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A DIFFERENT SHADE OF GREEN: EFRAÍM HERNÁNDEZ, CHAPINGO, AND MEXICO'S GREEN REVOLUTION, 1950-1967

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A DIFFERENT SHADE OF GREEN: EFRAÍM HERNÁNDEZ, CHAPINGO, AND MEXICO'S GREEN REVOLUTION, 1950-1967

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF HISTORY

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Dedication

This dissertation is dedicated to my mother, who is the only hero I have ever had in my life, and my mentors: Sterling Evans, Amílcar Challú, James Cane-Carrasco, Ben Keppel, Cathy Kelly, and Heike Vibrans.

Acknowledgements

Anyone who really knows me is aware that I struggle with academic niceties. I could never thank the people who have helped me over the last six years in a reserved, subdued (i.e, academic) tone. That amounts to an impossible task. Consequently, I will use informal phrases and what some people may consider mawkish prose to convey my appreciation. I also intend to break a cardinal rule in academic prose: I will repeat myself. I will not spend too much time locating creative ways to say "thank you" to people when "thanks" or "thank you" works best. Most of the people mentioned below will understand and appreciate my candor.

Sterling Evans deserves first mention. His dedication to seeing me finish this dissertation has been unmatched. