

THE AWAKENING OF MODERN ASTROPHYSICS IN MEXICO AND THE HARVARD COLLEGE OBSERVATORY *MEXICAN-AMERICAN INTERNATIONAL AFFAIRS DURING THE SECOND WORLD WAR*

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THE PROBLEM

At the end of the presidency of Lázaro Cárdenas (1934-1940), Luis E. Erro, a Mexican politician and amateur astronomer managed a project that led the astronomy of his country toward its encounter with modern astrophysics. When General Cárdenas asked Luis Enrique what he wanted for himself as a reward for his services to the revolution, he replied: "A National Observatory for Mexico". Cárdenas agreed, but he asked Erro right away how he was going to achieve this goal in his country without technical expertise and where there was only "...one sleepy major observatory, Tacubaya Observatory, directed by Joaquín Gallo". Erro replied that he had good contacts at Harvard Observatory, where he had come to know, via Leon Campbell, the great Harlow Shapley.

On December 18, 1940, Enrique Erro communicated to Shapley that "... the establishment of an Astrophysical Observatory has been decided upon by our Government", and emphasized "that they were going to show the old Guard in Mexico, what could be done when one has the right friends and the right spirit".

Shapley replied to Erro right away letting him know that he appreciated very much to have been informed about the whole background of the astronomical maneuverings in Mexico, and that much could be done in assembling powerful and useful equipment with a budget of \$20,000 US dollars.

The Dedication of the Tonantzintla Observatory was on February 17, 1942. The principal instrument for the new Observatory was a 27-31 Schmidt reflector accomplished in a great hurry by the Harvard Optical Shop. The question is: How was it possible in the middle of the war? According to the analysis done here, it can be explained as a consequence of the interaction between Harlow Shapley and Luis E. Erro in a very particular moment of the history of the relationship between Mexico and the United States within the context of the Second World War.

THE CONTEXT

On the one side, in 1940, an outstanding controversial election took place in Mexico, in which Avila Camacho was declared the winner. The strategy of the leader of the opposition was to conduct a revolt from the United States, whose interests had been damaged by the recent nationalization of the oil industry. But the elected president, Avila Camacho, accelerated the steps and sent an emissary to Washington, communicating that the new government of Mexico was interested in solving in a friendly way the pending matters between the two countries.

On the other side, the outbreak of the Second World War pushed the North American government to adopt the "Good Neighbor Policy", especially in the case of Mexico, whose nationalism had been always powerful. Despite the resentment caused by the nationalization of the oil industry, the White House and the Department of State, in view of the geopolitical importance of Mexico decided not to interfere in his political domestic affairs. As a proof of the official wish of restoring the links of friendship between the two countries, the American Government sent Vice-President Henry Wallace to the ceremony of the installation of President Avila Camacho.

The speech made by Wallace at the Chamber of Deputies in January 1941, predicted the establishment of a new era in the relationship between Mexico and the United States, within which the astronomical project very soon would start to play a remarkable role.

THE FACTS

Vice President Wallace transmitted a message to Harlow Shapley which indicated that:

Franklin D. Roosevelt and the White House would appreciate it if the U.S. astronomers invited to the Dedication of the new Mexican Observatory would all go to Mexico for the occasion, war or no war.

July 31, 1941. Speaking about the date of the dedication of the Tonantzintla Observatory, Harlow Shapley wrote to Luis E. Erro:

Some astronomers invited 'would find it difficult even if we bring pressure through Vice President Wallace'.

August 9, 1941. Bart Bok wrote to Harlow Shapley from Puebla City, Mexico:

The cooperation from Harvard is greatly appreciated and your offer to have the Schmidt built at Harvard is one of the best goodwill gestures that could have been made. If you ever get into difficulties with priorities, etc. for materials for the Mexico Schmidt you ought to point out to the powers that a pound of aluminum for the new Schmidt, or a completed worm wheel would mean just as much for national defense as a ton of steel for a battleship, or a propeller shaft. I have so far only bumped into one bit of very effective Nazi propaganda in Mexico. In spite of the blockade the Germans have succeeded in delivering three giant transformers for the new Polytechnical Institute in Mexico. They arrived a few weeks ago in a Swedish ship. The successful completion of the Schmidt camera would be a real boost to American prestige.

