The Rockefeller Foundation Fellowship Program in Mexico:
Circulation of Students, Agronomic Professionalization and Modernization, 1940-1970

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Abstract

This report, which is part of an ongoing PhD investigation, presents a general panorama of the history of the Fellowship Program in Agricultural Sciences that the Rockefeller Foundation (RF) offered in Mexico from 1940 to 1970. For this purpose, the main subject of analysis is the group of Mexicans – or residents of Mexico – who carried out postgraduate studies, training or research trips abroad, mainly to the United States of America. Furthermore, analysis is also carried out regarding Latin American students who completed courses in Mexico within the Rockefeller program. This initial, and by no means exhaustive, analysis of the subject aims to show the link between the Fellowship Program and the intellectual revolution in agriculture. There was an academic and scientific exchange of ideas, promoted by the RF’s philanthropic work, linked with agronomic professionalization and the Green Revolution. These considerations are the basis that will later allow my PhD-level research to center on the itineraries of the fellows. These factors will also provide the foundation for my analysis of the ways in which their aspirations influenced the program, through their adherence, criticism and/or appropriation of the guidelines for the RF’s philanthropic work in science and of the agrarian goals of the Mexican government.
Presentation

In 1971, the plant pathologist Elvin C. Stakman, reflecting upon his experience as a staff member of the Rockefeller Foundation (RF) in Mexico, considered that the scientific collaboration between Mexico and the RF which began in 1943 with the establishment of the Mexican Agricultural Program (MAP), marked the foundation of an intellectual revolution that transformed the vision of agriculture. It also changed the role of specialists in the design of contemporary agricultural policy, promoting the increase of agricultural production. From his point of view, this task was carried out in three phases, tried out for the first time in Mexico and then later replicated in the programs established in Colombia, Central America, Chile and India.

As part of the first phase, the exchange between the Rockefeller Foundation and the national governments was established, in order to create chains of reciprocity, funding and common goals. The second stage was focused on the granting of specialization fellowships for students and key civil servants in areas of agriculture, and, naturally, those linked to the collaborative programs from the first phase. The main idea of these stipends was to train a new generation of specialists who not only had links to scientific research networks, but also spoke the international language of the agricultural sciences. At the same time, it was anticipated that the fellows be able to promote modernization, even after the RF had withdrawn its presence and funding. The third stage was focused on institutional development, including professionalization and public-interest agricultural research and teaching at national and international levels. This was the culmination of the scientific research funding, as by creating new institutions with their own sources of funding and were locally-run (employing Rockefeller fellows), continuity in modernizing plans was ensured, and, at the same time, a connection was established for the global exchange of ideas with specialist networks. In Mexico, these institutions were: the Oficina de Estudios Especiales (Office for Specialist Studies - OEE) created in 1943, the Colegio de Posgraduados (Postgraduate College - COLPOS) established in 1959, the Instituto Nacional de Investigaciones Agrícolas (National Institute for Agricultural Research - INIA) founded in 1961 and the Centro Internacional de Mejoramiento de Maíz y Trigo.
(International Center for the Improvement of Maize and Wheat - CIMMYT) instituted in 1965.

Despite the fact that each stage was important in the development of these operations, the conduit of the three phases on which the long-term success of these plans depended was the training of scientists through the fellowship program. Without the fellows, the financial donations would not have been appropriately channelled or sustained. In this way, the *intellectual revolution* favored diverse plans associated with the Green Revolution, such as: the development of standard biotypes of seeds for nutritional, livestock and industrial purposes; an increase in the mechanization of the productive process and the use of chemical implements; the substitution of traditional grains in favor of commercial varieties on a global scale; and, as a result of the former, international efforts for the collection, classification and preservation of the wide genetic range of crops, through the creation of gene banks.

The strength of this *intellectual revolution* did not depend solely on the financial backing or on the strength of the institutions. The initial impulse came from the enthusiasm of the people who participated in this process, who were committed to carrying it out. In the words of Jesse P. Perry, director of the RF’s fellowship program, the fellowship recipient needed to cause an explosion, as if there was not this kind of brilliance, initiative and leadership, then there would only be the idea that something was happening but that nothing would happen until that person made it; therefore “the measure of that success is the quality of the people.” For Perry, the fellow was the force that led the modernization process. Therefore, it was crucial to train the best and create conditions so that they were able to work with that spark and share it with other youths in their own countries, through teaching or research, and always taken on by themselves, that is to say taking the issue on with their minds and grasping them with both hands. This shows that the fellows were not supported just on the basis on their own merits, but also because of the impact that their professional training could generate in terms of the achievement of national and international goals. These objectives would only be achieved if the fellow returned to his or her country of origin, and this was therefore one of the features that characterized the Rockefeller program.
since its beginnings in 1917.

The mission transferred to the Rockefeller fellows in Mexico has not been studied in the historiography of the Green Revolution, which has focused its analysis on the operations of the MAP and its economic and social evaluation. Nor has it been studied by historians looking at the academic exchange of ideas promoted by the Rockefeller family’s philanthropic agencies, as the attention of this area of research has prioritized the study of Europe and medical and social sciences. For this reason, the current research seeks to contribute to both lines of investigation, through a consideration of the Mexican experience.

In that which follows, a general panorama of the workings of the RF’s Agricultural Sciences Fellowship Program in Mexico is presented. The trajectory of the insertion of the program in Mexico is established, highlighting its route towards professionalization and its connections with Green Revolution. This work required reading of different document groups, and of different types of supporting documents including correspondence, files, reports, periodic publications, directories, diaries, interviews, pamphlets, photographs and films.

Fellowships and the Road to *Intellectual Revolution*

From 1940 until 1970, the Mexican State sought to modernize agriculture as an area within its wide-ranging project to foment economic growth through industrialization. This implied support of a model for modernization based on the creation of hybrid varieties of maize and wheat, the mechanization of agriculture, and the construction of major irrigation works. This combination of practices marked the beginnings of the Latin American Green Revolution, a process which was incentivized by the agricultural collaboration between the Mexican government and the RF through the establishment in 1943 of the MAP. It was an initiative based on research on wheat and maize for the development of hybrid seeds, the creation of new types of fodder, and experimentation with pastures.
The most striking results (from a statistical point of view) were reported in wheat (grown by agricultural business), as an example, it was informed that, by the mid-1950s the country had become self-sufficient and began to produce a commercial surplus at the start of 1960. This did not happen with maize (a subsistence crop). Amongst the reasons we could consider: that the rapid results with wheat took attention away from maize and that the biology of the grain did not facilitate research at the speed of other crops. It could be said that the results of wheat and maize are representative of the effects that modernization generated in making commercial agriculture and exposing subsistence farmers.

Institutionally, the MAP operated through the OEE that functioned from the offices of the Secretaría de Agricultura y Fomento (Agriculture and Development Secretary), although in terms of its administration, it was led by RF personnel. In order to comply with the work agenda of the OEE, it was necessary to train a relevant number of the personnel in advanced agricultural research, despite the fact that Mexico had a considerable trajectory in agricultural teaching and three schools dedicated to sharing this knowledge (the Escuela Nacional de Agricultura, 1854 –National School of Agriculture–, the Escuela Agrícola “Hermanos Escobar”, 1906 –“Escobar Brothers” Agricultural School– and the Escuela Agrícola Antonio Narro, 1923 –Antonio Narro Agricultural School.) At that time, there were no centers that imparted postgraduate level courses. In order to improve this aspect, the RF extended its Fellowship Program to Mexico, to support in the training of students and civil servants in the areas that the plans required, including: agronomy, genetics, botany, pomology, pathology, entomology, soil science, veterinary studies, biology and emerging fields such as agricultural economy and specialized librarianship in agriculture. The case of José Rodríguez represents this pioneer generation, as he was not only the first RF agricultural fellowship recipient in Mexico, but he was also the first plant pathologist in the country.

In order to establish the number of fellows, I added up the total number of Mexicans (or those residing in Mexico) that had carried out some kind of scientific or academic activity with funds from the RF fellowship program in the area of the
agricultural sciences. A total of 294 fellowships (three of them for women) for students obtaining Masters or PhD degrees, training, or for short trips between 1940 and 1970. The number of fellows is less than the number of fellowships, as some students received two or three stipends. The majority of these fellows enrolled in US universities such as the University of California, University of Minnesota, University of Wisconsin, Cornell University, Purdue University, Iowa State University, Nebraska University. In some cases, they conducted training at companies such as Pioneer Hi Bred Company. Although a minority, there were also cases of students who attended educational centers in Germany, Canada, Australia, Colombia and Costa Rica.

The Rockefeller Foundation covered the fellows’ living and educational costs, while the Mexican government was responsible for guaranteeing work positions or promotions, upon their return. This reflected the intent that the investigations should be aimed at practical purposes. For this reason, the selection process was carried out jointly by the staff of the RF and Mexican agricultural civil servants, although the final decision was with the RF. The evaluation of the candidates was a slow and highly thorough process (for postgraduate candidates, it could take years), as it sought to identify indicators that would guarantee that candidates would be successful in both their studies and their subsequent professional performance. As a consequence of this and the expectations upon them in their work as a driving force of the intellectual revolution, the administrators carried out a periodic follow-up with the fellows. Evidence of this can be found in the interviews that Jesse P. Perry and his associates – among them, Bob Fischelis and Mary Jane Blanton – carried out annually with the fellows in their education centers, in which they sought information on the caliber of their professors, to keep up to date with the people with whom they were working, to find out whether the universities were suitable for foreign students, whether there were problems, a lack of interest, they were failing in their courses and everything else. The annual renewal of the scholarship depended on these evaluations.

The ideal candidate had a balance of personal and professional qualities. Amongst these qualities, those prioritized were leadership skills, proof of professional dedication, and the valuing of the achievement of scientific success, without forgetting their mission upon returning to their country of origin; these qualities
would mean being able to advocate within governmental and educational institutions, as well as achieving a position of prestige and recognition within the professional guild. In the RF’s opinion, these abilities could more easily be found in people considered to have reached a level of maturity both personally and professionally, i.e. with their own family, professional experience in their chosen field and willing to travel either individually or accompanied by their family. Some cases that are in line with this idea are that of Leonel Robles, the first director of the Faculty of Agronomy in the Instituto Tecnológico y de Estudios Superiores de Monterrey (Technological Institute for Higher Studies in Monterrey – ITESM), a private institution established in 1954, as well as the career path of the geneticist Óscar Brauer Herrera, the Agriculture and Livestock Secretary from 1974 to 1978.15

At the same time, Jesse P. Perry argued that, in practice, this ideal was not always achieved, and therefore the selection process needed to be made more flexible.16 Furthermore, few candidates met the basic requirements (such as advanced knowledge of English and a good academic record), and opportunities had to be opened up for those who showed their dedication. As could be expected, the evaluation of applications of men versus women differed in several respects. The most important of these was that young and single women represented a risky investment, as if they did not have a solid background in research they could abandon their academic project in order to get married and have families,17 and therefore the selection process for female fellows was more demanding, and there were fewer applications.

As has already been mentioned, the Fellowship Program was linked to the process of the professionalization of agricultural studies in Mexico. The establishment of postgraduate schools, the renewal of the guidelines for agricultural teaching and research, and the integration of scientists in the government structure, which also meant that the exercise of their profession, enabled them to have certain recognition. Nonetheless, the urgent need to respond to the local needs of the MAP was the factor that defined the rhythm of the training of personnel and the obligation (or not) that the fellows would obtain a professional qualification which, depending on the level, would occur in two or three years.
This progressive move towards agricultural professionalization is particularly evident in the realm of Mexican institutions. In this way, the OEE, as well as dealing with the coordination of work with the MAP, acted as a training school for Latin Americans from countries in which there were no postgraduate study opportunities. During the courses, which lasted from three months to a year, the students were assigned to the heads of each program, for example: Norman Borlaug (wheat), Edwin J. Wellhausen (maize) and John S. Niederhauser (potatoes). As well as the practical work with their tutors, the students received classes on theory through weekly sessions coordinated by George J. Harrar (director of the MAP), for whom the participation of the fellows in academic debates was fundamental, and for this reason, a dynamic was established that enabled participants to present issues of general interest and to be active in commenting on their classmates’ presentations. These meetings were also attended by Mexicans who were signed up to the OEE.

From 1943 to 1961, Mexico received 132 Latin American students in the OEE (one of them a woman), from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru and Venezuela. The largest groups were the Brazilians, Peruvians and Bolivians. For many of these fellows, their experience in Mexico enabled them to obtain other Rockefeller fellowships to pursue postgraduate degrees in the United States, when the RF’s work extended to their respective countries, making them pioneers of the Green Revolution. This was the case of the Costa Rican, Alfredo Carballo Quirós, who, following his stay in Mexico under the tutorage of Wellhausen, was named first coordinator of the Programa Cooperativo Centroamericano para el Mejoramiento del Maíz (Central American Cooperative Program for the Improvement of Maize), a project in which the six countries in Central America and the RF participated, and from which Carballo obtained scholarships to carry out his postgraduate studies. It could be said that the trainings in Mexico represented a stage of leveling out the agronomic training, prior to MSc or PhD courses.

A second, smaller group of Latin American students was established in the Colegio de Posgraduados since its foundation in 1959, in which they received the title of Masters of Science under the direction of Mexican fellows who were founders of
this educational center, such as Ramón Covarrubias Celis and Lauro Bucio Alanís. They put their personal mark on the design of a curriculum that they claimed as their own, given that it was adapted to the needs of the country, that is to say, that it combined training of advanced technicians and a high level of specialization. Despite being a group of 31 students until 1970, this core group is relevant because it shows the circulation of ideas within Latin America. An example is the career path of the Colombian, Manuel José Ríos Betancourt, who, under the tutorship of Oscar Brauer, obtained a Master’s degree in 1970, specializing in wheat. This summary shows the advance that Mexico had achieved in terms of professionalization, which, in terms of the availability of postgraduate courses, was not limited to the COLPOS, as from 1960, the ITESM had opened up Master’s courses in entomology taught by fellows such as Dieter Enkerlin Schallenmueller. In fact, ITESM hosted the Ecuadorian Eustorgio Ceballos Davila, a Rockefeller fellow who studied under the mentorship of Jean M. Mathieu, another former fellow.

The initial stage of the OEE concluded in 1961, when it joined with the Instituto de Investigaciones Agrícolas (Institute for Agricultural Research - IIA), to create the INIA, an event which coincided with the closure of the MAP. With this new Institute, the proposal was to unite the efforts of these two tendencies that had competed in terms of the development of hybrid seeds from opposing standpoints: the OEE in international collaboration, and the IIA from a national pride perspective. Despite these efforts to join together, the INIA gave priority to the presence of personnel who were signed up to the OEE, many of them Rockefeller fellows. This was the case of Alejandro Ortega Corona who was put in charge of the department of entomology. He played a key role in the transition period by putting his mark on the design of a work agenda that proposed the modification of the use of insecticides, supported by the linking up of research and national and private industry. During the transition period, the INIA maintained a close relation with the RF, in advisory services as well as in the granting of new scholarships. However, once the changes had been completed, the RF began to reduce its financial contributions, which were not compensated by government resources.
The reduction of donations to the INIA should not be interpreted as an abandoning of the philanthropic goals to increase production of food crops, as in 1965, the Rockefeller Foundation promoted the creation of the CIMMYT, dedicated to extending the work carried out in Mexico on a global scale. It was planned that this institution should be a center capable of receiving international funding, both governmental and non-governmental. This meant that, although it was located in Mexico, it did not depend on the Mexican government. To date, the CIMMYT is considered the main applied research center on maize and wheat in the world, and its success was partly due to the participation of Rockefeller fellows (from Mexico and abroad) who contributed to making this institution the beginning of a new era marked by the actions of international research institutes, and the end of an era which had been inaugurated by the MAP. In this way, the CIMMYT became one of the first centers of the research network that, in 1971, was formed through the Consultative Group for International Agricultural Research, which to date has 15 member institutions. The important place that Mexico has in this group proves that the fellowship program met its goal of training a new generation of professionals and, at the same time, the fellows contributed to the founding of institutions that drove forward a new phase in the intellectual revolution in agriculture.

