

# The Introduction of Neuroscience in Spain through the Work of Luis Simarro

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## Abstract

**Background:** The figure of Luis Simarro Lacabra is not well-known outside Spain, but within the country became a character of special scientific and public importance. Luis Simarro, a person of a marked progressist spirit, not only was involved from his youth for in political matters, showing great interest in the modernization of a nation anchored in traditionalism, but also transferred this way of thinking to his professional work as a doctor, neurologist, histologist, psychiatrist, psychologist, and teacher. **Methods:** The authors gathered biographic story of Simarro and summarized his work in microscopic work in neuroscience and the development of experimental psychology. **Results:** Simarro would become, for his own merit, one of the great founders of Spanish neuroscience, to which he made great contributions together with Santiago Ramón y Cajal. He was also the first professor of experimental psychology at Spanish University and developed an interesting political and institutional work. In fact, his lack of international recognition is mainly due to the fact that Luis Simarro, despite his great talent, was not especially prone to publishing the scientific works. Therefore, his neurological findings, sometimes, were to be unjustly attributed to other colleagues. **Conclusion:** In this article, we have provided a brief profile of the figure of Simarro with the intention of projecting the importance of his figure of it beyond Spanish borders.

**Key words:** histology, psychiatry, psychology, Santiago Ramón y Cajal  
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## Introduction

Luis Simarro Lacabra (1851-1921) (Figure 1) was not only one of the founders of the scientific tradition of psychiatry, neurology, and neurohistology in Spain, but also played an essential rôle in the process of institutionalizing experimental psychology, to which some of his disciples also contributed. But due to the low level of support that Simarro's clinical and research project received between the 19th and 20th centuries, and his reluctance to publicize his research, his work has been left somewhat in the dark, often unjustly forgotten as a result of that eternal misunderstanding that tends to turn the history of things into a "dead letter." In any event, his followers steered the helm of neuroscience toward more applied fields.

### The social context of the life of Luis Simarro

Simarro lived during one of the most turbulent periods in Spanish history. He grew up in a nation that was constantly

torn between opening up to Europe, in the form of a desperate attempt to regain the country's leading position in the international arena, while at the same time consolidating an immobilist, ultramontane and conservative social state. The Carlist wars, the constant military insurrections, the war in Africa, the Revolution of 1868, the student revolts that heralded the fall of monarchical regime of Isabella II (1830–1904), and even the conflict sparked by the nascent labor movement, had a decisive influence on how it was formed [1]. Educated in the romantic atmosphere of Valencia in the mid-19th century, these events shaped his ideological and existential views.

Luis Simarro stood out as a progressive figure from a young age, leaning toward militant republicanism and a defender of free thought. As such, he took an active part in

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**Figure 1.** Oil on canvas by Luis de Madrazo, entitled *Retrato del Doctor Simarro (Portrait of Dr. Simarro)* (1896). General Foundation of the Complutense University, Madrid.

the Revolutionary Government, becoming its treasurer during the six-year revolutionary period (1868–1874). He also played an active rôle in the republican and Cantonal rebellions in Valencia. Intellectually, his commitment became evident during the course of his ardent defence of positivism at the Mercantile Athenaeum of Valencia [2]. It was then that Simarro fell out with one of his professors of medicine, a circumstance which, together with the loss of his teaching post at the Colegio de San Rafael (St. Raphael's College), also for ideological reasons, led to his transfer to Madrid [2, 3].

### **Luis Simarro, physician and researcher**

Luis Simarro got his degree in medicine in 1874, but in Madrid he found something more than a study destination, as he moved between the refreshing atmosphere of the Athenaeum and the inception of the *Institución Libre de Enseñanza* (ILE - The Free Institution of Education) [2, 4]. But these were the final days of the First Republic (1873–1874) and the prelude to the Canovist Restoration, and the country was gradually returning to the conservatism of previous decades.

Professionally, Simarro began to forge a path under the guidance of one of his teachers, the remarkable Pedro González de Velasco (1815–1882), who introduced him to the circle of doctors, histologists and naturalists who gravitated around the Spanish Anthropological Society and the Museum of Anthropology [3, 5]. The latter was home to the *Escuela Práctica Libre de Medicina y Cirugía* (Free Practical School of Medicine and Surgery), where Simarro taught a course on hygiene. His interest in the matters of hygiene dated back to his years in Valencia and became the central focus of his doctoral thesis, which he began to complete at this time. In the same vein, he also took charge of the Hygiene Section of the Spanish Anatomical Amphitheatre [2].

