committed to the Soviet regime in his last years.<sup>3</sup> Those who met him remembered him as an amiable, highly educated person, with encyclopaedic knowledge, and an excellent master, who was very demanding not only with his subordinates, but also with himself.<sup>5</sup>



**Figure 4.** a) Double athetosis. Athetotic movements, especially in the fingers, neck, and lips. b) and c) Tonic neck reflex in the same patient. Clinic for Nervous Diseases of the Belarussian State University in Minsk.<sup>16</sup>

#### *The structure of the book* Neuropathological syndromes

The 26 chapters that make up the work analyse the following subjects: movement, central, and peripheral disorders; sensitivity disorders; reflex disorders; electrical excitability syndromes; CSF syndromes; cerebellar and aphasic syndromes and syndromes of the frontal, temporal, parietal, and occipital lobes; syndromes of the posterior and anterior central gyrus, corpus callosum, internal capsule, and pyramidal system; epileptic syndrome; brain pressure syndrome; spinal cord compression syndrome; circulatory disorders; neurosyphilis; meningeal syndromes; epidemic encephalomyelitis; endocrine disorders; angiotrophoneurosis; and neurosis.<sup>17</sup>

In this book, Kroll revealed a deep understanding of the anatomy and pathophysiology of the nervous system and neurological clinical signs. He was up to date with the latest advances of the specialty. For example, he reproduced carotid arteriographies from patients with brain tumours, performed by Egas Moniz, who

personally provided him with the images.<sup>33</sup> As a man of his time, he dedicated considerable space to epidemic encephalitis and neurosyphilis. The book's 664 pages include a vast collection of images, with 216 figures, mostly photographs of patients taken at the Clinic for Nervous Diseases at the Belarussian State University in Minsk (Figures 4, 5, and 6).<sup>16</sup> The Spanish edition uses the German transliteration of the Russian names (for example, Kroll, Fedoroff, and Markow, instead of Krol, Fedorova, and Markov). The subject indices and references are extensive, and we can clearly observe that the most frequently cited by far is Otfried Foerster (Figure 7).<sup>17</sup> Kroll dedicated the work to his "beloved master" Lazar Minor.<sup>16</sup>

#### *Mikhail Kroll's relationship with German neurology*

The close relationship between Mikhail Kroll and German neurology is exemplified by his activity in a journal published by Julius Springer, *Zeitschrift für die gesamte Neurologie und Psychiatrie*, the official publication of the Berlin Medical and Psychological

Society, in which he published a significant number of articles since its creation in 1910. He may be considered the journal's correspondent in Russia and subsequently the USSR, as he was a prolific author of literature reviews published in the volumes gathering the abstracts of different German and international publications on neurology and psychiatry (*Referate und Ergebnisse*). In these texts, he was the main commentator on the articles published in Russian and Soviet journals. Between 1910 and 1914, we can find 898 reviews signed by Kroll, who appears as a resident of Moscow, although residency in Breslau is mentioned on one occasion in 1911 and in Munich in another case in 1913.<sup>34</sup> After a pause due to the Great War and its aftermath, reviews were published from 1921 in the journal *Zentralblatt für die gesamte Neurologie und Psychiatrie*, also published by Julius Springer. This journal replaced the previous journal in the publication of the literature reviews, once more with the active participation of Kroll, whose place of residence now alternated between Minsk and Moscow.<sup>35</sup>

We have not found direct information on the places where Kroll was trained abroad, but it is logical to assume that one of the main places would be Breslau (today, Wrocław), as he had a good relationship with Otfried Foerster, a neurologist and neurosurgeon from that city. This relationship may be inferred from the striking frequency with which Foerster is mentioned in *Neuropathological syndromes*, far more often than any other author, which suggests that Kroll knew Foerster's work very well (Figure 7).<sup>17</sup> Furthermore, as mentioned above, Kroll lived in Breslau in 1911,<sup>34</sup> and dedicated an article on apraxia to Foerster to commemorate his 60th birthday in 1933.<sup>22</sup>

The fact that his book *Neuropathological syndromes*<sup>16</sup> was first published in German also shows Mikhail Kroll's close relationships with German neurology and with the Julius Springer publishing house in Berlin. This occurred during a time in which relations between the Weimar Republic and the Soviet Union were good.<sup>36</sup> This German edition was even awarded the first prize of the scientific section of the People's Commissariat for Health of the RSFSR and the Central Council of the Section of Scientific Workers, as mentioned in the Russian edition of 1933.<sup>18</sup>



