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CACTUS PEOPLE HISTORIES

Who is Helia Bravo-Hollis?

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Helia Bravo-Hollis was born on September 30, 1901, in what is nowadays Mixcoac in Mexico City (Figure 1). She was characterized by being always a person dedicated to study since a very young age, which is how she entered the National Preparatory School of the National University of Mexico after finishing her studies of elementary school at the end of 1918, obtaining the first place of her generation and because of this she obtained a diploma signed by the president Porfirio Díaz.

It was there in the National Preparatory School where she had her first contact with biology, with which she would spend the rest of her life. She had as friends the Mexican painter Frida Khalo, the writers, Octavio Paz (Nobel Prize) and Salvador Novo among many other prominent Mexicans. Her teacher, Dr. Isaac Ochoterena, introduced her to biology during her time in high school, and she was a collaborator in the realization of the first book about cacti in Mexico, we refer to *Las Cactáceas de México* by Ochoterena edited in 1922 (Figures 2 & 3).

Her first approach to cacti was during an expedition to "El Risco" hill in north of Mexico City around 1919, where she saw cacti such as *Mammillaria rhodantha*, *Ferocactus latispinus* and even *Echinocactus horizonthalonius* (an extinct species in this locality now) for the first time. (Figure 4). However, other expeditions in Xochimilco and Texcoco led her to become interested in aquatic flora and protozoans of the area, about which she published a series of 9 works entitled *Contribuciones para el conocimiento de los Protozoarios Mexicanos* in the *Revista Mexicana de Biología* from 1922 to 1925 and also published a work about aquatic plants titled *Las Lemnáceas del Valle de México* in 1930 at the *Annals of the Institute of Biology*, all these works were the bases of future studies



Figure 1. Helia Bravo-Hollis in childhood.



Figure 2. Helia Bravo with her companions of the National Preparatory School. In the centre Isaac Ochoterena, on the left side Helia Bravo.

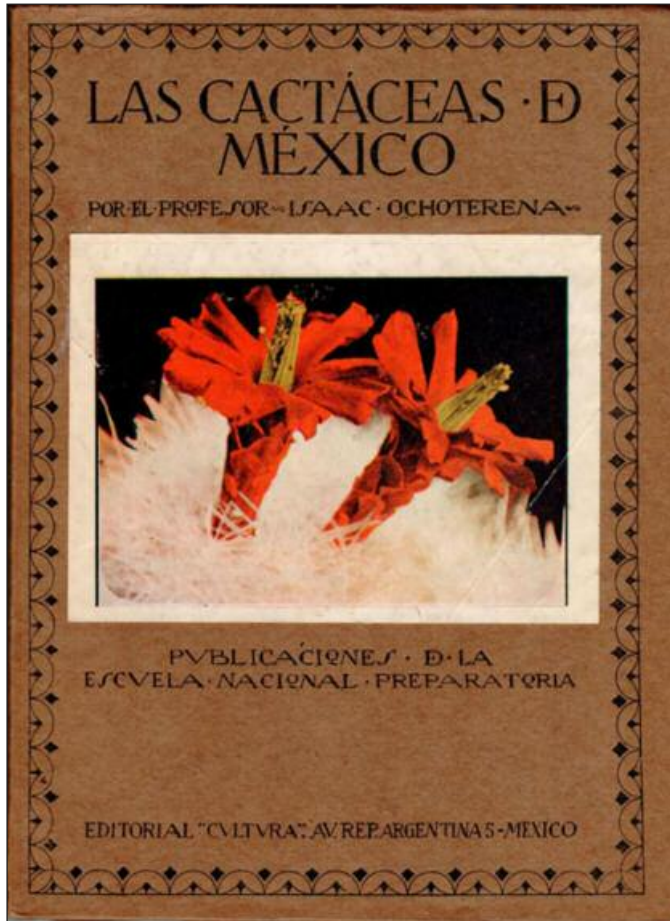


Figure 3. Cover of the book *Las Cactaceas de Mexico* written by Isaac Ochoterena in 1922, with the help of Helia Bravo. It is the first book on the subject in Mexico.

in these areas (Figure 5).

At the end of high school, she entered Medical School in 1923, where she spent the first two years of her career because that was the profession that her family wanted her to follow. During this time in Mexico, there did not exist a biology degree, but fortunately, the following year was inaugurated the degree of biology at the School of Higher Studies (nowadays Philosophy and Letters Faculty). In 1925, Dr. Bravo took the decision to change to biology even though her family did not agree with it (Figure 6). The course took her 4 years but in 1929 she fulfilled all the credits, then she became the first Mexican biologist to graduate. She graduated as a Master of Science in Biology from the Faculty of Philosophy and Letters of the UNAM in 1931 with her thesis *Contribución al conocimiento de las cactáceas de Tehuacán* (Figures 7 & 8).