In around 1880, Luis Simarro felt disconnected from the latest scientific developments, so he decided to abandon everything to travel to Paris, which was then at the forefront of neurological and psychophysiological research [3, 4].

As his friend, the Minister of Public Instruction and Fine Arts and Director General of Health, Carlos María Cortezo (1850–1933), recalled, Simarro constantly complained about the lack of laboratories and the absence of an intellectual climate conducive to consolidating a sound scientific base in Spain [2]. While at the Parisian Salpêtrière Hospital, he worked and studied with some of the best French neurologists and psychiatrists of the time, but it was the renowned Jean-Martin Charcot (1825–1893) who had the most lasting influence on him as a staunch advocate of proper psychological preparation for psychiatrists. This led Simarro to shift his focus on more clinical perspectives [6].

On his return from France, it was with the help of the physician and politician Federico Rubio y Galí (1807–1902) that Simarro came into contact with the ILE, the ideology of which he shared and of which he became an shareholder, active member and close collaborator. This marked the start of a long-lasting and intense friendship with Francisco Giner de los Ríos (1839–1915). In fact, some of his rare scientific publications appeared in the pages of the *Boletín de la Institución Libre de Enseñanza* (*Bulletin of the Free Institution of Education*) [2, 3]. Moreover, when the Institution created the Pedagogical Museum, Simarro became involved in it as a lecturer on physiological psychology, organizing the pioneering Laboratory of Pedagogical Anthropology there in 1894 [6, 7].

### **Luis Simarro's life circumstances**

On a personal level, Luis Simarro experienced some rather unusual family circumstances. The early death of his father and the subsequent suicide of his mother in 1854 left him an orphan at the age of three years. This meant that he spent his childhood and adolescence in a boarding school, under the protection of family and friends, such as his godfather, the painter Luis de Madrazo y Kuntz (1825–1897), and Mrs. Doña Beatriz Tortosa Perales (d. 1896), an enlightened, religious lady from Valencian high society [2, 3]. It was with Mrs. Doña Beatriz's help that Simarro married Mercedes Roca Cabezas (d. 1903), in what was a brief but happy marriage. They had no children, but the need for a home life and his renowned generous nature motivated Dr. Simarro to welcome some of his favorite pupils, such as Nicolás Achúcarro y Lund (1880–1918) [4, 7], to his own home in General Oráa Street [4, 7]. But after his wife's untimely death, he devoted his entire life to cultivating his friendships, such as that of the great painter Joaquín Sorolla Bastida (1863–1923) and to his professional activities. His patients included many of the greatest personalities of the day, such as the writer and winner of the Nobel Prize for Literature, Juan Ramón Jiménez Mantecón (1881–1958), who suffered from severe bouts of melancholy [3]. Later, his goddaughter, the writer Marina Romero Serrano (1908–2001), would move to Luis Simarro's home to provide him with care and assistance. She became so involved with his work that she even volunteered as an experimental subject in the various psychometric and intelligence-measuring tests that he carried out from 1914 onward [2].

## “Silent” Progress

When Luis Simarro returned from Paris, he did so with a sound grounding in neurology, and extensive knowledge of neurohistology acquired from experts Mathias-Marie Duval (1844–1907) and Louis-Antoine Ranvier (1835–1922). In fact, in Ranvier’s laboratory, he learned the novel method of staining with silver nitrate, devised in 1873 by Camillo Golgi (1843–1926), which made it possible to selectively view nerve cells.

### *An importer of the great European neuroscientific advances*

Consequently, he became one of the great pioneers of microscopic anatomy in Spain [8]. In the field of histopathology, he discovered senile plaques, although, as he did not publish his discovery, credit was later attributed to Oskar Fischer (1876–1942). In fact, Simarro was a passionate microscopist who was always openly disgusted by the scarcity and lack of Spanish experimental facilities. This is what motivated his interest in creating public and private research laboratories and infrastructures. As a result, he contributed to opening the Laboratory of the Pedagogical Museum and set up the psychological experimentation facilities at the Faculty of Sciences of the Central University of Madrid in 1902, shortly after being awarded the Chair of Experimental Psychology [7]. Similarly, in the specific field of psychiatry, Simarro is responsible for bringing German psychiatric trends, of an organic nature, to Spain, and he paid special attention to the proposals made by Emil Kräpelin (1856–1926) in relation to the evolutionary diagnosis of psychosis [6]. He was also the leading Spanish exponent of his time to defend Darwinian positivist ideas.

