

Creu Casas Sicart, a Renowed Spanish Pharmacist Specialized in Bryology

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Abstract

The main goal of this paper is to present the figure of who is known both in Spain and abroad as the mother of Spanish bryology, the Catalan pharmacist, from Barcelona, Creu Casas i Sicart, who became a member of the Catalonia Royal Academy of Pharmacy and became the first woman who joined the Institute of Catalan Studies. In it hee life is dealt with and new data is added to the biographies found on her in the literature. The historical context in which Botany was developed when she lived is framed and her numerous bibliographical contributions are highlighted. Both contributed to the introduction of bryology in Spain and subsequently to train a group of Spanish researchers on this discipline, which managed to expand it thanks to her numerous contacts with foreign colleagues.

Keywords: *Creu Casas i Sicart, bryology, bryophytes, mosses, liver plants.*

1. Introduction

The word “Bryology”, coming from the Greek word “bruon”, which means moss, refers to that branch of Botany whose object is the study of bryophytes, which are small plants without flowers or fruits, that live in humid or aquatic places. These plants are generally called “lower plants” and commonly called “mosses” and are classified into three classes: mosses (in the strict sense), anthoceras and liverworts.

The Catalan woman Creu Casas i Sicart, who began very early in this discipline, under the tutelage of professors Font i Quer and Seró Navàs, dedicated her entire life to it, introducing its study systematically in her country and becoming considered by all to be a true specialist in the field, and all of this despite the enormous difficulties of all kinds, both economic and gender, that she suffered and had to overcome to achieve her goals.

Certainly, Creu Casas is unanimously recognized in the academic field as an authority in the scientific description and classification of vegetables. In fact, the abbreviation “Casas” is used in IPNI to indicate Creu Casas i Sicart (see Note 1). Moreover, the importance of Creu Casa is such that two species of bryophytes are named after it: *Acaulon casasianum* and *Orthotrichum casasianum*.

The main objective of this article is to show her as a reference to society and as an example of a woman who had to overcome the enormous barriers that women of her time faced in order, first, to be able to access university studies and second, once these were done, fully develop her profession, which she did truly brilliantly. To achieve this, the methodology has consisted in searching for information in all types of sources, both digital and bibliographic ones, with the end of completing with new data the scarce biographies that exist about her in literature, to provide the most detailed vision possible of her figure and show her as a referent researcher woman in the field of botany.

2. Biography of Creu Casas

In Creu María Elena Casas i Sicart was born in a very small neighborhood of Barcelona, La Clota, in the municipal district of Horta-Guinardó, on April 26, 1913. Her father, Filibert Casas i Durán, was an

expert gardener and her mother, Creu Sicart i Roig dedicated herself solely to her housework.

Her paternal grandparents were Filiberto Casas i Casas, a farmer who cultivated a small vineyard in the Hebron Valley, and Maria Durán. They lived on Santo Tomás Street in Horta and had eight children, with Filiberto, Creu's father, being the third, who was born at the end of the 19th century. From a very young age, he accompanied his father to work. Her maternal grandparents, however, were not from Horta. The maternal grandfather, Pere Sicart, was from Cunit, in Bajo Penedés and the grandmother, Gertrudis Roig, was from Villanueva y Geltrú. In this last town they worked as landlords at the Notario Masía. They also had eight children and Creu Sicart was the penultimate of them.

In this regard, it is very curious why the maternal grandparents of Creu (Cruz in Spanish) Casas gave that name to their penultimate daughter, the one who was going to be her mother. Durán gives a reason for this in the biography he wrote about Creu Casas [1]

It is here where the name Cruz appears for the first time in the family. The reason is the boy with whom the eldest daughter, Aunt Dolores, began dating. He was a soldier from Ciudad Real named Cruz Mendiola. Dolores was the godmother of her little sister and had the whim of giving her that unusual name in Catalonia. The family objected and one of the uncles, a priest, absolutely refused to give that name. He also argued that the engaged couple could quarrel and that it was not worth choosing the name of a person who might not become part of the family. Certainly, they quarreled, but when Dolores and Cruz later met again in Barcelona, they started dating again and ended up getting married. In Barcelona, Cruz Mendiola became commander of the then called Municipal Guard corps, the members of which were mounted on horseback.

Moving on to talk about Creu Casas (whom we will refer to from now on as Casas), initially, her parents lived in Pedralbes, at that time an area full of scattered houses and fields, where the mother only took care of her work. When she was 4 years old, in 1917, her parents decided to look for a place where they could live better and where they could both work. The father's colleagues told him that in Can Patxot, at number 28 Passeig de la Bosanova, the owners wanted to employ a gardener, although those colleagues also told him that the family that lived there was somewhat strange and behaved in a very austere manner despite their excellent economic situation. Filibert paid the owner, Don Rafael Patxot i Jubert, a visit and fortunately he liked him. On a second visit, this time the couple and their daughter were there, Don Rafael's wife also liked Creu's mother and Creu herself was also very much liked by Concepción, the Cioneta, the daughter of the owners. They were therefore hired and the whole family began to live in a shed attached to the house. Filibert would become not only the gardener of the house but also a trusted servant of the owner. And Creu would have a close and magnificent relationship with the family, which would later help her undertake university studies, as we will see later in this biography [1].

Both the fact that her father was a gardener and the fact that she spent the first years of her life surrounded by nature were the reasons why she inherited from him her love and taste for plants and her interest in Botany. In this regard, she always re-remembered that her father took her on holidays to have chocolate and drink water at one of the Tibidabo fountains, outings that she took advantage of to collect plants and classify them later [1].

Furthermore, it was not just the family environment that influenced her to fall in love with that discipline. Many of her father's friends were also gardeners and at the celebrations which she attended

they talked about their trade. One of those friends, Joan Santamaría, collaborated with the botanist Pius Font i Quer on the Board of Directors of the Museum of Natural Sciences. On one occasion, Santamaría gave Creu an iron press to dry the plants and make a plant herbarium. He also gave him a book by Gaston Bonnier (1853-1922) that collected the flora of France. With all this, at just a few years old, Creu already knew how to perfectly differentiate the most common families of plants: papilionaceae, cruciferous, composite and labiate [1].

Despite living in Can Patxot (in Figure 1, Creu Casas appears with her parents in that house), her family was very humble and almost lacked the most basic means of subsistence. Creu Casas then went on to study high school at the Eulàlia Technical Institute, which had practically just been founded (see Note 2).



Figure 1. Creu Casas, with her parents in Can Patxot. Source: [1]

Later, as her family's financial means did not allow it, she had to accept the patronage of Rafael Patxot i Jubert to begin studying Pharmacy at the University of Barcelona in 1931 (see Note 3).

In addition to starting the study of that career, Casas also began studying nursing in Santa Madrona at the same time. In her pharmacy career, at the University of Barcelona she had as a professor the eminent pharmacist, chemist and botanist from Lleida, mentioned above, Pius Font i Quer (see Note 4), one of the most important researchers in Catalan and Spanish botanical science in the mid-20th century. Font had a great influence on her and strengthened her love for the world of plants, since the Botany classes that he taught, together with the enthusiasm with which he approached them, greatly impressed her, leaving a deep mark on her.

Although Casas completed her degree in Pharmacy in 1936, she had to revalidate her degree three years later because the Franco regime had annulled it. She also completed her nursing degree, but never practiced it as a profession.

Casas took advantage of the summers of the first years of her degree to work as a teacher. The money she earned by giving revision classes to children of wealthy Catalan families allowed her to travel and

see different areas of Catalonia and the Balearic Islands [2].

During the civil war she was doing internships in the pharmacy of Mr. Luis Boada, managing it once her career was over at the request of Boada's family, because he had to disappear for political reasons (see Note 5).

In the pharmacy of Mr. Boada (Figure 2), Casas worked only in the afternoons and part of the rest of her time was dedicated to collaborating in the Botany Seminar, in which research was done using material from the Botanical Institute. There she collaborated with Font i Quer, who at the end of the war was removed from official Botany, when he was arrested and sent to prison. Fortunately, many colleagues pressured to free him from death and years later, once released, he continued organizing excursions and meetings [2].



Figure 2. The Boada Pharmacy. Source: [1]

The cancellation of the September 1936 exams due to the purges that occurred at the end of the civil war meant that Casas was left without a degree and had to take the exam again. Fortunately, she managed to start working at the La Alianza pharmacy, in Quinta de Salud (Figure 3), a position she held for 27 years (the historic building of the Palau de la Mutualitat of the former Quinta de Salud la Alianza, was inaugurated on year 1915 in Barcelona, and has undergone several renovations to adapt it to current healthcare needs).



Figure 3. The Quinta La Salud, where La Aliaza Pharmacy, in Barcelona, is located. Source: [3]

It was in that pharmacy that Casas met Ramón Puig i Argemí (Figure 4), who was responsible for the bureaucratic management of the pharmacy as an administrator. He was from Cornellá de Llobregat and did not have a university degree, but in addition to theater and music he really liked hiking and photography, two hobbies that fit perfectly with Cruz's botanical hobby. As she herself remembers [1], he was “of extraordinary goodness”. They hit it off very soon and shortly after they got married, in 1942. The couple had a daughter, Roser [1].



Figure 4. Ramón Puig, Creu's husband. Source: [1]

The fact that Casas worked at La Alianza Pharmacy did not cause her to lose contact with the professional botanists she knew. The result of these relationships was the invitation she received to participate in an excursion to the Pyrenees with the Swiss botanist, geobotanist and phytosociologist Josias Braun Blanquet (1884 - 1980), who was very interested in the vegetation of the Iberian Peninsula and had published, either individually or together with Oriol de Bolòs i Capdevila (see Note 6), several articles on the flora of the Ebro Valley.

That excursion allowed her to meet the professor of Botany at the University of Barcelona, Taurino Mariano Losa España from Burgos, who in 1947, seeing many good qualities in her, offered her to collaborate with him in the Laboratory of the Faculty of Pharmacy (see Note 7).

Two years later, in 1949, a position for adjunct professor of Phanerogamy was offered, for which it was first required to be in possession of the degree exam and then to pass an opposition that consisted of several exams. Casas participated in it and obtained a position as an interim professor for 4 years, extendable to another 4 years as long as she obtained the doctorate degree.

During the first years in that position she did not leave her job at the La Alianza pharmacy, which she combined with her tasks at the University. But beyond all that, she wanted more. Taking advantage of the fact that the Oriol de Bolòs i Capdevila had finished his doctoral thesis on the flora of Montseny, she thought that she could complement that work if she studied the mosses of that area, given that the bryophytes were very little studied and for her it was a very beautiful subject of study.

Thus, Casas, using the limited bibliography that her director, Professor Prudencio Seró, could provide her, among which works such as *Nouvelle flore des Mouses et des Hépatiques*, by Daouin, *Muscologia Gallica*, by Husnot or the *Student Handbook of British Mosses*, from Dixon, and also counting on some help from Font i Quer, read her Ph.D. Thesis in 1951, titled “Mosses and liverworts of the Montseny Massif” [4].

Her advisor was Prudencio Seró i Navàs from Tarragona (see Note 8). The thesis that he addressed to Casas had to be defended in Madrid, as was mandatory at that time and was focused on the study of the Montseny bryophytes, as its title indicated. In addition to an exhaustive catalog of them, it also included the study of the bryophytic vegetation and complemented with the study of the bryophytes of that massif the Thesis that Oriol de Bolòs had previously defended, in which he had studied the vascular plants of that place. Casas' Thesis was later published in the *Annals of the Botanical Garden of Madrid* in 1958 and 1959 [2].

In 1952, Casas attended a practical course in bryology intended for a small group of teachers, which was taught by Valentine (Valia) Allorge (Figure 5), from the Museum of Cryptogam in Paris, whom the Director of the Botanical Museum of Barcelona had expressly invited to teach it. That course was one of the reasons that most encouraged her to dedicate herself to the study of bryophytes (see Note 9).

From that moment on, Casas frequently participated in international conferences and often went to visit the herbarium of the Museum of Cryptogam in Paris in order to study the samples that were exhibited there.



