CONTRIBUTIONS to SCIENCE 9 (2013) 159-168 Institut d'Estudis Catalans, Barcelona, Catalonia doi: 10.2436/20.7010.01.175 ISSN: 1575-6343 www.cat-science.cat



Ibérica magazine (1913–2004) and the Ebro Observatory

Maria Genescà-Sitjes

Ebro Observatory, Roquetes, Tarragona, Catalonia University Ramon Llull-Spanish National Research Council (URL-CSIC), Tarragona, Catalonia

Correspondence:

Maria Genescà
Observatori de l'Ebre
Horta Alta, 38
43520 Roquetes, Catalonia
Tel. +34 977 500 511
Fax +34 977 504 660
E-mail: mgenesca@obsebre.es

Summary. The popular science magazine *Ibérica* was founded at the Ebro Observatory 100 years ago. It was introduced and developed by Ricard Cirera i Salse, S.J., founder of the Ebro Observatory in Roquetes, at the Ebro Delta, southern Catalonia. From the start, Cirera advocated for the importance of spreading scientific and technological knowledge as well as the latest advances in these fields. The magazine *Ibérica* was the manifestation of his efforts. It contributed to the popularization of science throughout its history and thus to a better understanding of scientific progress over the course of the 20th century. The present work aims to shed light on the context and setting of the project—its historical background, the relationship of the Society of Jesus to science and to the Jesuit *Col·legi Màxim* in Tortosa—as well as the path covered by the magazine from its inception in 1913 until the end of the publication, in 2005.

Keywords: *Ibérica* magazine \cdot science and technology popularization \cdot Ebro Observatory \cdot Society of Jesus

Resum. Fa cent anys nasqué a l'Observatori de l'Ebre la revista de divulgació *Ibérica*, fruit de la idea i planificació de Ricard Cirera i Salse, S.J., fundador de l'Observatori de l'Ebre a Roquetes (Baix Ebre). Des del començament, Cirera va propugnar la importància de difondre el coneixements científic i tecnològic, i els avenços que s'hi anaven produint. La revista *Ibérica* va ser la manifestació del seu esforç i al llarg de la seva història va contribuir a la divulgació de la ciència i, per tant, a entendre millor el progrés científic al llarg del segle XX. Aquest treball pretén fer conèixer l'entorn que va envoltar aquest projecte —els antecedents històrics i la relació de la Companyia de Jesús amb la ciència i el Col·legi Màxim que s'establí a Tortosa— i el recorregut de la revista fins al seu acabament, l'any 2005.

Paraules clau: revista *Ibérica* \cdot divulgació científica i tecnològica \cdot Observatori de l'Ebre \cdot Companyia de Jesús

By the end of the 19th century, the Jesuits had incorporated the study of science into the curriculum of the faculty of Philosophy at the *Col·legi Màxim dels Jesuïtes* (Jesuit Higher Col·lege). This would lead to the inauguration of three scientific institutes in Roquetes, at the Ebro Delta (southern Catalonia): the *Observatori de l'Ebre* (Ebro Observatory), in 1904; the *Laboratori Químic de l'Ebre* (Chemical Laboratory of the Ebro), in 1905; and the *Laboratori Biològic de l'Ebre* (Biological Laboratory of the Ebro), in 1908 (Fig. 1). The three institutes were founded and run by outstanding Catalan Jesuit scientists, re-

spectively, Ricard Cirera Salse (1864–1932), Eduard Vitoria (1864–1958), and Jaume Pujiula Dilmé (1869–1958). The three men had extensive scientific training obtained in different countries and were actively involved in research and in the diffusion of science. The Ebro Observatory, founded by Jesuit Father Cirera, was the first scientific institute to be inaugurated, in 1904 [8,9], and it continues to thrive in Roquetes. Together with research and geophysical communication, the outreach of science was among its initial objectives. To that end, Father Cirera founded the magazine *Ibérica*. The