From a purely psychological perspective, Simarro introduced the theories and work techniques of the school of Wilhelm Wundt (1832–1920) into Spain, some of whose texts he used as a teaching manual [7, 9], while he is also recognized as a pioneer of legal psychiatry, as he took part as an expert witness in a number of cases that were widely publicized in the media at the time. One of these was the celebrated priest Cayetano Galeote (1839–1922) who, in April 1886, shot and killed the bishop of the diocese of Madrid-Alcalá [10], in the middle of the street in front of a crowd of people. Simarro applied the Lombrosian theory from the emerging Positivist School of Criminology at the trial, relating the presence of physical stigmata (“vicious implantation of the teeth” and “four wisdom teeth, each with four roots,” in the case of the murderer) to degenerative mental disorders [11].

### *The influence of Simarro in the future neurohistological discoveries of Cajal*

Moreover, given that the Spanish tradition of histology was limited almost exclusively to the school created around Aureliano Maestre de San Juan (1828–1890), it can be said that, technically speaking, Simarro was at the forefront of international advances in the field. As circumstances would have it, in 1887, he met the future Nobel Prize winner,

Santiago Ramón y Cajal (1852–1934), a serendipitous event that possibly changed the history of neuroscience [8]. In that year, Cajal was appointed to the selection board for the Chair of Descriptive Anatomy, which meant that he had to move to Madrid. He made a number of visits to different centers where micrographic studies were carried out to take the advantage of his stay there. Among others, Cajal remembered his visit “to a certain unofficial biological institute in Street of the Gorguera, where several young doctors were working, including Federico Rubio and, in particular, Luis Simarro, who had recently arrived from Paris and was dedicated to the noble task of promoting a taste for research among us” [12]. Simarro had also set up a private laboratory at 41, Arco de Santa María Street, where he devoted himself to the histopathological study of disorders of the nervous system, applying all the new techniques developed abroad, thanks in part to a fantastic personal library. It was in this private laboratory that Cajal came into contact with the Golgi staining method, which would later be crucial for his future career in histology [13].

In connection with this visit, Cajal himself later recalled: “I owe L. Simarro, the famous psychiatrist and neurologist of Valencia, a great debt for having shown me the first good preparations using the silver chromate procedure, and for having drawn my attention to the exceptional importance of the Italian scholar’s book, devoted to investigating the fine structure of the gray matter. This fact deserves to be mentioned because, apart from having been crucial to my career, it once again demonstrates the life-giving and dynamic power of things seen” [12]. Authors such as Albarracín, using the argument of serendipity, summarize this first meeting between Cajal and Simarro as follows: “(...) it took just one lucky fleeting moment for the Spanish school of histology to get underway” [14]. Others also point out that, during this visit, Simarro was able to teach Cajal the new hypnotic techniques that were triumphing in France, just when the famous debate between the schools of Nancy and La Salpêtrière was at its height [15].

### *Simarro and Cajal, a controversial relationship*

However, the relationship between the two was not without serious tension. In 1892, after the death of Maestre de San Juan, a competition was held to fill the chair of Histology and Pathological Anatomy at the University of Madrid, for which both scientists entered [2, 3, 7, 8]. Simarro seemed to recognize Cajal’s undisputed authority in the field of Spanish histology from the outset, as is shown in a personal letter from the Valencian neuropsychiatrist, dated 1891: “Although I am only an occasional histologist, as histology is for me only a means to study neurology, which is my real focus, I would dare to take the advantage of this open door to join the professoriate and enter the competition for this chair. But I would not dare to do so, and even if I dared, I would not expect to win the post if you were to apply. Moreover, if by some improbable chance I should win the chair over you, it would be difficult for me in all conscience to accept the position, since I regard you as the only histologist in our country” [14]. The tension between Cajal and Simarro as a result of this academic competition (which

lasted for several months) must have been intense, above all because of the former's need to secure a solvent "economic" position [8].