After the National University got its autonomy in 1929, the Institute of Biology was created with Dr. Isaac Ochoterena in charge.



Figure 4. Helia Bravo with her companions of the National Preparatory School, on the hill "El Risco".

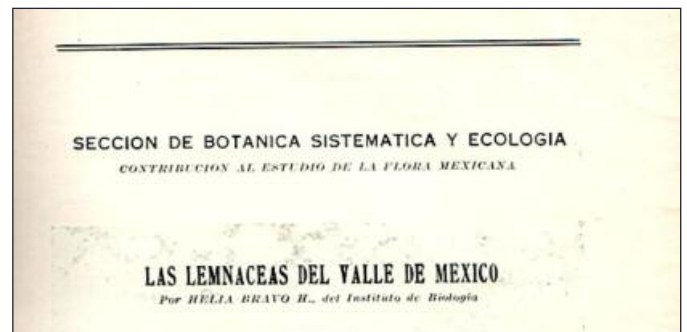


Figure 5. Article *Las Lemnaceas del Valle de Mexico* published in the Annals of the Institute of Biology in 1930.

He invited Dr. Bravo to be in charge of the National Herbarium. The Mexican government wanted that all the research that was carried out at UNAM would concern national themes so Dr. Ochoterena asked Dr. Bravo to take charge of the *Cactaceae* family. She began to get updated about it, because several new species had been described since the last publication of a book in 1922. Then she made many expeditions to various parts of the republic and as a result of her arduous and painstaking work she published the book *Las Cactáceas de México* in 1937 (Figure 9).

Helia Bravo was married for 13 years to Dr. José Clemente Robles, an eminent physician, and precursor of neurosurgery in Mexico. During this time Dr. Bravo moved away from biology, but after her divorce in 1950, she returned to her professional life and for two years she worked at the National School of Biology Sciences of IPN.



Figure 6. School of High Studies, today Palace of the Autonomy (Museum of the National University of Mexico).



Figure 7. *Las Cactaceas de Tehuacan*, work published as a requirement for a master's degree in biological sciences.

It was also in this year, 1950, that Bravo with Hernando Sánchez-Mejorada, Jorge Meyrán, Eizi Matuda, Carlos Chávez, and Dudley Gold founded the Mexican Society of Cactology, one of the oldest botanical societies of Mexico. Their first formal meeting was on May 2nd, 1952, with Bravo as president, Sánchez-Mejorada as secretary, Mr. Dudley Gold as treasurer with Eizi Matuda and Carlos Chávez as members. Meanwhile Dra. Bravo assigned to Dr. Jorge Meyran the foundation and direction of the magazine that would go by name *Cactáceas y Suculentas Mexicanas* that has been published quarterly up to the present day. The first number of this magazine appeared in July 1955 (Figure 10). The Mexican Cactus Society began its activities with about 50 members, but years later they tripled the number of members not only from Mexico but from all over the world. Originally, they held a meeting every third Thursday of each month.

One day, while Dr. Bravo was working in the Herbarium of the Institute of Biology, Dr. Ignacio Chávez, rector of UNAM and eminent



Figure 8. Helia Bravo-Hollis Master of Science

Mexican cardiologist, called her to tell her that her book of Mexican cacti (1937), was sold out and that there was no more in the bookstores of the university, and that also it was being requested abroad, so he asked her to prepare a second edition.

It would take about 40 years to publish the second edition of *Las Cactáceas de México*, which for many of us is not a second edition but something totally new, the first volume of this magnificent and important work saw the light of day in 1978, and for purely political and non-authoring reasons, volumes II and III were published in 1991, even though the originals had been finished for publication in 1982 (Figure 11). This work has as co-author Mr. Hernando Sánchez-Mejorada who was an eminent mexican cactologist (See Cactus Explorer 14).

Towards 1959, Helia Bravo and a group of cactophiles from the Mexican Society of Cactology discussed the importance of having a botanical garden where the Mexican cacti could be represented. To achieve this objective, the society committee spoke to Cueva Aleman an engineer and also a member of the same Society and chief of the gardens of UNAM. He agreed to assign land around the current



Figure 9. Book *Las Cactaceas de Mexico*, published in 1937 by Helia Bravo-Hollis.

Greenhouse Fausto Miranda, thus obtaining the necessary space to initiate this project that today is one of the most important botanical gardens in Latin America. In 1960 Dr. Bravo was placed in charge as director of the botanical garden.

Her publications are diverse, both in national and international magazines, about 175 works relating to several subjects. Concerning Mexican cacti, she proposed 57 new taxonomic ranks (genera, species, and varieties), 61 nomenclatural combinations, 9 reviews of genera or groups of species and 27 regional floristic contributions.