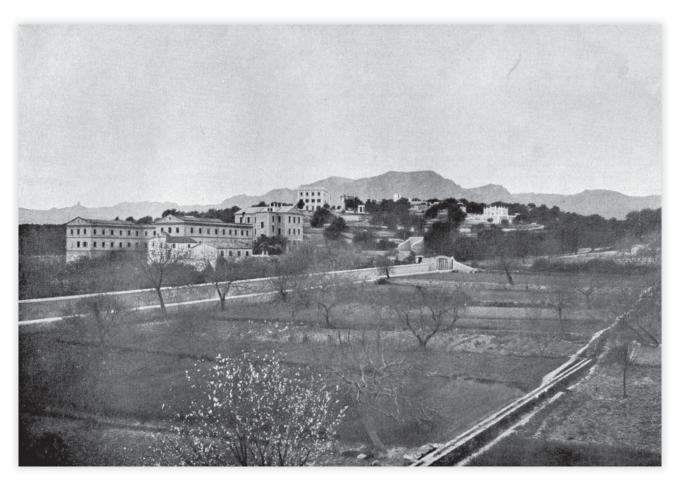


Fig. 1. Premises of the Col·legi Màxim in Roquetes, with the Ebro Observatory in the background. (Source: Archive of the Ebro Observatory)

Col·legi Màxim dels Jesuïtes, the Biological Laboratory, and the Chemical Laboratory later moved to Sarrià, on the outskirts of Barcelona. The latter became the *Instituto Químico de Sarriá* (IQS School of Engineering).

Historical and scientific background

Jesuits and science. Beginning with its founding in the 16th century, the Society of Jesus played a major role in the development of modern science, and a scientific tradition was established among its members [31]. The close bond between the Jesuits and science grew even stronger over time such that during the 18th century science was incorporated into the apostolic work devoted to philosophical training at their colleges and faculties. In the 19th century, however, bringing together religious beliefs and scientific ideas was undoubtedly a complex task. The Jesuits sought to reconcile the active role and involvement of the church in the field of science with the antireligious trend of scientism prevalent during those times. This situation facilitated the efforts of the Society of Jesus to allow its members to pursue studies in science. Hence, mathematics, astronomy, and the natural sciences

were a core part of the curriculum in their colleges, where a significant number of observatories were established. Methodical work began in some of these with the study of the atmospheric sciences and meteorology [32]. Throughout the 19th century, the Jesuits founded more than 70 observatories worldwide. The most relevant ones were in Havana, Cuba (1859) and in Manila, Philippines (1865), two countries under Spanish rule at the time [33].

Catalan Jesuit scientists from Tortosa and Roquetes.

The Society of Jesus in Spain was initially organized into one province. In 1863, this province was split into two: Castile and Aragon. The Jesuit province of Aragon comprised Catalonia, the Balearic Islands, Aragon, and Valencia. It also included the South American territories of Uruguay, Paraguay, Chile, and Argentina, as well as Cuba and the Philippines. In the province of Aragon, the Society established the *Col·legi Màxim* in Tortosa, at the Ebro Delta [22]. The college included both a faculty of Theology, located in Raval de Jesús (Tortosa), and, some 2 km away and next to the Ebro Observatory, the faculty of Philosophy, in Roquetes. By the end of the 19th century, a significant group of Catalan Jesuit scientists

had been trained in the *Col·legi Màxim* in Tortosa. However, many Jesuits left Spain for its overseas territories, in order to carry out missionary work.

In 1874, Father Antoni Vicent Dolz (1837–1912) returned to Spain after having completed his biological studies in Belgium. He was sent to the *Col·legi Màxim* in Tortosa to study theology and subsequently to teach the holy scriptures. Although he was not well known as a scientist, he was a key element of the scientific community in the region. He was also a prominent biologist who had been a student of Ramon y Cajal in Valencia [29]. Above all, he was known for having established the *Cercles Catòlics Obrers* (Catholic Workers' Circles) in Spain, inspired by his stay in Belgium. His continuous involvement in social activities for the Catholic Workers' Circles left him little time for his scientific interests, but he left his mark on the *Col·legi Màxim* before moving to Valencia in 1885.

During Vicent's teaching years, and for some more years thereafter, the finest Jesuit scientists were being trained in the *Col·legi Màxim*. Many of these shared Vicent's love for the Catalan language and culture as well as his approach to scientific research. The Jesuits at the Ebro Observatory published their scientific works in German, French, Spanish, and English, with the aim of reaching the international scientific community. In addition, thanks to their open attitude towards Catalanism, they contributed to the development of a Catalan scientific language [19]. An outstanding biologist and disciple of Antoni Vicent was the aforementioned Jaume Pujiula Dilmé (1869–1958), who went on to found the Biological Laboratory of the Ebro in 1908 [29].