Figure 5. Valia Allorge with Prudêncio Seró on a field study excursion. Source: [1]

After Dr. Losa retired, Casas took charge of teaching the Botany subjects at the Faculty of Pharmacy. The new full professor, Salvador Rivas Martínez, very enthusiastically approved Casas' decision to dedicate herself to bryology and encouraged her to continue her work. During the first two years that Rivas held the chair in Barcelona (see Note 10), she organized a course on Phytosociology of the Pyrenees in which she was included in the group of attendees. In this course, the participants visited the Ordesa y Benasque Valley and the Aran Valley. The collection of moss they carried out was very important and allowed them to deepen our knowledge of the flora of the Pyrenees. Casas saw her contract as an adjunct professor at the faculty extended for another 4 years, after which she held a position as an assistant professor for another two years, when competitive examinations were called again. She became interim deputy again, a position in which she was provisional for 18 years and always, as from the beginning, combining her work as a pharmacist with that of a professor. On this last facet, Vigo affirmed in (2007) that [5]

She was, on the other hand, a conscientious and willing teacher, who dedicated all the time and effort necessary so that the teaching she taught obtained the best results. I admired her self-demand and more than once benefited from her observations and advice. I must also say that she was who encouraged me to decisively pursue my university teaching career and who helped me in this endeavor whenever she could.

At that time, the university associate professor position was created in Spain. To qualify for it, a series of requirements were asked and it so happened that only she met them in the entire country. Casas applied for that position and managed to pass all the tests, which also allowed her to change destinations and go to the Faculty of Biology of the University of Barcelona [2].

Later, and now alone, bryophytes became her main research and so she began to study them in different areas of Catalonia: Garraf, Mallorca, Cape Creus, the Monegros and the Pyrenees, from Ordesa to Cerdanya. In fact, the study of Pyrenean bryophytes continued throughout her life (Figure 6).



Figure 6. Creu Casas on one of her outings to the countryside. Source: [6]

Her research represented a notable advance, since until then botanical research in Catalonia and the rest of Spain had been limited almost exclusively to the study of vascular plants. Furthermore, her relationship with Valia Allorge contributed to increasing her interest in bryophytes and not only in nearby places, such as the surroundings of Olot, the Núria and Arán valleys and the Prades mountains but also in several localities in southern Spain, where she traveled.



Figures 7 and 8. Casas (left) and her husband Ramón (right) in July 1956, in the Austrian Alps. Sources: [1]

In 1956, she came to work in the Balearic Islands for the first time. That year she published her first article in which she recounted a brief vacation in Mallorca, where she had traveled with the aim of studying the flora and collecting mosses and lichens. According to herself

I especially explored the mountainous area between Lluc, Sóller and Bunyola, the most interesting from a bryological point of view because it is the most humid and the one that offers the greatest altitude differences.

In the Balearic Islands she consulted the work of botanical predecessors such as Rodríguez Femenías, Barceló or Knoche, whom she recognized as the few authors who had dedicated themselves to liver plants on the Island. Her expedition collected a hundred species of bryophytes, 28 of them belonging to the liverworts. However, Casas (Figure 9) was not particularly happy with that first research and was quite critical of it [1]

I do not think that this contribution is exhaustive [...], considering the size of the island and the altitudinal difference, it is to be hoped that new explorations will continue to enrich the liver flora.

And so she did, despite the fact that she barely personally visited the darkest corners of the heart of the Tramuntana Mountains.



Figure 9. Creu Casas. Fuente: [6]

On the other hand, the excellent botanical training he had also allowed her to take academic charge of teaching various disciplines. Thus, she was an associate professor of phanerogams at the Faculty of Pharmacy of the University of Barcelona (1949 – 1967) and an associate professor of Phytogeography at the Faculty of Biology of the same University (1967 – 1971). In that time, she made lots work trips to the field (Figures 10 and 11).



Figure 10. With her students and accompanied by her husband in the Nuria Valley. Source: [1]

In one of these stages, in 1969, she taught a course on bryology that was attended by professors from several Spanish universities, who, although many of them were already doctors and had their own lines of research, later contributed to promoting knowledge of bryophytes in their respective universities, going on to collaborate with her on some papers. In that workshop, Casas made two proposals to the attendees. The first, create a bryophyte exchange group between researchers from different universities. That group was finally created, with the name Briotheca Hispánica, and has allowed the distribution of more than 2,000 copies of them among its members. And the second, to carry out surveys in different unstudied areas of the Iberian Peninsula, the first of which took place near Gata Cape (Murcia), in which not only researchers, but also young university students, students or recent graduates participated.



