

100 Years since Robert Barany's visit to the Zaragoza medical faculty

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Abstract. In December 1923, a twelve-day course took place at the University of Zaragoza, specifically at the Faculty of Medicine, given by Professor Róbert Bárány, who was awarded the Nobel Prize for Medicine in 1914 for his discoveries on the vestibular apparatus.

Professor Robert Bárány came to the faculty at the invitation of Professor Victor Fairén through the University Exchange programme. This course consisted of four lectures and twelve lessons a day in which he presented his knowledge of the physiopathology of the vestibule and cerebellum, as well as practical demonstrations of the physical examination of nystagmus and cerebellar pathology.

Lorente de Nó, a doctorate student of medicine, was one of the most outstanding students on the course. His intellect was already outstanding in those years, which helped him to discuss the physiopathology of nystagmus with Professor Bárány. The relationship he forged with the Nobel laureate in Zaragoza would be decisive for his future as a researcher.

The aim of this work is to compile and integrate the available information on the course that Professor Bárány took in the city of Zaragoza, consulting official documents from the university and the city, articles, books and the press of the time.

Keywords: Robert Bárány, Faculty of Medicine (University of Zaragoza), course on vestibular and cerebellum pathology, neuro-otology

1. Introduction

In December 1923, Nobel Prize winner Dr. Robert Bárány, professor and head of the Otolaryngology Service at the University of Uppsala (Sweden), stayed at the Faculty of Medicine at the University of Zaragoza where he delivered a course on physiopathology of the vestibule and cerebellum.

Robert Bárány was born on April 22, 1876, in Vienna, during the Austro-Hungarian Empire. Even in his childhood and youth, he stood out for his intelligence and showed an interest in studying medicine

due to the bone tuberculosis he suffered which, although not incapacitating, impacted him greatly [15].

In 1900 he graduated in medicine from the University of Vienna with a thesis on rhythmic nystagmus. Over the following years, he focused on his training in internal medicine with Professor C. Von Noorden in Frankfurt, neuropsychiatry at the local clinic in Heidelberg, and clinical neurology under the tutelage of Professor Kraepelin. In 1903, he returned to Vienna, his hometown, where his expertise earned him a position as a pupil of Professor Gussenbaur at the General Hospital, and, later, as an assistant to Professor Politzer at the ear clinic of the University of Vienna. It was thanks to the large number of patients he visited that he was able to gather the necessary information for his research on the pathophysiology

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of the vestibular apparatus, leading to the development of the concept “caloric response” [5, 14, 15, 21].

In 1906, he published *Investigations of rhythmic nystagmus and its accompanying manifestations from the vestibular apparatus of the ear*, synthesizing the existing knowledge of the vestibular system [17]. Among his contributions to medicine are the Bárány syndrome, characterized by unilateral deafness, migraine and vertigo; the establishment of causal link between alcohol and positional nystagmus; and the first surgical treatment for otosclerosis.

During the First World War in 1914, he served as a doctor in the Austrian army and was captured by the Russian army. During his captivity, he carried on practicing medicine. This allowed him to continue his research and become a pioneer in neurosurgery by advocating for the cleaning and closure of gunshot wounds in the head [13, 15, 18].

In 1915, he received the 1914 Nobel Prize in Medicine, for which he had previously been nominated several times between 1910 and 1914 for his work on the physiology and pathology of the vestibular apparatus. He received this prize while he was still a prisoner of war, which led to the intervention of Prince Carl of Sweden to make possible his release in 1916. However, upon his return to his hometown Vienna, he faced significant criticism from his former colleagues who denied him an honorary professorship at the University of Vienna and accused him of plagiarism for allegedly omitting in his work references to other scientists. In fact, the Vienna academy proposed a series of arguments to revoke his prize, which were investigated and ultimately rejected by the prize committee.

In response to the controversy, Professor Bárány moved with his family to Uppsala in Sweden and changed his nationality. There, he was appointed head of the Uppsala Institute of Otolaryngology in 1926 and he continued in this position for the rest of his life until his death in 1936 [22].

Robert Bárány was known for being a shy, quiet, respectful, intelligent and hard-working man who dedicated much of his free time to reading and researching. Although he had hobbies such as playing the piano and mountaineering, his primary interests revolved around medicine and research. Additionally, he promoted pacifistic and humanistic activities and he proposed the creation of the University of Peace, a goal he achieved in 1929 when he established the International Academy of Politics and

Social Sciences through the Rockefeller Foundation [14, 17].