At the same time, by the end of the 19th century there was a core group of scientists in Tortosa that revolved around a central figure, the prominent naturalist, astronomer, and geologist Josep Joaquim Landerer (1841–1922). He was a well-known scientist and popular science writer who contributed to a myriad of publications [11,12] (Fig. 2). Around 1880, Landerer collaborated with Father Vicent both in the Catholic Workers' Circles and in organizing and giving scientific lectures in Tortosa [1]. He was also a staunch advocate of the Ebro Observatory and helped in its establishment, by providing both moral and financial support [8,21].

This core group of scientists in Tortosa became one of the most relevant in Spain at the time. Landerer himself was a great resource, making available to his disciples both his extensive library and his various research instruments. Moreover, he instilled in them a love for study and research at a time when science in Spain was in a disgraceful state. Two of his most outstanding disciples were Innocent Paulí (1854–1921), who collaborated in the development of geophysical instruments for Landerer's observations [26], and the physician Jaume Ferran i Clua (1851–1929) [2,17] who, together with Paulí [30], contributed to innovations in photography

and telephony and participated in the development of a vaccine against cholera, the first artificial vaccine ever used in humans [2].

The Tortosa scientists also shared ideas and interacted with the Valencian physicist and politician Amalio Gimeno (1852-1936), who, like Landerer, strongly defended Ferran's vaccine when it was rejected by some members of the scientific community [2]. Their relationship was important for science not only in Catalonia but also in Spain. The reward for the group's actions in defense of science came when Gimeno, who had been appointed Minister of Public Instruction, created the Junta de Ampliación de Estudios e Investigaciones Científicas (JAE) (Board for the Extension of Studies and Scientific Research) [27,28]. The JAE was devoted to the creation of laboratories and research centers and to the granting of scholarships for the training of Spanish professors and researchers abroad. By the time the Royal Decree of 1907 was made public and the first scientific centers were established in Madrid, both the Observatory and the Chemical Laboratory were al-



Fig. 2. Josep Joaquim Landerer, at he Ebro Observatory premises. (Source: Archive of the Ebro Observatory)

ready operating in Roquetes and the Biological Laboratory was about to be inaugurated [9]. In addition, many of the Catalan Jesuit scientists disseminated across the globe had been trained in the faculties of Tortosa and Roquetes. These were the Jesuits who had founded and led the above-mentioned Spanish observatories. Some of the renowned Jesuits who worked at these observatories were: at the Manila Observatory, Frederic Faura, from Artés (1840–1897), Josep Algué, from Manresa (1856–1930), and Miquel Selga from Rajadell (1879–1956); at the Bethelem College Observatory in Havana, Benet Viñes, from Poboleda (1837–1893), Miquel Saderra-Masó, from Olot (1865–1939), Francesc Butiña, from Banyoles (1834–1899), and Antoni Cabré, from Tarragona (1829–1883); and at the San Miguel Observatory (Argentina), Ignasi Puig, from Manresa (1887–1961) [32].

Communication and scientific popularization. The efforts of these Jesuit scientists to pursue their studies and establish the importance of science in Catalonia and Spain can be seen in the context of the evolution of scientific communication in Europe, a process that began 300 years earlier [20]. Throughout the 17th century, and especially from the second half of the 18th century, learned scientific societies were emerging all across Europe, mostly in France and the United



Fig. 3. Premier issue of *Ibérica*.

Kingdom. Their aim was to promote the research and findings of their associate members, including by publishing the results in journal form. While many such journals were short-lived, on 4 November 1869, the first issue of the weekly journal *Nature* was published. Its aim was to acquaint the general public with advances in science and to enable scientists to publish the results of their research [13]. Some years later, in 1880, the journalist John Michels founded *Science* in the United States, a scientific journal that was associated with the American Society for the Advancement of Science [14].

Meanwhile, royal academies were established in Spain. Their aims were in line with those elsewhere in Europe: to understand, discuss, and disseminate knowledge and culture [23]. The Spanish Royal Academy of the Exact, Physical, and Natural Sciences was founded in Madrid in 1847. By the end of the 19th century, the principles proposed by the *Institución* Libre de Enseñanza (Institute for Free Education), the ILE, were gaining increasing acceptance. The ILE sought greater intellectual development in Spain and the promotion and popularization of knowledge, with the aim of improving science in the country. Its efforts were realized in 1907, with the creation of both the above-mentioned JAE and, in Catalonia, the Institut d'Estudis Catalans (Institute for Catalan Studies, the Catalan Academy of the Sciences and the Humanities) [24,25]. The urgent interest of these societies in science communication was too obvious to be ignored, and was met by the development of periodical publications.