Figure 11. Creu, sitting in the center, on an outing to Santa Cecilia de Montserrat. She is accompanied by her daughter Roser (left), Valia Allorge (behind) and a friend of hers. Source: [1]

In the following years, similar courses were held on Algology in Vigo and on Fungi in Tenerife. Researchers of other types of plants also participated in them, mainly lichenologists and pteridologists. Casas thought that the joint meeting of all of them would be a very positive fact and that these meetings should be more frequent, for example biannual.

The implementation of this idea was the celebration of the I National Cryptogam Symposium, in 1972 in Pamplona. Later, observing that the number of attendees at the meetings of the various groups of cryptogamists was quite high, Casas (Figure 12) believed it was necessary to promote outings only for bryologists, to which she gave the name “Bryology Meetings”, of which more than twenty have already been done since they began [2].



Figure 12. Creu Casas. Source: [6]

In her last active period, Casas held the chair of Botany at the Faculty of Sciences of the Autonomous University of Barcelona, from 1971 to 1983, thus becoming the first female professor of this discipline in Spain. There she worked hand in hand with Oriol de Bolós' team, which included Àngeles Cardona (see Note 11) from Menorca, who would end up succeeding her as professor [7].

As the Faculty of Sciences of the Autonomous University of Barcelona moved to the Bellaterra campus, it made possible for the Department of Botany to be created. As a consequence, Casas was forced to support a significant teaching load, although despite this her scientific production gave a notable leap from that time [4].

As already indicated, Casas, together with other cryptogams, saw the need to launch the Cryptogams Symposia (algae, fungi, lichens, bryophytes and pteridophytes), the first of which was held in Pamplona, in 1972, with a large attendance of participants (in 2021 the 23rd number was held). This initiative led to a notable expansion of the study of the different cryptogam groups and since then the number of bryology scholars in Spain has increased significantly due, in large part, to the fact that she always supported and encouraged young people with her knowledge and her enthusiasm. Thanks to her studies and those of her collaborators, the number of bryophytes and prospected areas has increased considerably in the Iberian Peninsula.

After retiring in 1983, she was named professor emerita and from that moment on she dedicated herself with greater passion to the study of bryophytes, founding the Spanish Society of Bryology in 1989 and being its first president [8].

Casas also founded the Bryophyte Herbarium, which is located in the Bryology laboratory of the Autonomous University of Barcelona, which currently contains more than 60,000 samples, not only from Catalonia and the Balearic Islands, but also from the entire Iberian Peninsula. Among them are also some from different areas of Portugal, obtained thanks to their contacts with Cecilia Sèrgio (see

Note 12), from the University of Lisbon, and others as a result of both national and international exchanges [8].

Casas was a full member of the Royal Academy of Pharmacy of Catalonia in 1981, a member of the Institute of Catalan Studies, the Catalan Society of Biology and president of the Catalan Institution of Natural History (1980-81).

In 1978, she joined the Catalan Academy of Sciences and Humanities, also being the first woman to become a full member of the Institute of Catalan Studies, in its Biological Sciences Section. Among other distinctions, she received the “Narcís Monturiol” Medal for Scientific Merit, awarded by the Generalitat of Catalonia in 1983 (Figure 13), the Catalan Foundation Prize for Research, in 2002 (Figure 14) and the “Serra d’Or” Criticism Award in that same year, all due to both her prolific scientific life, dedicated exclusively to bryology, and her notable contribution to the enrichment of the floral catalog of the Balearic Islands. There, she personally explored the fields of Mallorca in the 1950s, especially the central part of the Sierra de Tramuntana, but she also took advantage of the work done by colleagues and even family members to study the mosses and liverworts that they collected from Menorca, Ibiza or Formentera [4].