En sus *Recuerdos de mi vida* (*Recollections of My Life*) (1923), Cajal wrote, possibly referring to Simarro: "My rivals were rich and prestigious; they cultivated large and well-deserved clientele and could wait" [12]. Clear proof of this estrangement can be found in the fact that, after Simarro's death in 1921, Cajal wrote a letter to their mutual friend, Carlos María Cortezo, in which Cajal expressed his regrets as follows: "... he died without having read my *Recollections* and without knowing how much I revered and loved him" [5]. But he would end up criticizing his scientific "silences" and his lack of interest in publishing, which would lead to his achievements being added to the academic curriculum of other Central European researchers: "You are right and fair to talk about Simarro, who has not been fully appreciated due to having allowed himself to get caught up in the nets of the Free Institution, one of whose sacrosanct canons is to study and not to write" [11]. Nevertheless, Luis Simarro left an interesting little book entitled *Teorías modernas sobre la fisiología de sistema nervioso* (*Modern Theories on the Physiology of the Nervous System*), published in 1878 in the journal *España*, based on a lecture given on March 18 at the ILE. As a connoisseur of the histology of the nervous system, he explained neurophysiology from the point of view of nerve cells and fibers, reflexes and the greater control of the central organs in this text. In his psychological approaches, Simarro set aside the question of the soul and gave priority to the process of "iteration," which in turn is responsible for the learning process [16].

In fact, Cajal always acknowledged that Simarro's influence was crucial to his own decision to delve into the field of neurohistology. He was also acknowledged for making important histological discoveries, such as neurofibrillar staining and establishing the differences between cilindro-axes and protoplasmic prolongations [12]. In fact, in 1900, Simarro published a paper entitled *Nuevo método histológico de impregnación por las sales fotográficas de plata* (*New Histological Method of Impregnation with Photographic Silver Salts*) in the *Revista Trimestral Micrográfica*, which was founded and edited by Cajal [17] (Figure 2). This procedure was the starting point for Cajal developing his famous reduced silver nitrate technique [18]. This is not to say that Cajal would not have been able to achieve the successes he did without Simarro's influence, but perhaps, the momentum of his discoveries would have been completely different [13]. One of Simarro's disciples (shared with Cajal), Gonzalo Rodríguez Lafora (1886–1971) [19, 20], wrote about this subject in the journal *El Sol*, on June 24, 1921: "On his return to Spain, he worked for many years in his small private laboratory, making magnificent collections of embryology and comparative histology of the nervous system... using Wright's and Golgi's methods. All of this work remained unpublished for years, as Simarro was not keen on writing. In the later years of his histological research, he devised the silver



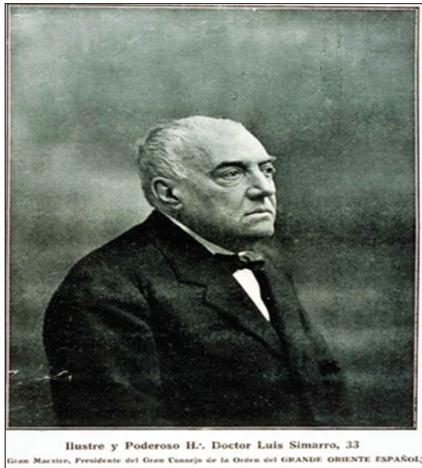
**Figure 2.** Cover of Simarro's work *Nuevo método histológico de impregnación por las sales fotográficas de plata* (*New Histological Method of Impregnation with Photographic Silver Salts*) (Madrid, Establecimiento Tipográfico de Idamor Moreno, 1900), intended for the *Revista Trimestral Micrográfica*, edited by Cajal.

impregnation method of the nervous system, ingeniously using the principles of photography, an idea which, after refinement and simplification, later became the basis for Cajal's silver method" [16].

It is reasonable to think that Cajal's personality was not so different from Simarro's, either in their scientific interests, or in their social commitment. In addition to being passionate about histology and neurology, they were both great fans of photography, which they used to their scientific advantage, shared a seat on the management of the Junta de Ampliación de Estudios (Committee for the Extension of Studies and Scientific Research) (JAE) and were both interested in freemasonry. Simarro reached the highest rank in this organization in Spain, Grand Master of the Grand Orient [5] (Figure 3). As for Cajal, there is evidence that he was a member of the Caballeros de la Noche 68 lodge in Zaragoza at the age of 25, which was the part of the Grande Oriente Lusitano Unido, where he was given the nickname Averroes [21].