Ibérica, a weekly popular science magazine

Within this framework, the Ebro Observatory took on the responsibility of promoting science, a task that went hand in hand with its research in geophysics. This was accomplished through *Ibérica*, a magazine of high scientific rigor and the product of a team of exceptional contributors [10].

The main objective of the publication was as a format by which the Ebro Observatory could contribute to the popularization of scientific and technological knowledge while fostering scientific progress. The initial plan was ambitious: to gather and summarize knowledge of potential interest to the general public. A wide array of subjects was covered, with a proper balance between the relevance of each one and the amount of space devoted to its presentation. Also, because the articles were intended for a wide audience, they were authored by specialists in their respective fields. Another aim of the magazine was to fill the gap left by other Spanish publications, by catering to the large part of the population that was eager to learn about the latest scientific advances (Fig. 3).

The framework and the context suited the magazine, which found its place within a consolidated core group of scientists. Apart from the Observatory, both the Chemical Laboratory and the Biological Laboratory were fully operational.



Fig. 4. First team of Jesuit scientists at the Ebro Observatory and *Ibérica*. (Source: Archive of the Ebro Observatory)

The Jesuits in these institutes contributed to *Ibérica*, as did those from other colleges and Jesuit institutes from across the globe (Fig. 4).

Sections, content, and early authors

When *Ibérica* was founded, its subtitle was *El progreso de las ciencias y de sus aplicaciones* (The progress of science and of its applications) (Fig. 5). By the end of 1913, two issues had been published: *Spécimen A*, in October, and *Spécimen B*, in November. Starting in 1914, a regular weekly issue was published. These weekly issues would be compiled into two yearly volumes, which included accurate subject and author indexes. At that time, both a deluxe and a regular edition of the magazine were published. The latter was intended for a wider audience and was delivered to readers who paid for a sixmonth subscription [5,6]. The printer was *Imprenta Moderna de Algueró y Baiges*, from Tortosa.

From 1914 to 1925, the magazine's sections remained almost invariable: "La crónica científica" (Scientific chronicle), which included news (inventions, new applications, phenomena of interest); "Boletín científico" (Scientific bulletin), devoted to the progress of theories; the body of the magazine, with a series of articles that described the progress of scientific theories; and "Sección bibliográfica" (Bibliographical section), which included reviews of new books for those who wished to broaden their knowledge on the topics covered. Each issue also included ephemerides, observation data, and advertisements. These advertisements were both a means of additional financing *Ibérica* and a source of information for its readers [5,6]

The contents covered the fields of exact sciences, physics, and the natural sciences, and discussed international scien-

tific and technological advances. Special attention was paid to progress taking place in Spain and other Spanish speaking countries. Astronomy, meteorology, and geophysics had a central role in the publication, which included excellent illustrations. The magazine adopted theoretical, practical, and informative approaches to its content. By reading old issues, one can follow the development of science in physics, astronomy, photography, electricity, aviation, inventions, scientific expeditions, and military technology.

In subsequent issues, *Ibérica* focused on specific topics. For example, on the occasion of Einstein's visit to Barcelona in 1923, it chronicled all the related events, reported on their organizers, and summarized the lectures held during the famous physicist's visit. In addition, it also referred readers to previous issues whose contents were related to relativity and gravitation.

The magazine's editors and science writers, as well as the rest of its staff, were Jesuits who resided at the Ebro Observatory, including those studying in Roquetes (Table 1) [8]. In addition, the magazine had first-rate contributors and specialists from different scientific fields. Some of them were members of the aforementioned institutions of the Society of Jesus, while others were renowned university professors and lecturers with whom the editor-in-chief had become acquainted during his many scientific travels. The members of the Society of Jesus who contributed articles to the first issues of Ibérica included Eduard Vitora, Jaume Pujiula, Constantino Bayle, José Agustin Pérez del Pulgar, Manuel M. Navarro-Neumann, Enric de Rafael, Miquel Selga, Simón Sarasola, Longí Navás, Joaquím M. de Barnola, Julio de la Vaissière, Marc Deschevens, and Louis Boule. Among the most important non-Jesuits who wrote for Ibérica during its first year were Hermenegildo Gorria, from the Escola Provincial