December 5, 1941 Letter of invitation from President of Mexico, Manuel Avila Camacho to Harlow Shapley to attend the Inter-American Scientific Conference in Mexico, from February 15 to 26, 1942:

The purpose of the Mexican Government is to contribute to the maintenance, in the American Continent, of the progress of science and culture, and thus counteract as much as possible, the paralization of scientific and cultural activities in the countries devastated by war.

March 3, 1942 Edward G. Trueblood, Second Secretary of Embassy, reporting the Inter-American Astrophysical Congress to the Secretary of State:

The Observatory itself stands as a symbol of close cooperation between the two countries, and its use will entail still closer cooperation in the years to come.

March 9, 1942 Bart Bok, wrote to Erro about the Conference:

It is a great thing in these difficult times to be part of a project in which the advance of science goes hand in hand with a strengthening of ties of friendship between two countries that have every reason to be friends.

March 24, 1942 Charles A. Thomson, Chief of Division of Cultural Relations, Department of State, Washington, to Harlow Shapley:

In sending you the attached copy of the Embassy's report, I wish to reiterate the Department's interest in furthering inter-American scientific relations and its desire to be appropriate assistance in this field.

January 11, 1943 Dr. Carlos Graef wrote to Harlow Shapley speaking about the organization of a Physical conference in Puebla that year:

Sr. Erro and Governor Bautista are extremely interested in Einstein's and Chandrasekhar's presence in the physical conference. They want to emphasize the fact that USA and Mexico know how to appreciate human values, regardless of race, religion and beliefs. Sr. Erro thinks that it is of the utmost importance that USA and Mexico tell officially to the world at this moment this democratic axiom. We hope that you can convince Einstein of the necessity of this coming to Mexico for the welfare of so many refugees in our countries.

January 19, 1943 Harlow Shapley sent to Erro a proposal list of physicists whom he thought would be appropriate to invite to a Conference in Puebla in May 1943:

Albert Einstein
Subrahmanyan Chandrasekhar
Enrico Fermi
Percy W. Bridgman
Robert A. Millikan

Arthur H. Compton
George R. Harrison
William Swann
James baker
Ernest Lawrence
Lyman J. Briggs

Supplementary or alternative names:

James Franck
Carl Anderson
Phillip Franck
John Tate
Isidor Rabi
Peter Debye
Ira Bowen
Robert Wood

Names written in pen:

Roseland
Robertson
Stewart
V. Hess

I could wish that there were a distinguished Chinese physicist, or a suitable Russian.

Written in pen the following indication:

In the last paragraph of Fermi letter write the sentence:

'The fact that you are an Italian recently established in America, makes the Mexican Government especially interested in your attendance, since they want to demonstrate liberality of attitude toward races, creeds, colors. Einstein will be invited also, and A. H. Compton, E. O. Lawrence.

January 23, 1943 Harlow Shapley wrote to Carlos Graef:

Last night I wrote letters to about ten of the leading physicists, acting under the direction of Seos Duhart, (Mexican ambassador in USA) who said I need not wait for a written statement.

January 23, 1943 Franck Aydelotte wrote to Shapley, about Einstein:

He feels very strongly that for reasons of health he ought not to undertake the trip to Mexico, and I am convinced that he is right. He has for a year been having a good deal of trouble with digestion, has been compelled to live on a very strict diet. He therefore asks me to send you his regrets.

I am glad you are taking Chandrasekhar and I hope you will be able to get some Jewish physicist in Einstein's place.

January 23, 1943 Harlow Shapley to Robert A. Millikan, Ernest O. Lawrence, Enrico Fermi, James Franck:

I hope that you realize, on thinking it over, that a vacation of ten days in a sunny climate, in beautiful surroundings, would be good for your health and your work and your spirit. It happens that such a vacation early in May this year, would also be of value in the Inter-American Good Neighbor program. I am assured that the State Department would approve your vacation, if it could be arranged, and the government of Mexico would be pleased and honored.