Figure 5. Parkinsonism in epidemic encephalitis. Clinic for Nervous Diseases of the Belarusian State University in Minsk.<sup>16</sup>

#### *History of the book by M. Kroll in Spain*

In 1930, the publishing house Modesto Usón in Barcelona published the book *Los síndromes neuropatológicos. Diagnóstico diferencial de las enfermedades nerviosas* (Neuropathological syndromes. Differential diagnosis of nervous diseases) by Prof. M. Kroll.<sup>17</sup> The work was directly translated from the German edition published the year before, which must have been done very soon after the original publication, as the preface is signed by M. Kroll on 12 March 1929.<sup>16</sup> It is unclear who promoted the publication of the book by the publishing house in Barcelona, which was located at number 83, Calle Valencia, and had previously published the Spanish-language versions of several international medical works, many of which were translated by the physician Mariano Montaner de la Poza and his son Manuel Montaner Toutain, as was this case.

Mariano Montaner de la Poza was born in Granada in 1860 and had studied there at the School of Medicine,

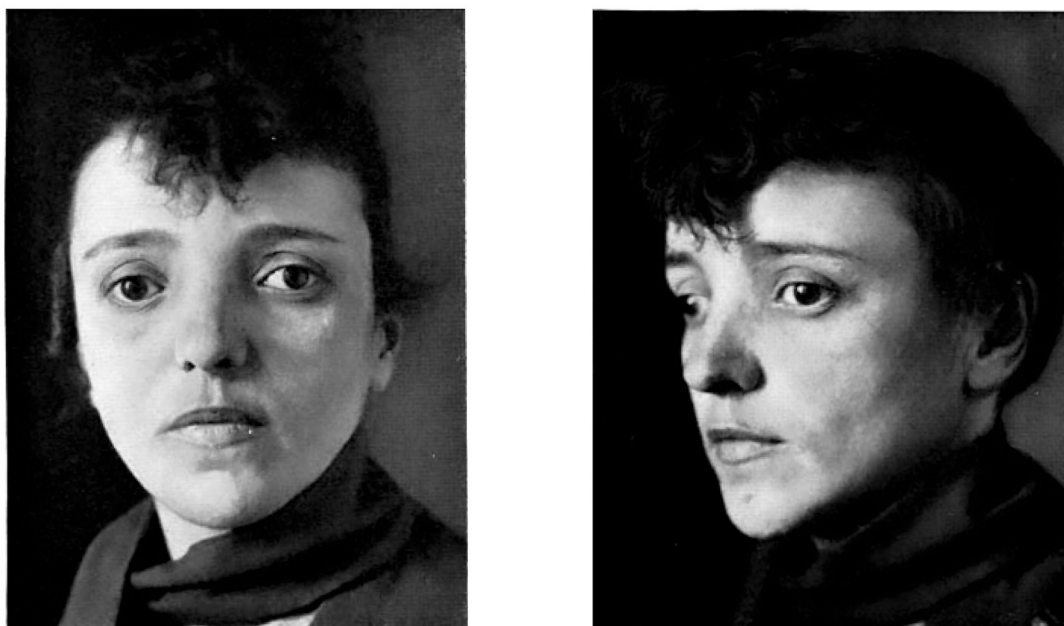


Figure 6. Left-sided facial hemiatrophy with pigimentary anomalies. Clinic for Nervous Diseases of the Belarussian State University in Minsk.<sup>16</sup>

where he graduated in 1879, earning his doctorate one year later in Madrid. By 1889, he was working as a physician “attending births and women’s diseases” in Barcelona; he retired in 1930.<sup>37,38</sup> His son Manuel Montaner Toutain (1894-1932) was born in Barcelona, where he studied medicine and graduated in 1916. During his studies, he also took French and German for 2 years each.<sup>39</sup>

After the initial edition in 1930, the Modesto Usón publishing house reprinted the work in 1931 and published a second edition in 1938, with successive reprints in 1944, 1946, and 1948. A third edition was published in 1955, with reprints in 1956, 1958, 1960, and 1961. The text is identical in all three editions, with some changes limited to the prologue. Curiously, in the 1955 edition, M. Kroll, who had died 16 years earlier, declared his gratitude to the Spanish publishing house.