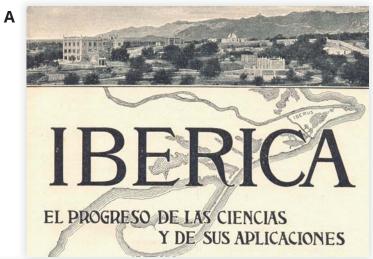




Fig. 5. Nameplates from the first period in the history of *Ibérica*. (A) Volume 1, January-June 1914. (B) Regular edition of the July 1936 issue

d'Agricultura de Barcelona (School of Agriculture of Barcelona); Josep Joaquim Landerer, from the Spanish Royal Academy of Sciences; Lluís Cirera, from the Royal Academy of Medicine of Barcelona; Eduard Alcobé, Rafael Campalans, Ramon Jardí, and Esteve Terrades, from the University of Barcelona; and Daniel Jiménez Cisneros and Josep Serrat Bonastre, from the Maquinista Terrestre i Marítima (one of the first companies to produce railway machinery and equipment in Spain). All of them wrote articles for a non-specialized audience, with the goal of contributing to the popularization of scientific and technological knowledge.

In 1916, the *Col·legi Màxim dels Jesuïtes*, the Chemistry Laboratory and the Biological Laboratory were moved to Sarrià, a neighbordhood of the city of Barcelona, while the Ob-

servatory and the magazine remained in Roquetes. However, *Ibérica* was about to fall on hard times.

The editors of Ibérica

The first editor-in-chief of the magazine was Ricard Cirera Salse, S.J., who held this position from 1913 to 1917. From 1888 to 1894, Cirera had stayed in the Manila Observatory, before coming back to Spain to finish his ecclesiastical studies. In 1899 he spent time in the main European cities in order to receive the training necessary to found the Ebro Observatory. He was both its founder and its first director as well as the first editor-in-chief of *Ibérica*. In 1917, Josep Albiñana, S.J. (1875–1922) replaced Cirera as the magazine's editor-in-

Table 1. Relevant contributors to Ibérica during 1913-1925

Author	Position held in the Ebro Observatory and/or the magazine
Josep Albiñana	Seismology Department at the Ebro Observatory. Deputy director and director of <i>Ibérica</i> magazine 1914–1922
Juan Forcadas	Photographer of the Ebro Observatory
Andrés Linari	Magnetics Department, library at the Ebro Observatory. 1916–1921
Joan Garcia Mollà	Member of the Geophysics, Seismology, and Magnetics Department at the Ebro Observatory. 1906–1921
Ginés Muñoz	Occasionally collaborated with Ibérica and with the Ebro Observatory
Juan Ortega	Magnetics Department at the Ebro Observatory. 1912–1915
Joaquim Pericas	Solar Energy and Seismology Department at the Ebro Observatory. 1910–1918, 1924
Enrique de Rafael	Collaborated regularly with <i>lbérica</i> and with the Magnetics Department at the Ebro Observatory. 1921, 1939, 1944
Luís Rodés	Deputy director of the Ebro Observatory. Renowned astronomer. Contributed popular astronomy articles to the magazine. 1914–1939
Francisco Rubio	Solar Energy Department at the Ebro Observatory. 1916–1931
Josep Sagristà	Magnetics and Seismology Department at the Ebro Observatory. 1917
Pedro Trullás	Seismology Department at the Ebro Observatory. 1917–1926

chief. Albiñana attended the First International Congress of the Catalan Language, held in Barcelona in 1906, where he met Bishop Torras i Bages (1846–1916), a representative of Catholic Catalan nationalism, and Antoni Maria Alcover (1862–1932), a priest from Majorca and coauthor of a descriptive, etymological dictionary aimed at gathering all the elements of the Catalan lexicon. Albiñana was professor of physics, chemistry, and mathematics and had studied theology in Belgium and the Netherlands. In 1914, the same year that *Ibérica* was founded, he was appointed head of seismology at the Ebro Observatory and thus began to collaborate with the newly founded magazine. In 1916, he was appointed head of the editorial office, and the following year he became *Ibérica*'s editor-in-chief [15].