## Between a Teacher and a Citizen

It is true that Simarro did not publish much, but it is also true that his return to the Spain of the time, which he found even more stifling after his French sojourn, reactivated the political impetus of his youth. He certainly enjoyed professional success, but the immobile and retrograde climate of an intellectually isolated country drove him to tireless civic activity [2]. This is shown by the lecture he gave in 1886 at the Madrid Athenaeum, referring to two important Spanish doctors, Pedro Mata Fontanet (1811–1877), who was controversial and isolated by his own Spanish colleagues, and Mateo Orfila (1787–1853), who was acclaimed in his French exile. His apologetic speech was intended as a plea against intellectual and scientific conservatism. Therefore, it made perfect sense for him to be linked to the ILEs renovation



**Figure 3.** Photograph of Simarro published in the *Boletín Oficial y Revista Masónica del Grande Oriente Español* (*Official Bulletin and Freemasonic Journal of the Grand Orient of Spain*) (Year XXVI, number 316, Madrid, August 31, 1918), with the caption “Ilustre y Poderoso H., Doctor Luis Simarro, 33, Gran Maestro, Presidente del Gran Consejo de la Orden del GRANDE ORIENTE ESPAÑOL” (Grand Master, President of the Grand Council of the Order of the Grand Orient of Spain). Simarro Foundation Legacy, Complutense University of Madrid.

project, as he became actively involved in its educational work from 1888 onward as a lecturer in Physiological Psychology. This institutionalist influence led him to become involved in applying experimental psychology to the problems of pedagogy among other things, as shown by the content of his 1889 course on *El exceso de trabajo mental en la enseñanza* (*The Excess of Mental Work in Teaching*) [22]. Its content is interesting as an insight into Simarro’s personality, insofar as it allowed him to bring together his two great interests, science and society, advocating one of his main aspirations: scientific progress should be at the service of social progress in all instances.

### **The first chair of psychology at the Spanish University**

The early 1890s saw a momentous change in the academic organization of the disciplines of humanities in Spain. The result was the appearance of the first chair of Sociology, which was held by Manuel Sales y Ferré (1843–1910), the chair of Anthropology, which was awarded to Manuel Antón y Ferrándiz (1849–1919) and, finally, the chair of Experimental Psychology, which was taken by Luis Simarro himself [7]. This was certainly a well-deserved reward in view of his efforts to improve the scientific conditions in the country. This new platform was used by Professor Simarro to present the new psychology, especially Wundt’s psychophysiology and as a supporter of evolutionism and associationism, the proposals of authors such as William James (1842–1910), Francis Galton (1822–1911), and Vladimir Bechterev (1857–1927). But Simarro’s teaching activity had distinctive nuances that were in keeping with his free-thinking attitude. In the early days of the course, he used to ask students what they wanted to study and even offered them his own library to prepare for

examinations. However, it was so difficult to pass that, during the second year, a revolt broke out among the students. Not even Simarro’s great courtesy – he never failed his pupils but simply returned a blank paper to the person concerned, inviting them to take the examinations again – saved him from the anger of his pupils [7].

### **The social and political commitment of Luis Simarro**

Given that Dr. Simarro never forgot to publicly defend his ideas, it is likely that his self-confessed republicanism, his affiliation to freemasonry, which led him to defend freedom of thought to the hilt, the monism he advocated in the field of research and his agnosticism worked against his own interests, confirming the scientific silence that had surrounded him over the years. When he took up the chair, he reverted to the proselytizing of his early years, and his activity as a man of science was considerably diminished. But his institutional work as an active member of the Asociación para el Progreso de las Ciencias (Association for the Advancement of Sciences), his involvement in the creation of the JAE in 1907 and his contribution to the creation of the Residencia de Estudiantes (Student Residence) in Madrid are particularly noteworthy. He also belonged to the Monist League, an organization that sought to make science the basis for explaining the world and the driving force in people’s lives [2, 3]. This body included such prominent names as Ernst Haeckel (1834–1919) and Jacques Loeb (1859–1924). He was also a leading member of the Federación Internacional de la Libre Pensée (International Association of Free Thought) and, as such, a staunch opponent of the death penalty. It is not surprising that, after the events of the Tragic Week in 1909, he was the first prominent intellectual to come to the defence of Francisco Ferrer Guardia (1859–1909), founder of the Escuela Moderna de Barcelona (Modern School of Barcelona), who was unjustly accused, first, of being the mastermind of the failed assassination attempt against the kings Alfonso XIII (1886–1941) and Victoria Eugenia de Battenberg (1887–1969), and later, of being a social agitator. This was the context of his controversial 1910 book, *El proceso Ferrer y la opinión europea* (*The Ferrer Process and European Opinion*), which catalyzed a movement which managed to get the case reviewed in 1911 and the miscarriage of justice acknowledged after that [23].