February 2, 1943 Harlow Shapley to Albert Einstein:

I am very sorry to learn through Dr. Aydelotte that your health is too uneasy to justify your risking a trip to Mexico in May. The scientists and Government of Mexico will be very unhappy to hear of your necessary decision. They have definitely counted on the power of your name and personality in demonstrating to themselves and their people, and to the world, that the new Mexico is decidedly not anti-Semitic, and that in all fields of intellectual and cultural development the government stands for tolerance of race, religious creed, color, political beliefs.

February 8, 1943 Harlow Shapley to George R. Harrison, Ernest Lawrence, James Franck, Victor Hess:

I have been asked through the Mexican Embassy in Washington to inquire if you would be able to accept an invitation from President Avila Camacho and

Governor Gonzalo Bautista of Mexico to attend a scientific conference in Puebla during the first week of May of this year.

As an informal Good Neighbor Agent of the Mexican Government, I have been asked to help them organize a party of about a dozen physicists which would go to Mexico at the expense of the Government of the State of Puebla.

At first thought it might seem both odd and impossible to hold even a rather informal conference in Mexico next May when the physicists are so deeply involved in the war effort. But in the first place this is in itself a war effort--a move in continuing to build up good relations with the Mexican Government, and as such the conference has the blessing of the State Department in Washington, and specially of Vice-President Wallace.

February 23, 1943 Harlow Shapley to R. A. Millikan, speaking about the physicists invited to the Mexican Conference:

That particular selection may surprise you in some points, but there were very definite reasons back of each choice, for example, Briggs of the Government, Hess the catholic, Franck, the Jewish exile, Chandrasekhar the Hindu, and so forth. For you see this is to be a demonstration not only of friendliness toward American eminence, but a publicized gesture of tolerance regardless of race, creed, or color.

March 30, 1943 Department of State to Harlow Shapley:

The Department is confident that the participation of your group not only will contribute notably to the advancement of the spirit of friendship, understanding, and cooperation among the scientists of the two countries.

April 16, 1943 Albert Einstein to Harlow Shapley:

I am sending you enclosed a letter addressed to the Governor Bautista which I beg you to be good enough to transmit to him in any way you see fit.

April 16, 1943 Albert Einstein to Governor Bautista:

In this time of brutal lust of power and barbaric persecution, which have debased the continent of Europe, Mexico is performing an important work of salvage. We are grateful to her for offering to European intellectuals a new home and an opportunity for new and fruitful work. In addition Mexico has--

more than any other country--opened her doors to the Spanish soldiers of freedom, and rescued many from shocking end. And Mexico, preserving her complete independence and her free traditions, has associated herself with United nations in their struggle against fascist oppression.

List of name of the delegates to the Physical Conference

Dr. James Barker, Harvard College Observatory

Dr. Percy Bridgman, Research laboratory of Physics, Harvard University

Dr. Lyman Briggs, National Bureau of Standards, Washington D.C.

Dr. S. Chandrasekhar, Yerkes Observatory

Dr. James Franck , University of Chicago

- Bart Bok, *Astronomia Mexicana*, 1930-1950, Marco A. Moreno C. *Historia de la Astronomia en Mexico*.
- L.E. Erro to H. Shapley, Dec, 1940, Harvard University Archives, Pusey Library, Harvard College Observatory, UA V 630. 22. 5 Box 1, Mexican Conference 1939-1942. (Erro was completely sure that he counted on Shapley. Two years earlier he had written to him: "The question of what technical assistance we may expect from you I do not ask, because you see that I have already taken it for granted." Erro to Shapley, February 21, 1939, Harvard University Archives, Pusey Library, Harvard College Observatory, UA V 630. 22. 5 Box 1, Mexican Conference 1939-1942.)
- Bart Bok, *Astronomia Mexicana*, 1930-1950, Marco A. Moreno C. *Historia de la Astronomia en Mexico*.
- On August 6, Miguel Aleman interviewed to Summer Wells, Undersecretary of the State.
- According to Luis Medina, the son of the president Roosevelt, Elliott Roosevelt seemed to have some preference toward the Almazan's movement. *Del cardenismo al avilacamachismo*, El Colegio de Mexico, Mexico, 1978, p. 124-128.

- Luis Medina, Del Cardenismo al Avilacamachismo, El Colegio de Mexico, 1978, Mexico. Bart Bok, Astronomia Mexicana, 1930-1950, Marco A. Moreno C. Historia de la Astronomia en Mexico, p. 210.