After Albiñana's death, in 1922, the Argentinian Jesuit Andrés F. Linari (1881–1969) took over. He had previously been a researcher in the Electricity and Meteorology departments at the Ebro Observatory (1916–1917) and was in charge of its library. Linari also contributed to *Ibérica*, becoming associate editor in 1918 and editor-in-chief in 1923. It was Linari who was responsible for moving *Ibérica* to Barcelona in 1925.

Ibérica was founded at the Ebro Observatory. The reputation gained by that center in a few years, together with the high quality of the magazine's articles, contributed to increasing *Ibérica*'s circulation throughout Spain and Latin America. But it soon became clear that the magazine and the Ebro Observatory carried out different activities, and should therefore be separated. Moreover, the magazine's isolated location in

Roquetes hindered its growth. Thus, *Ibérica* was moved to a more central location [16]. In 1925, Linari paid for new premises in the center of Barcelona, in the Carrer Palau. These new premises met the needs of the magazine; they included a press, binding machinery, and a large library similar to that of Landerer's at the Ebro Observatory [3]. However, with the outbreak of the Spanish Civil War, in July 1936, *Ibérica* ceased publication.

After the Spanish Civil War and the Second World War, a period of almost ten years, Father Ignasi Puig i Simon (1881– 1961) relaunched Ibérica, in 1945. This marked the start of the second period in the history of the magazine [6]. Puig i Simon had been vice-director of the Ebro Observatory until 1933, when he left for Argentina to found the Observatorio de Física Cósmica de San Miguel (San Miguel Geophysical Observatory), on the outskirts of Buenos Aires. Returning to Barcelona in 1944, he reorganized and was in charge of *Ibérica*. He recovered its old premises and set up its first phone line. The magazine was published every two weeks, and in a smaller format. Puig i Simon was an active popular science writer, and he favored this format for the magazine. Other highly respected scientists continued their collaborations with Ibérica, such as Miquel Crusafont, Ignasi Sala de Castellarnau, and Ramon Margalef, the renowned ecologist who collaborated with Ibérica for over ten years.

The third period in the magazine's history started in 1962, under the direction of Father Pascual Bolufer, S.J., director until then of the Timetable and Atmospheric Service and deputy director of Geomagnetism and Telluric Currents at

the Ebro Observatory [4]. In 1971, the editorial office of *Ibérica* moved close to the Pedralbes campus of the University of Barcelona, in the street presently named Aristides Mayol (then, División Azul).

Under Bolufer, *Ibérica* became a monthly publication, and its subtitle was changed to *Actualidad científica* (Latest scientific developments). The magazine covered the great technological and scientific changes that took place during the second half of the 20th century. In the last four decades of the magazine, Bolufer maintained updated his devote readers (reading *Ibérica* in that time was common among many scien-

tists and academics) in the latest news of science and technology in the world. Besides, Bolufer knew how to attract the collaboration with *Ibérica* of other scientists writing from abroad, including Antonio Lazcano, from Mexico, and Lynn Margulis and Ricard Guerrero, from the USA. (Guerrero had also contributed with papers before, at the end of the 1960's, when he was still working on his doctoral thesis, in Barcelona.)

The new format and scope brilliantly maintained the life of the magazine for another 42 years. *Ibérica* stopped publication in 2005, with issue 478, ninety-two years after its founding.

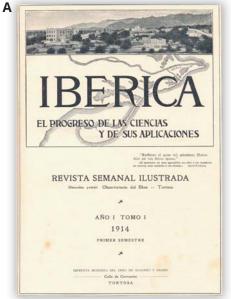








Fig. 6. Cover pages from different periods of *Ibérica*. (A) Volume 1, 1914. (B) Issue from the first period, February 1931, regular edition with advertisements. (C,D) Issues from the second and third periods, June 1951 (C), and December 1974 (D).



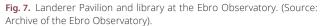




Fig. 8. *Ibérica*'s library and lecture room at carrer Palau, in Barcelona. (Source: Archive of the Ebro Observatory).

The library of Ibérica

The Society of Jesus has always had important libraries and archives, such as the collection of documents in the Col·legi Màxim in Tortosa. From the very beginning, it was obvious that the Ebro Observatory likewise needed a respectable library. During his preparatory travels throughout Europe, Father Cirera contacted several institutions, which agreed to send their publications to the Ebro Observatory. In 1905, the Ebro Observatory began publishing monographs, and in 1910, with the Butlletí d'Observacions (Bulletin of Observations), it started a regular exchange of publications with the libraries of hundreds of institutions throughout the world. Also, at the time when *Ibérica* was first published, the library began to receive many books to be reviewed in the magazine. Thus, the Ibérica library was created within the research library at the Ebro Observatory. These two libraries were eventually separated when Ibérica moved to Barcelona (Figs. 7 and 8).