2. Invitation to Robert Bárány and the arrangements for his visit to the Faculty of Medicine in Zaragoza

The invitation for Dr. Robert Bárány to deliver his course was facilitated by Professor Dr. Víctor Fairén Gallán (1860–1964) the first doctor and professor of Otorhinolaryngology at the Faculty of Medicine in Zaragoza.

In the work published by Lorente Valle (1962) (Fig. 1), there is a transcription from Dr. Fairén Gallán who mentioned: “During a short stay in Vienna, I met Professor Bárány, who would later go on to win the Nobel Prize for his research on vestibular pathways. Shortly after receiving this award, we crossed paths once again and we decided that he would come to this Faculty to deliver a ten-day course”. The relationship they created led Professor Fairén to show his interest in inviting Professor Bárány to visit the Faculty of Medicine at the University of Zaragoza [12].

The organization of the course received continuous support from the Faculty of Medicine, as stated in point III of the minutes taken during the Faculty Meeting from November 30, which read as follows: “He announced that Dr. Bárány was due to arrive at any moment and encouraged the professors to contribute to making his stay in our city pleasant, as we were being honored by the visit of a Nobel Prize winner”.

The stay was arranged through the University Exchange Programme. However, despite consulting the documentation of this program in the Historical Archives of the University of Zaragoza, the invitation could not be found, nor is it kept in the archives of the University of Uppsala.

The total costs of the stay amounted to 4,000 pesetas, which was paid in two installments. Invoice number 33, dated on December 11, 1923, shows a payment of 3,000 pesetas, while invoice number 35, dated December 21, 1923, is for 1,000 pesetas. This was a considerable sum of money, considering the value of the peseta in the 1920s -which, at the time, was comparable to the value of the dollar as Spain had not participated in the First World War.

Before the start of the course, a reception was held for the Faculty of Medicine on the morning of Saturday, December 1, 1923 at the Dean's Office. The event consisted of a welcome by the Dean (Professor Borobio) and a presentation by Professor Fairén.