In the prologue of the first and second editions of the book, he mentions that it is based on experience from the Clinic for Nervous Diseases of the University of Minsk, in the White Russia. This designation used to refer to Belarus, as well as the German or Dutch origins

of his surname Kroll and the fact that the work was directly translated from German and published a year before the establishment of the Second Republic, may have distracted Francoist censors, who overlooked the fact that its author was one of the neurologists with the greatest political commitment to the Soviet regime, a fact that would have been very difficult to know in Spain at that time. It is also surprising that such a voluminous book, with more than 600 pages, was re-edited in Barcelona in 1938, when the unfavourable progression of the Civil War led to strict restrictions of all kinds of supplies, including printing paper. During the Francoist period, the book was reprinted several times, even in the period of shortage of the 1940s, and a third edition was published in 1955 with several subsequent reprints. Already in the prologue of the 1946 reprint, the editor noted that several editions had sold out in very few years, a success that surprised the editorial board. The book was also widely distributed in Latin America from the offices that the publishing house had there.

In 1940, two French medical books from the publishing house Modesto Usón, translated by Montaner de la Poza,<sup>40</sup> and in 1942, the author himself, due to a work

he translated for another publishing house,<sup>41</sup> passed the Francoist censorship, which authorised the publication of the works. However, the book by M. Kroll was never assessed by the censors.

### *The work of other Soviet neuroscientists in Francoist Spain*

In contrast with the wide diffusion in post-war Spain of the book by Mikhail Kroll, a neurologist belonging to the apex of the *nomenklatura*, works by other Soviet colleagues fared worse and were burdened by Francoist censorship. Thus, Ivan Pavlov's most important work on conditioned reflexes, directly translated from Russian to Spanish and published by Javier Morata in 1929,<sup>42</sup> was scrutinised in October 1939 by the Spanish censors,<sup>43</sup> which granted permission for its continued publication; however, the book disappeared from the Spanish scientific setting. In the post-war period, from the second half of the 1950s, books by Pavlov and some of his disciples, published in Latin America, illegally arrived in Spain, as mentioned by the psychiatrist Antonio Colodrón (1931-2018), who was an active advocate of the work of the Russian neurophysiologist and managed to publish one of Pavlov's books in 1966.<sup>44</sup> It was not until 1968 that a new book with Pavlov's texts was published in Spain.<sup>45</sup> Another significant example is the work of the Soviet neuropsychologist Aleksandr Luria, whose influence was especially important in Spain and Latin America and whose works began to be published in the early 1970s, a time with fewer restrictions.<sup>46</sup> Meanwhile, the book by Mikhail Kroll freely circulated in Francoist Spain.

### Conclusions

Mikhail Kroll was a significant Soviet Russian disciple of Lazar Minor who had close links with German neurology and particularly with Otfried Foerster and the Julius Springer publishing house in Berlin.

He was an important clinician with an interest in neuropsychology and the localisation of brain functions. He was highly involved in neurology training and strongly committed to the Soviet regime in the last years of his life.

His main work *Neuropathological syndromes* followed an atypical editorial process, and was published earlier in Germany and Spain than in the Soviet Union. In Spain, despite the political profile of its author, the book was extensively reprinted and distributed during the Francoist period, without suffering the censorship of the regime.

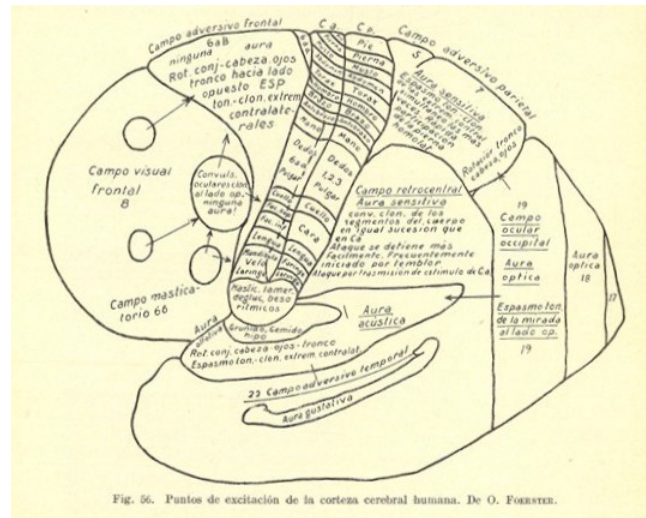


Figure 7. Excitation points of the human cerebral cortex, according to Otfried Foerster.<sup>17</sup>

### Conflicts of interest

The author has no conflicts of interest to declare.

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