The details of the misfortunes suffered by the *Ibérica* library during the prewar period and during the war remain unknown, but it seems that in 1932, when the government of the Spanish Second Republic suppressed the Society of Jesus, Linari managed to keep his position with *Ibérica* and to look after the library on Carrer Palau [18]. However, upon subsequent examination of the collection, some of its books were found to include not only the stamp of the library but also that of the *Institut Maurín* (Fig. 9). This institute, according to the Bulletin of the Andreu Nin Foundation, was located in the Palace of the Virreina, built in the late 18th century in La Rambla, in Barcelona [7]. In 1936, the palace was confiscated by the Iberian Communist Youth, the youth wing of the Worker's Party of Marxist Unification (POUM). In the Palace

of the Virreina, POUM established a cultural center, a political documentation center, and its own Marxist publishing house, directed by Juan Andrade. The palace may also have included a large public library housing Marxist texts published by POUM as well as many works confiscated from convents and other buildings. Therefore, during this time, part of *Ibérica*'s collection might have been deposited in this library, but it would later be returned to the library on the Carrer Pa-



Fig. 9. Cover of a book from the library housing *lbérica*, with its bookplates and stamps.

lau. Today, on the centenary of *Ibérica*'s founding, a large part of the library's collection that had been in Barcelona and was later kept at the library of the *Centre Borja*, belonging to the Jesuits and located in Sant Cugat, near Barcelona, has been returned to Roquetes.

Final remarks

In 2013, on the occasion of the centenary of *Ibérica* magazine, we pay homage to the work carried out by this group of enthusiastic Catalan Jesuit scientists. Their efforts have provided a relevant contribution to our scientific, technological, and bibliographical heritage.

Note

A partial collection of Ibérica, comprising volumes 1–14 (1914-1920) has been digitized, and can be accessed online as part of the ARCA project of the Digital Memory of Catalonia [http://mdc2.cbuc.cat/cdm/search/collection/iberica]. Complete printed collections of Ibérica can be found in different libraries, among them the own library of the Ebro Observatory (Roquetes) and the Institute for Catalan Studies (Barcelona).

References

- 1. Anonymous (1880) News. La verdad (Tortosa) 7 (10 octubre)
- Báguena Cervellera MJ (1995) Jaume Ferran i Clua. The first bacterial vaccine. In: Camarasa JM, Roca-Rosell A (eds) Science and technique in the territories of Catalan language: A biographical approach to the last 150 years, vol. 1. Fundació Catalana per a la Recerca, Barcelona, pp 651-679. (In Catalan)
- 3. Bolufer P (1995) A 75-year-old history. Ibérica 376:337-348. (In Spanish)
- 4. Bolufer P (2011) Science and technology in the 20th century as seen through the journal *Ibérica* (1914–2003). Contrib Sci 7:185-190
- Cirera R (1913) Science accessible to everybody (I). Iberica Spécimen A:1 (In Spanish)
- Cirera R (1913) Science accessible to everybody (II). Iberica Spécimen B:18-19. (In Spanish)
- Erdoziain P (2008) Meeting on the 7th anniversary of the POUM (Worker's Party of Marxist Unification) trial, Barcelona. [http://www.fundanin.org/pelloerdoziain16.htm] (In Spanish)
- García-Doncel M, Roca-Rosell A (2007) The Ebro Observatory. One century of history (1904-2004). Memoria n. 18. Publicaciones Observatorio del Ebro, Roquetes, 310 pp. (In Spanish)
- Genescà-Sitjes M (2007) Science communication to the society at the Ebro Observatory: a historical model. IV Spanish Conference of Science Communication to the Society, Madrid, November 23, 2007. CSIC and FECYT [http://www.csciencia2007.csic.es/actas/po_bl_12.pdf]. (In Spanish)
- Genescà-Sitjes M (2008) Iberica: First Spanish popular science and technology magazine published at the Ebro Observatory. Actes Hist Ciència Tècnica (Nova època) 1:377-386. (In Catalan)