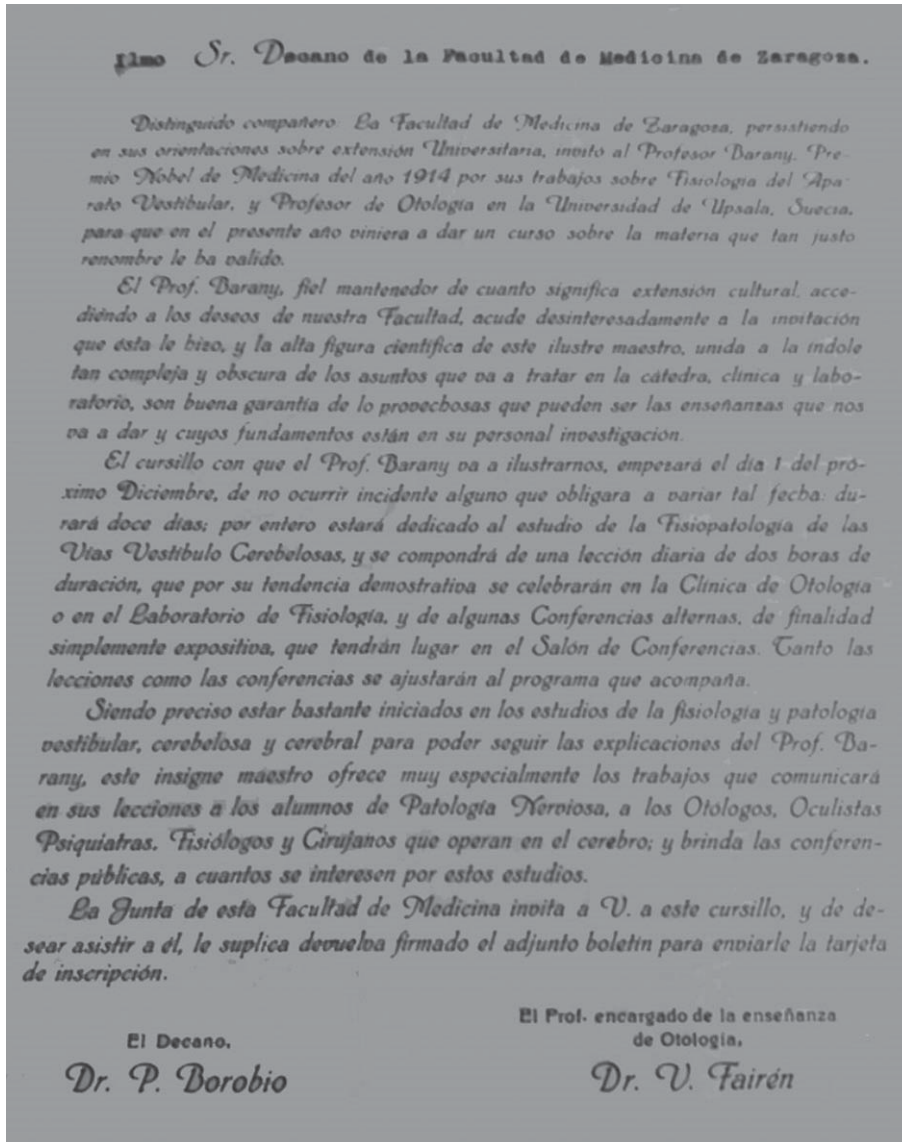


Fig. 1. Written communication from the Dean and Dr. Fairén informing about Professor Bárány's course.

The course took place in what we know today as the Paraninfo of the University of Zaragoza located in Plaza Basilio Paraíso, which at the time housed the Faculties of Medicine and Science. The course ran from December 1 to December 12.

However, we have come across various sources that mention different dates for this visit. For instance, Antonio Peiró [19] dates this event in March 1923, and Bartual [3] states on page 101 of his book *Una historia heterodoxa de la investigación vestibular* that Bárány visited Spain in 1922 and gave a 5-day course in Zaragoza.

The study program began with a theoretical presentation of a case and continued with a practical or experimental demonstration. According to a letter addressed to the professors of the School of Medicine, "the course that Professor Bárány will offer is set to commence on December 1 – unless any unforeseen circumstances arise that may force a change in the scheduled date- and it will span a period of twelve days. It will be entirely dedicated to the study of the vestibule-cerebellar pathways and will consist of a two-hour daily lecture. which will be held either in the Otolaryngology Clinic or in the Physiology Laboratory -

Mr. le Professeur
 Dr. Rojo y Villanova
 Recteur de l'université de Zaragoza

Monsieur,
 Veuillez accepter l'expression de ma plus
 sincère gratitude pour la réception extra ordinaire
 qui me fut part de l'université de Zaragoza.
 J'espère que quand un membre de la faculté
 de Madrid viendra à Upsala, je pourrai
 montrer que mes sentiments, éprouvés à Zera-
 goza, ne sont pas éphémères.

Agrées, Monsieur le recteur, mes meilleurs
 compliments et je vous prie, d'être le témoin
 de mes sentiments auprès de vos collègues.

Robert Bárány

Madrid 14. Dec. 1923.

Fig. 2. Letter of thanks from Dr. Bárány.

and several supplementary lectures aimed at providing an informative overview that will take place in the Lecture Hall”.

Due to the practical or experimental nature of the sessions, several patients were asked to attend the lessons in order to demonstrate Professor Bárány's knowledge. These patients encompassed a range of conditions including ear suppuration and vertiginous disorders; ear syphilis or acoustic syphilis; brain or cerebellar abscess; tumors of the acoustic nerve, cerebellum, brain or spinal cord; tabes or plaque scler-

osis with balance disorders; encephalitis lethargica; vertigo caused by tobacco, alcohol, lead or arsenic poisoning; vertiginous symptoms related to nutritional disorders; rheumatism; vasomotor disorders; hepatic or renal insufficiency and arteriosclerosis of the brain.

3. Professor Bárány's lectures in Zaragoza

During his time in Zaragoza, Dr. Bárány delivered four extraordinary lectures.