**Final reflections**

As has been shown in this report, the Mexican presence in the RF’s Fellowship Program, and its participation in encouraging the *intellectual revolution* that it started, is not only relevant because of the number of stipends granted (which makes Mexico the main receptor of agricultural fellowships in Latin America), but also because Mexico, alongside Colombia, became a training center for other Latin Americans. This situation gave the Mexican case a double dimension that was processed simultaneously, as while the OEE, the INIA and the Secretary for Agriculture and Development channeled Mexican students to train abroad, they also received Latin Americans to be students of the staff of the RF in Mexico, within the OEE and, later, in the COLPOS and the ITESM, under Mexican tutors.
The international circulation of the fellows for them to obtain degrees and advanced training, as well as their later return to their countries, are indicative of the efficiency of the program. Through the institutional reorientation, these fellows focused their efforts on the advancement of the Green Revolution and agronomic professionalization. Nevertheless, this is not the story of a flawless process, as in each of these stages there were tensions marked by differences in ideas, procedures, objectives, administrative competence, and disagreements within the guild. An example of this were the declarations contrary to the work of the OEE and the COLPOS, which document the criticisms of other sectors within the area of agronomy. Consequently, we could say that, although the fellows were pivotal in the intellectual revolution in agronomy, this process was marked by their doubts and personal experiences. Showing their initiative and in a way that was particularly evident after the RF left, they carried out the modernization of Mexican agriculture and the Green Revolution on their own terms.

The documental evidence of the RAC (including the directories) show that, in the long term, the fellows did not stay in the government structure, and they moved towards the private sector, particularly into education as well as business. For this reason, the knowledge and abilities that they had acquired propelled new kinds of projects. Amongst the causes that explain this change, we should consider that, from 1970 onwards, the economic policy of the Mexican government sought to incentivize industrial action as a strategy to promote economic development, which meant a reduction in the investment for the promotion of agriculture and its modernization. In order to reconstruct these parts of the career paths of the fellows, it is necessary to complement this reading with different documental resources, and even conduct interviews, to be able to recover the vision of the actual participants that were protagonists in the process.
Scheme presented in 1959 by J. G. Harrar, “Rockefeller Foundation Scholarships”, p. 5, Folder 10, Box 2, Series 300, RG 1.1, Projects, FA386b, RF Records, RAC.

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1 Interview with Elvin C. Stakman, conducted by Pauline Madow, New York, April 1971, pp. 1009-1010, Vol. 6, Box 10, RG 13, Oral Histories, FA119, Rockefeller Foundation (RF) Records, RAC.
2 Ibid.
3 Ibid.
4 J. G. Harrar, “Rockefeller Foundation Scholarships”, p. 24, Folder 10, Box 2, Series 300, RG 1.1, Projects, FA386b, RF Records, RAC.
5 Interview with Elvin C. Stakman, op. cit.
6 Interview with Jesse P. Perry, conducted by William C. Cobb, New York, February and March 1967, pp. 263-264, Box 21, RG 13, Oral Histories, FA119, RF Records, RAC.
7 Ibid., p. 264.


Jesús Rodriguez Vallejo, Folder 2977, Box 197, Series 323, RG 10.1, Fellowships Files, FA244, RF Records, RAC.