Nor did Simarro avoid public meetings with liberal and dissident elements, or direct confrontations with the political and ecclesiastical authorities. Consequently, in 1913, in response to the controversial “Decree on Catechisms,” he organized a campaign in the defence of freedom of conscience and at the same time founded the Liga para la Defensa de los Derechos del Hombre y del Ciudadano (League for the Defence of the Rights of Man and of the Citizen), an organization that played a particularly important rôle in defending the trade unionists condemned following the general strike of 1917 [2, 3, 7].

Therefore, his appointment as Grand Master of Spanish Freemasonry was not a surprise. Nor was it a surprise that

Simarro himself used this forum to launch new progressive projects: the preparation and consolidation of the League of Nations, an intense pacifist campaign during the First World War and despite not sharing the ideology of the Bolshevik Revolution at all, the humanitarian defence of the Russian people in response to the international blockade. Even Miguel de Unamuno (1864–1936), who was prosecuted for press offences, found unconditional support from Simarro. It is unlikely, however, that Simarro's political leanings were sufficient to cloud his good judgment or to betray his anti-doctrinaire views. In this respect, it is known that Father Benito Menni (1841–1914), then Superior of the Hospitaller Order of the Brothers of Saint John of God, ignoring the advice of those who tried to dissuade him, went to Simarro's office in 1907 to offer him the post of director-doctor of Ciempozuelos Asylum (Sanatorium of Saint Joseph), a center authorized by the Ministry of the Interior by Royal Order of February 23, 1877. He wanted the best possible specialist for the job. Certainly, given his background, Luis Simarro could not accept the offer, but he did not give up helping Father Menni: he proposed that he hire one of his best disciples and friends, Miguel Gayarre y Espinal (1866–1936), who took on the task in 1908 with remarkable results. In fact, some of his other students, such as Achúcarro and Rodríguez Lafora [24, 25], would later also become directors of this center.

Luis Simarro's last gesture, as a man of science and an exemplary citizen, was to bequeath most of his fortune (some 600,000 pesetas at the time) and his personal library, which contained more than 4,000 books, to create a Foundation equipped with a large experimental laboratory that would contribute to studying and developing neuropsychiatry and psychology in Spain. The Foundation was set up in 1927, but his dream of a great research center was never realized and was finally cut short by the Spanish Civil War (1936–1939). Nevertheless, Simarro's plan was at least partially fulfilled, as the funds from his Foundation, now under the auspices of the General Foundation of the Complutense University of Madrid, were used for research grants and scholarships that benefited



**Figure 4.** Oil on canvas by Joaquín Sorolla entitled *Una investigación o El doctor Simarro en el laboratorio* (*An Investigation or Doctor Simarro in the Laboratory*) (1897). Sorolla Museum, Madrid.

students who have been great followers and catalysts of the tradition he started [7, 26] (Figure 4).

## Simarro and the Spanish School of Neuropsychiatrists

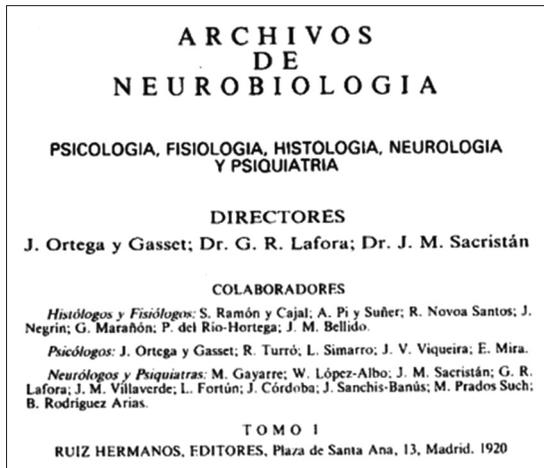
Cajal's great international prestige following the award of the Nobel Prize in 1906 [18] led to the creation of a large school of collaborators and pupils based around him. They included a group of neuropsychiatrists who went on to achieve enormous clinical and scientific prestige, some of whom were also disciples of Simarro, such as the aforementioned Nicolás Achúcarro, Gonzalo Rodríguez Lafora and Miguel Gayarre [27] (Figure 5).