Figure 13. Jordi Pujol, President of the Generalitat of Catalonia, at the Imposition of the Narcís Monturiol Medal to Creu Casas ceremony in 1983. Source: [6]

With reference to the Serra d'Or Critics' Prize for the best scientific book in Catalan of the year, which she received in 2002 together with Brugués and Cros, José Vigo wrote in the prologue [1]

All Catalan naturalists - and all botanists in Europe - know that the research team to which the authors of this book belong is one of the leaders in the study of bryophytic plants. Dr. Cruz Casas, who is soul and guide, has dedicated herself to this task with admirable perseverance for a long time; She has created a school and has guided or promoted practically all the groups of bryologists that work today, not only in our country, but also throughout the Peninsula. It is not necessary to insist that her team, in which the coauthors of the work, Montserrat Brugués and Rosa M. Cros, play an important role, has achieved more than notable results, well valued by specialists and admired, perhaps with some healthy envy, for colleagues from other branches of botany.

Her contribution to bryology is summarized in 236 published works, in the form of articles, book chapters and books (the complete list of these contributions can be seen in [1], [2] or [9], for example), especially in the fields of taxonomy and floristics.

Among that immense contribution that she made to science are the first catalogs of bryophytes of Spain: Checklist of Spanish Mosses (1981 and 1991) and The Anthocerotae and Liverworts of Spain and Balearic Islands (1998). Also that of the bryophytes of the central Pyrenees and Andorra (1986) and, in collaboration with her colleagues Rosa María Cros, Montserrat Brugués and Cecilia Sérgio (see Note 12), the Red List of bryophytes of the Iberian Peninsula (1994) and The 2006 Red List and a Updated list of griffits in the Iberian Peninsula (Portugal, Andorra and Spain) (2006). All these works can be found fully referenced in the references cited above).



Figure 14. Creu Casas receiving the Fundació Catalana Award per the Research in 2002. Source: [1]

As the culmination of her career, Casas expressed her knowledge in two synthesis works, the *Flora dels Briòfits dels Països Catalans*, volume I in 2001 and II in 2004 [10] and the *Handbook of mosses of the Iberian Peninsula and the Balearic Islands* [11]. However, she not only limited her outings to the field. She also made trips to collect aquatic plants, especially in Port de la Selva.

On November 20, 1983, Casas gave her entrance speech at the Royal Academy of Pharmacy of Barcelona, in an event that had a large attendance and was of great brilliance (Figure 15).



Figure 15. Casas, giving her entrance speech at the Royal Academy of Pharmacy of Barcelona, in 1983. Source: [1]



Figure 16. Roser, Losa and Allorge on one of the field trips. Source: [1]

Throughout her life, Casas was a tenacious, fighter, very prepared and humble person, who always tried to help others in everything and in particular her students and collaborators. She was very family-oriented and had great admiration for her husband Ramón and adored to her daughter Roser (in Figure 16), whom, whenever possible, she asked to accompany her on her work trips to the field.

Casas died on May 20, 2007, at the age of 94, in Barcelona, while she was still preparing a new catalog of the mosses of the Pyrenees and the volume of liverworts from the Iberian Peninsula and the Balearic Islands.

Josep Antoni Rosselló, professor of Botany at Valencia University and one of her first colleagues, for whom: “Her findings constituted a solid base on which the Balearic catalog of mosses and liverworts has subsequently been increased and polished” remembers her in an obituary note that he wrote with these words [7]

Those of us who knew her will remember her as a great person, generous and humble, and a tireless, honest, rigorous and enthusiastic researcher. With her death, at the age of 94, not only the person has been lost, but a great void has been left in bryology.

In her honor, the Faculty of Pharmacy and Food Sciences of the University of Barcelona decided, on March 11, 2019, to name its Library Creu Casas i Sicart (Figure 17).



Figure 17. The Creu Casas i Sicart Library at the University of Barcelona. Source: [6]

And her immense legacy is by no means over. Casas has left a large number of excellently prepared disciples, with whom she collaborated in her scientific contributions (see Figure 18, in which appear from left to right, Montserrat Brugués, Felisa Puche, Ricardo Cariletti, Alicia Elena, Francisco Lara and Javier Martínez Abaigar (above) and Anna Barrón, herself and Rosa María Cros). With some of them she wrote one of her last publications, the “Lista Vermelha dos bryofits da Península Ibérica”. This list [12], which was edited in Portuguese and English by the Instituto da Conservação da Natureza

of Lisbon, includes various explanations about the bryophytes of the Peninsula, indicating not only the name of all the species but also their status at that time (this list can be consulted on the website of the bryology Laboratory of the Autonomous University of Barcelona. (www.uab.es/labbriologia/)).