- 11. Genescà-Sitjes M (2012) Landerer's legacy at the Ebro Observatory (2nd ed). Publicaciones Observatorio del Ebro, Roquetes. (In Spanish)
- 12. Gozalo Gutiérrez R, Navarro-Brotons V (1995) Josep Joaquim Lánderer i Climent. Research out of the academy: astronomy and geology. In: Camarasa JM, Roca-Rosell A (eds) Science and technique in the territories of Catalan language: A biographical approach to the last 150 years, vol. 1. Fundació Catalana per a la Recerca, Barcelona, pp 457-492 (In Catalan)
- Houghton B (1975) The beginnings of the scientific journal. In: Houghton B. Scientific periodicals: Their historical development, characteristics and control. Clive Bingley, London, UK, pp 11-19
- Houghton B (1975) The development and specialisation of the scientific journal. In: Houghton B. Scientific periodicals: Their historical development, characteristics and control. Clive Bingley, London, UK, pp 20-31
- Ibérica (1922) R. P. José Albiñana: Director of the Ibérica magazine. Ibérica 18:323-424. (In Spanish)
- 16. Ibérica (1925) Our moving to Barcelona. Ibérica 24:114. (In Spanish)
- 17. Landerer JJ (1885) Doctor D. Jaime Ferran. Ilustración Esp Amer 29:322-323 (In Spanish)
- 18. Linari AF (1932) Transcendental documents in the life of the magazine Iberica: Instances submitted to the chairman of the board appointed by decree on January 23, 1932. Ibérica 37:130-132. (In Spanish)
- 19. March Noguera J (2000) Contributions of the Jesuits from the Ebro Observatory to modern Catalan scientific language. In: Batlló Ortiz J, de la Fuente Collell P, Puig Aguilar R (eds) V Trobades d'Història de la Ciència i de la Tècnica. Societat Catalana d'Història de la Ciència i de la Tècnica, Barcelona, pp 425-431
- 20. Mckie D (1979) The scientific periodical from 1665 to 1798. In: Meadows AJ (ed) The scientific journal. Aslib Readers, Bingley, pp 7-17
- 21. Puig I (1927) The Ebro Observatory: General idea about it. Imprenta Moderna del Ebro de Algueró y Baiges, Tortosa. (In Spanish)
- 22. Raggi-Cantero S (1913) The Society of Jesus and its students one century after its restoration. Gustavo Gili, Barcelona, pp 70-73. (In Spanish)
- Reol-Tejada JM (1999) The Spanish Institute and Royal Academies. Arbor 163:1-18. (In Spanish)
- 24. Roca-Rosell A (1999) The learned societies of the IEC: Associationism and scientific research. Arbor 163:61-75. (In Spanish)
- Roca-Rosell A, Camarasa JM (2011) The foundation of the Sciences Section of the Institute for Catalan Studies (1911) and its early years. Contrib Sci 7:195-203
- Romañá A (1957) Telluric currents in Tortosa at the end of the last century.
 Publicaciones Observatorio del Ebro, Roquetes, pp 51-63. (In Spanish)
- Sánchez-Ron JM (2003) Contemporary history: the 19th century. In: Ordoñez J, Navarro V, Sánchez-Ron M (eds) Historia de la ciencia. Espasa-Calpe, Madrid, pp 425-514. (In Spanish)
- Sánchez-Ron JM (2007) The Board for the Extension of Studies and Scientific Research one hundred years later. In: Puig-Samper M (ed). Tiempos de investigación JAE-CSIC, cien años de ciencia en España. CSIC, Madrid, pp 29-37. (In Spanish)
- Teixidó-Gómez F (2011) Jesuit Jaime Pujiula Dilmé, key scientist in biology research in Barcelona. Llull 34:203-228. (In Spanish)
- Tió Sauleda S (2007) Ferran and Paulí: The immediacy in photography.
 Quaderns Hist Enginyeria 8:51-269. (In Spanish)
- 31. Udías A (2000) Contribution of the Jesuits to science throughout the 16th to the 18th centuries. Arbor 657:207-228. (In Spanish)
- 32. Udías A (2000) Observatories of the Society of Jesus 1814-1998. Arch Hist Soc Iesu 69:152-179
- Udías A (2003) Searching the heavens and the Earth: The history of Jesuit observatories. Kluwer Academic, Dordrecht, the Netherlands