According to the journal *Unión de Estudiantes de Medicina*, the lectures were entitled as follows [20]:

1. *History of the discovery of the function of the vestibular system.*
2. *Ménière's disease and vestibular vertigo. Causes and treatment.*
3. *Dizziness and the vestibular system.*
4. *Treatment of brain and skull wounds by primary excision and suturing, according to my method.*

The first lecture was held on Saturday evening, December 1, at 5:30 p.m. The second lecture was delivered by Bárány on Wednesday, December 5, at 6 p.m. The third lecture took place on Saturday, December 8, also at 6 p.m. The fourth and last lecture is not documented.

4. Reception by the university of Zaragoza

The reception hosted by the University of Zaragoza took place on December 11, 1923 at noon in the Rector's Hall. The solemn Rector, Don Ricardo Royo Villanova, summoned all the University Professors fifteen minutes prior to the official reception. It was mandatory for the Professors and the Assistant Professors to wear gown, medallion and simple biretta. The most prominent figures of the city at that time were also invited including the Mayor, the President of the Provincial Council, the Civil Governor, the Captain General, the Capitular Vicar and the President of the Audiencia Provincial (provincial court). In addition, people linked to education were also invited such as the directors of the education centers, the head of the University Library and the presidents of the University Associations.

Although several local newspapers covered the news of the course delivered by Robert Bárány in Zaragoza, the information provided was rather limited given the significance of a Nobel Prize winner visiting the city. The newspaper *El noticiero* reported on Bárány's stay on December 1, 5, 7 and 11; whilst the *Heraldo de Aragón* covered the course on December 7 and 9 [9]. *El Día* also commented on the visit on December 5.

At a national level, the news had even less impact and the newspapers focused more on the days that Bárány spent in Madrid thanks to the course he delivered in Zaragoza. Only three national newspapers reported it coinciding in time with the lectures delivered in Zaragoza on December 7, 1923 (*El Sol*, *La Correspondencia de España* and *La Liber-*

tad). After that, while Bárány was in Madrid, other national newspapers echoed the news: in *La Acción* the December 19 edition merely had four lines about this event; *La Época* commented about the course on December 21 and *El Imparcial* did so on December 23. On December 24, the national newspapers *ABC* featured Bárány's lectures in Zaragoza under the headline "Professor Bárány in Spain" and it wrote: "the distinguished otologist has been called by the Faculty of Medicine of Zaragoza to deliver a course on the diseases of the labyrinth (...)" To make the most of Bárány's stay in Zaragoza, where he offered a course at the Faculty of Medicine, he was invited to deliver a lecture at the Royal Academy of Medicine in Madrid".

If we focus on scientific literature, the course delivered by Dr. Bárány had even less importance than in the popular press. However, *La Revista Española de Laringología* in its 6th issue of 1923 [7] devoted its news section to report on Dr. Bárány's visit to both Zaragoza and Madrid, and the relationship he forged with Rafael Lorente de Nó. Additionally, *La Medicina Íbera* in its edition dated December 15, 1923, also features Dr. Bárány's lectures [6]: "The Austrian physician, Dr. Bárány, recently honored with the Nobel Prize and one of the most renowned scientists in Europe, is in Zaragoza where he has delivered a series of lectures at the Faculty of Medicine. He focused on surgery of the cerebellum, the labyrinth and the ear. Doctors and Professors from other faculties came to listen to him". Lastly, although it was just a brief mention, the presence of the Nobel Prize winner in Zaragoza, was also documented in the Spanish edition of *The Journal of the American Medical Association* in January 1924 [16].

5. Relationship between Bárány and Lorente de Nó

During the first lecture a relevant event occurred between Bárány and Lorente de Nó (a doctorate student of medicine, pharmacy assistant and assistant in the biological research laboratory directed by Dr. Ramón y Cajal). Lorente de Nó approached Professor Bárány to ask him some questions. Bárány was astonished when the young Spanish student explained how he could remove the rapid component of nystagmus by making a narrow incision along the midline of the medulla and pons. The following morning, they both performed an experimental demonstration on rabbits to determine which eye muscles were involved

in the slow component of nystagmus. As a result of attending this conference, Lorente de Nó published a work in 1924 titled *Observations sur les réflexes toniques oculaires* where he explicitly acknowledges the lessons learned during the lectures delivered by Bárány in Zaragoza [11].