In her last years, she coordinated the work on the taxonomic study of cacti within the Mesoamerican Flora project, as well as the publication of a book about spreading cacti in co-authorship with Leia Scheinvar, called *El Interesante Mundo de las Cactáceas* which already has two editions and several reprints. (Figure 12)

In 1992, theatrical artists Jesusa Rodríguez and Liliana Felipe wrote and composed the music of the song "Las Suculentas" in honor to Dr. Bravo. ¹

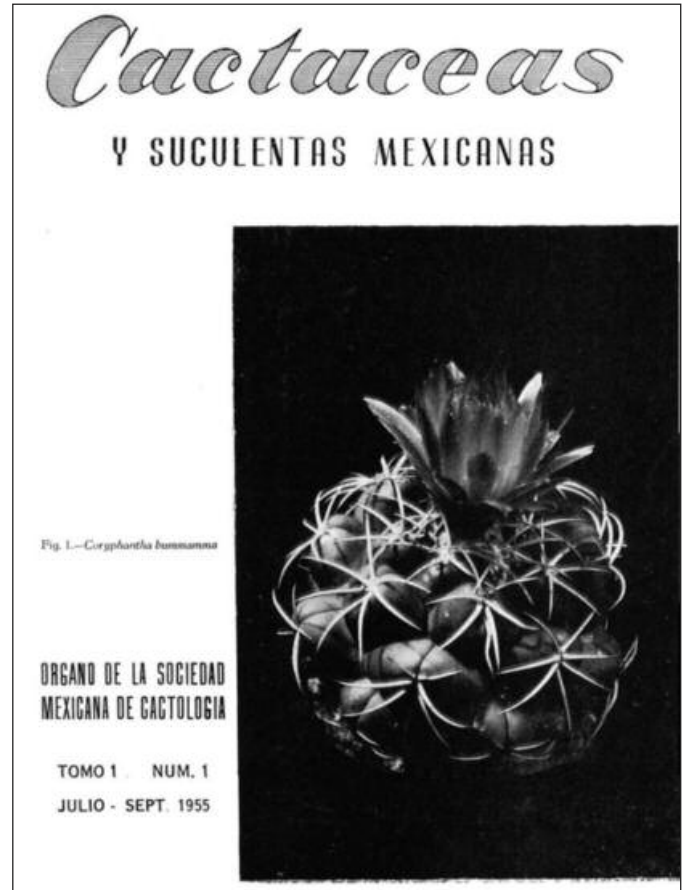


Figure 10. First number of the Journal *Cactaceas y Suculentas Mexicanas*, published in 1955.



Figure 11. Covers of the book *Las Cactaceas de Mexico* second edition 1978 (Vol. I) -1991 (Vols. II & III).

Some publications in numbers.

| | |
|-------------------------------|-----|
| Publications on cacti | 121 |
| Publications on protozoa..... | 9 |
| Miscellaneous (botanical).... | 31 |
| Biographical. | 9 |
| Books | 6 |

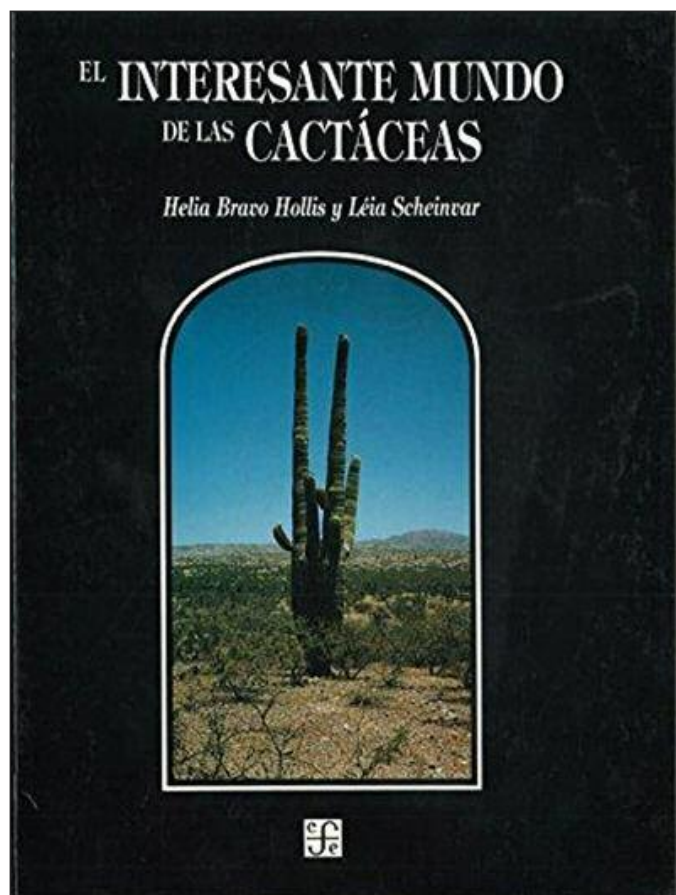


Figure 12. Cover of the book *The Interesting World of Cactaceae* written by Helia Bravo and Leia Scheinvar.