For his part, Jaume Terradas, professor emeritus of the Autonomous University of Barcelona, gave a lecture at the Spanish Society of bryology glossing her work and her figure on May 19, 2019, which was subsequently published by the Institute of Catalan Studies [13]. And in the website of that society [14], the following three celebrations were announced for 2020 and 2021, among others: The Spanish Botany Symposium SEBOT 2020, in Seville (Spain), The iMoss IAB Meeting 2021, in Quebec (Canada) and The XXIII Symposium of Cryptogam Botany 2021, in Valencia (Spain), in all of which Casas' work and dedication to bryology were remembered with love and admiration.



Figure 18. Creu Casas with several of her disciples and collaborators. Source: [1]



Figure 19. One of the last photos of Creu Casas with family members. Source: [1]

Moreover, Casas not only was she especially loved by her disciples and collaborators, but she also always enjoyed the affection and admiration of her entire family, as can be seen in Figure 19, in which she appears with some of her loved ones.

3. Conclusions

There is no doubt that the research of the Spanish pharmacist Creu Casas, Dr. Casas, as she was known by her students and her collaborators during her teaching days, has marked a before and after in the development of bryology in Spain and Portugal. Her study travels to the fields of Catalonia, the Balearic Islands and, to a lesser extent, southern Spain and part of Portugal, have been fundamental for the knowledge and classification of bryophytes, and have been the origin of the enormous development that this discipline has today.

On the other hand, the teaching activity that she developed throughout her academic career is also highly commendable, which led her to train many of her students in her field, who began their research activities with her.

For all this, the author understands that Dr. Casas should be considered a true reference in the field of bryology in the Iberian Peninsula, since with her work and labor she has laid the foundations of the knowledge that is currently had about this type of plants, which makes her worthy of special recognition by the entire society in general and not only by researchers in the field of botany.

Notes

1. IPNI, an acronym for International Plant Names Index, is a database of the names and associated basic bibliographic details of seed plants, ferns and lycophytes. It was created in 1999 by The Royal Botanic Gardens, Kew, The Harvard University Herbaria and the Australian National Herbarium with the aim of eliminating the need for repeated references to primary sources of basic bibliographic information on plant names. Free and dynamic in nature, it accepts direct contributions from all members of the botanical community. More information about it can be found in the International Plant Names Index (IPNI): <https://www.ipni.org/> o de uga.

2. The Eulàlia Technical Institute (current I.E.S. Sante Eulàlia, in another location), was created in 1925 in the Sarrià neighborhood of Barcelona, in a neo-Gothic style building (originally it was the Pons Arola house of Enric Sagnier) that in 1985 received the Cross of Sant Jordi. During the Franco regime, it was also known as “Estudios San Marcos” when its license to teach Secondary Education was revoked.

3. Rafael Patxot i Jubert (Sant Feliu de Guíxols, 1872 - Geneva, Switzerland, 1964), was a well-known and highly reputed Catalan businessman, meteorologist, bibliophile and writer, as well as a philanthropist and patron of Catalan culture. A humanist with an independent spirit, he promoted projects in the field of popular culture and meteorology. He was an editor during the dictatorship of Primo de Rivera, a period in which he contributed to the edition of the publications of the Institute of Catalan Studies. He was a person linked to the intellectual and political movements of the time and to hiking. He went into exile to Switzerland during the Spanish Civil War, dying in Geneva in 1964.

4. Pius Font i Quer (Lérida, 1888 - Barcelona, 1964), botanist, taxonomist and phytogeographer, pharmacist and chemist, stood out as one of the most important names in Catalan and Spanish botanical science in the mid-20th century. Doctorate in Pharmacy in 1914, with a thesis on the flora of Bages, he was a professor of Pharmacy and Botany at the University of Barcelona and also at the

School of Agriculture and belonged to the military health corps, with the rank of lieutenant colonel pharmacist. He was a member of the Institut d'Estudis Catalans since 1942, of which he became President in 1958 and Vice President of the International Botany Congresses of Paris (1954) and Edinburgh (1964). He participated in the writing of the Dictionary of Botany (1953) and was the author of the work “Medicinal plants” on pharmaceutical flora. In his works in Spanish he appears mentioned with a Spanishized version of his name: Pío Font Quer.