Establishing the number of fellowship recipients has been a complex task, as there is no definitive register and there are discrepancies between the documents. For this reason, five sources were contrasted. The first was the two directories and the supplement published by the RF (*Directory of Fellowship Awards, 1917-1950*, New York: The Rockefeller Foundation, 1951; *Directory of Fellowship Awards, Supplement, 1951-1955*, New York: The Rockefeller Foundation, 1956; *Directory of Fellowships and Scholarships, 1917-1970*, New York: The Rockefeller Foundation, 1972). The second was the cards in the record group Fellowships (Box 1-2, RG 10.2, Fellowship Recorder Cards, FA426, RF Records, RAC) which include condensed biographic information and a follow-up of their activities. The third was the fellowship recipients’ files located in the same group (Box 174-203, Series 323, RG 10.1, Fellowship Files, FA244, RF Records, RAC), which contained correspondence, photographs and scientific evidence. The fourth was the files in the group Projects (Box 1-6, Series 300, RG 1.1, Projects, FA386b, RF Records, RAC / Box 38-54, Series 300, RG 1.1, Projects, FA387b, RF Records, RAC) which follows up on the donations of the RF, through which they were able to request new fellowships for short trips or to participate in academic events. The fifth was the documents in the group Officers’ Actions, which corroborate the deposits of stipends (Box 1-5, RG 16, Minutes- Officers’ Actions and Annual Reports, FA474, RF Records, RAC). Despite this work, the number is approximate and could increase slightly.

This practical vocation of the research is clearly referred to in the film “Buscando una agricultura mejor” (“Looking for a Better Agriculture”), that had the technical advice of the former fellow José Guevara Calderón. Films, Reel AV 28, 1958, FA752, RF Records, RAC.

Interview with Jesse P. Perry, op. cit., p. 266.

Oscar Brauer Herrera, Folder 2754, Box 179, Series 323, RG 10.1, Fellowships Files, FA244, RF Records, RAC.

Interview with Jesse P. Perry, op. cit., pp. 277-278.
18 Interview with Elvin C. Stakman, op. cit., p. 1011.
19 The same procedure described in note twelve was followed.
20 Alfredo Carballo Quirós, Folder 2520, Box 163, Series 313 E, RG 10.1, Fellowships Files, FA244, RF Records, RAC.
21 The same procedure described in note twelve was followed.
22 Some of the former fellowship recipients' professors were: Ramón Covarrubias Celis, Lauro Bucio Alanís, and José Guevara Calderón. “Análisis estadístico del profesorado y estudiantes Post-Graduados”, Folder 241, Box 32, Series 100, RG 1.2, Projects, FA387a, RF Records, RAC.
23 Manuel José Rios Betancourt, Box 2, RG 10.2, Fellowship Recorder Cards, FA426, RF Records, RAC.
24 Interview with Dieter Enkerlin Schallenmueller, conducted by William C. Cobb, Monterrey, Mexico, January 17 1967, pp. 11-12, Box 23, RG 13, Oral Histories, FA119, RF Records, RAC.
25 Eustorgio Cevallos Davila, Box 2, RG 10.2, Fellowship Recorder Cards, FA426, RF Records, RAC.
26 The IIA was founded in 1947 by a group of Mexican researchers “committed to the principles of agrarianism and who sought to ensure that their research activities had a clear social meaning”. At the same time, the IIA ensured the continuity of research projects that preceded the arrival of the RF. This shows that that was a national research tradition and that there were discrepancies within the agronomists’ guild. Gustavo Esteva, La batalla en el México Rural, Mexico, Siglo Veintiuno, 1980, p. 66.
27 Interview with Alejandro Ortega Corona, conducted by William C. Cobb, Mexico City, January 4 and 6 1967, pp. 62-65, Box 16, RG 13, Oral Histories, FA119, RF Records, RAC.
29 About the criticism of the activity of the OEE, and the reaction of a mexican fellow see: Rafael Padilla Aranda, Folder 2947, Box 195, Series 323, RG 10.1, Fellowships Files, FA244, RF Records, RAC. On the claims regarding the COLPOS see: Interview with Elvin C. Stakman, op. cit. p. 1035.