Some acknowledgments and positions she held.

- Diploma granted by President Porfirio Díaz. 1908
- In charge of the National Herbarium of the Institute of Biology 1950
- President of the Mexican Society of Cactology 1955
- Technical Advisor of the Botanical Garden 1959
- Medal to the merit botanical granted by the Botanical Society of Mexico AC. 1963.
- Interim Director of the Institute of Biology 1969
- Honorary President of the Mexican Society of Cactology 1971
- Cactus d'Or awarded by the IOS and the Princess of Monaco. 1980
- Doctor Honoris Causa by UNAM 1985
- Researcher emeritus by UNAM 1989
- Diploma awarded by President Ernesto Zedillo. 2000



Figure 13. Helia Bravo on her 90th birthday with her sister Margarita Bravo.

Some places and distinctions that bear her name.

- Special stimulus "Helia Bravo" for academic technicians of UNAM. 1988
- "Botanical Garden and Nursery of Cactáceas Helia Bravo Hollis", in Zapotitlán of the Salinas Puebla, Mexico. 1989.
- "Helia Bravo Desert Garden" Botanical Garden UNAM. 1989.
- "Cactus Garden Dr. Helia Bravo Hollis" Los Reyes Acozac, Tecámac, Estado de Mexico, Mexico. 1998
- Botanical Garden of cacti "Dr. Helia Bravo Hollis" Mexican Center of the Turtle. 2002

Species dedicated to Helia Bravo.

- Conopsis nasus heliae* Cuesta, 1930.
- Opuntia bravoana* Baxter, 1933.
- Mammillaria bravoae* Craing, 1945.
- Commelina bravoana* Matuda, 1955.
- Opuntia heliae* Matuda, 1955.
- Heliabravoia* Backeberg, 1956.
- Opuntia heliabravoana*. Scheinvar, 1975.
- Acourtia bravohollisiana* Rzedowski, 1984.
- Bravothrip*. Jonansen, 1987.
- Ariocarpus bravoanus* H.M.Hern.



Figure 14 &15. Coining process of Helia Bravo Hollis medal, by the sculptor Lorenzo Rafael. On heads Helia Bravo. On tails *Heliabravoa chende*. Photographs by Estefania Gomez Counahan.

& E.F.Anderson, 2002
Turbinicarpus heliae García-Mor., Díaz-Salim
 & Gonz.-Bot. 2015

After a hard work dedicated to the study, diffusion and conservation of cacti, Dr. Bravo retired from UNAM at age 90 for health reasons, and during her last 10 years she was not inactive because she was dedicated to her new passion of painting and in 1998 began to write her autobiography that she finished in 2001, for those who had the joy of knowing her and the honor of working with her will remember her as a person dedicated to work, teaching and research, always ready to help, and as a friendly and warm woman. (Figure 13)

In 2017, a medal was coined in her honor, by the outstanding Mexican sculptor Lorenzo Rafael to commemorate her birth, the medal was coined on pewter with the die-cutting technique. On heads appears the portrait of Helia Bravo, while on tails you can appreciate

sculpted the species of *Heliabravoa chende*, dedicated in her honor by the German Cactologist Curt Backeberg (Currently this species is recognized within the genus *Polaskia*). (Figures 14 & 15). In 2018 the medal was presented at the congress of the International Art Medal Federation (FIDEM) held in Ottawa, where the theme for that year was *Women in the Natural Science* obtaining honorable mention.

On September 30, 2018, the famous search engine of the internet, Google, dedicated its home page to Dr. Bravo, for the 117th anniversary of her birth, with a drawing of the eminent biologist along with diverse cactus species. (Figure 16)

Today, 17 years after her departure on 26th September 2001, the people that lived with her are left with a deep emptiness, but her legacy is great and continuous, with deep roots. (Figure 17)

With these words, we seek to make a small tribute to Dr. Bravo and let people know a



Figure 16. Home page of Google Search on September 30, 2018 to mark the 117th birth anniversary of Helia Bravo.

little of what her prolific life was like, one of the most important botanists on the subject of cactology.

“Through two great branches of biology we can know each other and trace our destiny: evolution allows us to know where we come from and the ecology where we are going. I sincerely hope that the generations of biologists who succeed me and all those who love life will know how to preserve it “

“Mediante dos grandes ramas de la biología podemos conocernos y trazar nuestro destino: la evolución nos permite saber de dónde venimos y la ecología a dónde vamos. Espero, sinceramente que las generaciones de biólogos que me sucedan y todos aquellos que aman la vida sepan conseroarla”

Helia Bravo-Hollis, 2001.

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Figure 17. Helia Bravo in 2001.

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