5. Currently, the Boada pharmacy belongs to Mrs. María Montserrat Boada Solsona and is located in the Sants neighborhood, in front of Mercat Nou, the only modernist market in Barcelona remodeled and inaugurated in May 2014.

6. Oriol de Bolós i Capdevila (1924-2007), was a botanist specializing in flora and geobotanist, framed in the phytosociological school, specialist in floristics of Catalonia and the rest of Spain, and also of the Mediterranean and Macaronesian biogeographic regions, as well as Brazil. Among other works, he wrote “The Cartography of Vegetation in the Pyrenees” in 1950 and “The Vegetable Landscape of Barcelona” in 1967.

7. Taurino Mariano Losa España (1893-1966), pharmacist, botanist, mycologist and phytogeographer. He studied Pharmacy, obtaining a degree with Extraordinary Prize, in 1915, from the Central University of Madrid and received his doctorate in 1926. In the 1930s he entered the Faculty of Pharmacy of that University, where he was first a Practical Work Assistant and then an Assistant. In 1940 he won the Chair of Botany at the Faculty of Pharmacy of the University of Santiago de Compostela, where he became dean, and in 1942 the Chair of Botany at the University of Barcelona.

8. Prudencio Seró y Navàs (Cabassers, Priorat, 1883-1963) finished his degree in Medicine at the University of Barcelona in 1908, although initially he specialized in ophthalmology. He was very affected by the death of his son, which he could not prevent and that made him abandon Medicine and dedicate himself to Botany from then on. He obtained a bachelor's degree in Natural Sciences from the University of Barcelona in 1930 and a doctorate shortly after. He worked for a short period as a secondary school teacher in high schools in Cervera and Tarragona, but in 1939, with a position as a Botany teacher vacant at the University of Barcelona, he began to occupy a position as an adjunct professor in charge of the subjects of Phytography. Anatomy and Physiology of plants, a position he held until 1953, when he retired.

9. Valia (Valentine) Selitsky Allorge (1888–1977) was a Russian botanist, philologist and bryologist woman, later nationalized French, well known for having studied the bryoflora of the Bussaco forest, in Portugal, and that of the Pyrenees The IPNI (see Note 1) uses the abbreviation “V.Allorge” to refer to her.

10. It can be said that Salvador Rivas Martínez (Madrid, 1935) has done practically everything in his life. Already retired, he obtained a doctorate in Pharmacy in 1961, a degree in Biological Sciences in 1967 and is also a pharmacist, pteridologist, mycologist, teacher, mountaineer and mountaineer. He is a member of the Royal Academy of Exact, Physical and Natural Sciences and was Professor of Botany 1 and 2 by opposition at the Faculty of Pharmacy of the University of Barcelona, director of the Royal Botanical Garden of Madrid, Vicerector for research at the Complutense University of Madrid, where he was also a professor and director of the Department of Plant Biology II of the Faculty of Pharmacy. As a mountaineer, he was a member in the 1960s of the first Spanish expeditions to the great massifs of the planet, such as the Peruvian Andes in 1961. His abbreviation in Botany is “Rivas Mart”.

11. María de los Ángeles Cardona Florit (Ferrerías, Menorca, 1940-Barcelona, 1991) studied Biological Sciences at the University of Barcelona, where she graduated in 1963 and obtained her doctorate in 1972. From that year until 1985, she worked as an assistant at the Department of Botany of the University of Barcelona. In 1986 she became a professor of Plant Biology at that University, devoting herself thereafter to the studies of cytotaxonomy, a science that establishes identification based on chromosomal characteristics. her abbreviation in Botany is “Cardona”.

12. Cécilia Loff Pereira Sérgio Costa Gomes (1942) is a Portuguese botanist, bryologist, taxonomist, and professor woman who has worked extensively on the vascular flora of Portugal. She is a senior researcher at the Faculty of Sciences of the University of Lisbon and has participated in botanical expeditions to Madeira.

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