As there was no equipment available in Spain that could record the responses of individual eye muscles, Bárány suggested that Lorente de Nó could continue his research in Uppsala. Lorente de Nó went to Sweden after securing a grant from Junta para la Ampliación de Estudios e Investigaciones científicas [4, 6]. The stay was eventually extended to a period of three years between 1924 and 1927. This allowed Lorente de Nó to specialize in and conduct research on the physiopathology of the vestibular system, with a specific focus on vertigo and labyrinth function disorders [10].

Rafael Lorente de Nó, born in Zaragoza in 1902, began to study medicine in his hometown in 1916 where he stood out for his excellent academic performance. In 1919, he obtained a position as a boarding student in Histology and Pathological Anatomy, where he conducted experiments in neurology with Pedro Ramón y Cajal, the brother of Santiago Ramón y Cajal. However, due to special personal circumstances, he was forced to give up his boarding student status and enroll as an official student and lost his scholarship. Consequently, he moved to Madrid when he found employment as a pharmacy assistant. For this reason, he requested the transfer of his file to the Faculty of Medicine of the Central University where he finished his medical studies in 1922. Simultaneously, he had been working as an assistant in the Biological Research Laboratory directed by Professor Santiago Ramón y Cajal since 1920.

The invitation that Víctor Fairén Gallán extended to Bárány was the reason why he met Lorente de Nó who assisted at the lectures that Bárány delivered in the University of Zaragoza. Lorente de Nó proved to be well prepared and inquisitive and Bárány, instead of visiting Zaragoza or attending other social events, preferred to share debates with Lorente de Nó during his free time. As a result, Bárány invited him to the University of Uppsala, an invitation that was reaffirmed by Ramón y Cajal [1].

This relationship with Bárány along with his subsequent work as an otorhinolaryngologist and head of the ENT service at Casa de Salud de Valdecilla (Santander); and the lack of financial support towards research, led to Lorente de Nó to move to USA in 1931 with the assistance of the Rockefeller Founda-

tion. There he carried out a large part of his research and teaching career. His work included contributions to the vestibular nucleus, the cochlear nucleus and the anatomy of the VII pair of nerves. He also studied the cerebral cortex, the vestibuloocular reflexes and their anatomical pathway together with axonal nerve conduction [4, 8].

6. After Bárány's visit to Zaragoza

After concluding his course in Zaragoza, Bárány moved to Madrid, upon an invitation from Professor García Tapia, the city where most of the research was being done and where he met Santiago Ramón y Cajal. Thanks to this, the two Nobel Prize winners established a good scientific relationship. As a result, Bárány's visit to Spain was extended: the original plan of spending a few days in Zaragoza and in Madrid, became a four-month sojourn [12]. This way, he could continue his research on animals in Spain and he was also able to research alongside such an important scientist as Ramón y Cajal [21].

This scientific collaboration between Bárány and Ramón y Cajal encouraged Ramón y Cajal to invite Bárány to publish his manuscript *La bipartition de la couche interne des grains est-elle l'expression anatomique de la représentation isolée des champs visuel monoculaires dans l'écorce cérébrale* in journal *Trabajos del Laboratorio de Investigaciones Biológicas de la Universidad de Madrid* in 1924, a journal that was very selective in the subjects and authors it published [2].

7. Conclusion

This year, 2023, marks the 100th anniversary of the twelve-day course given by the Nobel Prize winner in Medicine and Physiology, Robert Bárány, at the University of Zaragoza. This visit, promoted by Víctor Fairén Gallán, entailed a high cost for the University of Zaragoza, but at the same time it was a great qualitative leap for all those who attended the course, where, after presenting new knowledge about nystagmus and physical exploration in patients with cerebellar problems, he introduced modern neurootology to the professionals who attended the course.

Attendance at this course for Lorente de Nó was key to his training in this field, demonstrating his intellect to the Nobel Prize winner, who wanted to work with him, inviting him to Upp-

sala, to end up developing his research in vestibular neurophysiology.

Thanks to his visit and stay in Zaragoza, Robert Bárány was able to meet and work in Madrid with Santiago Ramón y Cajal, creating a good scientific relationship between the two Nobel Prize winners.

In short, this course not only served to bring a Nobel Prize winner to the University of Zaragoza, who carried out great teaching job, but also established the relationship between Robert Bárány, Santiago Ramón y Cajal, and Rafael Lorente de Nó.

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