All of them were distinguished by their extensive scientific training, mainly in the field of histopathology, acquired not only with Cajal, at the Laboratory of Biological Research, and Achúcarro, at the Laboratory of Normal Histology and Pathological Anatomy of the JAE, but also at the best European centers (mainly German, Swiss and French) in the field of psychiatry and neuropathology, introducing the nosological advances and clinical ideas proposed by the thriving Central European psychiatric currents on their return to Spain [26].

Spanish psychiatry at the time reached a major turning point in March 1920, with the publication in Madrid of a journal that would end up transforming Spanish psychiatric practice, *Archivos de Neurobiología* (*Neurobiology Archives*) (Figure 6). A number of psychiatrists came together around this publication, forming what has come to be known as the "generation of the *Archivos de Neurobiología*" or "first generation of psychiatrists in Spain" [11]. Pedro Lain Entralgo (1908–2001) also referred to them as "the medical side of the generation of 27." It was a generation characterized by the introduction of German psychiatry and Kräpelin's thinking in Spain: "The generation of the *Archivos de Neurobiología*, the generation of Achúcarro, Lafora, Sacristán, Sanchís Banús,



**Figure 5.** Santiago Ramón y Cajal in the Biological Research Laboratory, together with some of his disciples and auxiliary staff of the institution. It is worth noting that many of the members of the group moved into the field of neuropsychiatry, and some of them were also disciples of Simarro, such as Gonzalo Rodríguez Lafora (1), Miguel Gayarre (2) and Nicolás Achúcarro (3). Photograph published in *La Esfera*, in 1915.



**Figure 6.** First edition of the journal *Archivos de Neurobiología*, in March 1920, showing the cadre of directors and collaborators. Simarro, Cajal and all of their psychiatric disciples appear in it.

Villaverde, Prados, etc., was undoubtedly the first generation of great Spanish psychiatrists, provided that by psychiatry we mean something scientific and current” [11, 26]. Under the successive leadership of José Ortega y Gasset (1883–1955), Gonzalo Rodríguez Lafora and José Miguel Sacristán (1887–1957), *Archivos de Neurobiología* included all of the innovators in Spanish psychiatry among its contributors: “This journal [says its editorial mission statement] was founded to consolidate and organize this scientific movement, to include works by experts and new generations of researchers and to raise the awareness of the work of Spanish scholars in progressive countries” [28].

Simarro’s influence and, of course, Cajal’s, was so evident in the field of psychiatry that the presentation statement in the *Archivos de Neurobiología* journal, which confirmed the emergence of the first generation of Spanish psychiatrists and of modern psychiatry in Spain, states “neurological and psychiatric studies have recently undergone significant progress in Spain, due to the scientific activity of a young and studious generation, mostly trained under the guidance of Cajal and Simarro and in the clinics and laboratories of the most scientifically advanced nations” [28] (Figure 7). The list of contributors in the first issue of the journal (March 1920) included Simarro, Cajal, Gayarre, and Lafora. Unfortunately, Achúcarro did not appear due to his premature death two years earlier [26, 29].

## Conclusion

In this article, we have documented that Luis Simarro, a pioneer of psychology, was an enthusiastic scientist who was passionate in pursuit of new discovery in histology and neurology. His contribution in advancing the neuroscience, especially in histological techniques, made possible the great discoveries of Santiago Ramón y Cajal. He and Camillo Golgi received the Nobel Prize in Physiology or Medicine in 1906 “in recognition of their work on the structure of the nervous system.”



**Figure 7.** Luis Simarro, Valencian neuropsychiatrist and pioneer of histological stain techniques in Spain. Oil on canvas by Luis de Madrazo, entitled *El doctor Simarro al microscopio* (*Dr. Simarro at a microscope*) (1897). General Foundation of the Complutense University, Madrid.

Santiago Ramón y Cajal was the first person of Spanish origin to win a scientific Nobel Prize. His original investigations of the microscopic structure of the brain made him a pioneer of modern neuroscience and his great contribution to the history of science is undoubtedly the postulate of neuron theory. But the great work made by Luis Simarro has been overlooked either inside or outside of Spain.

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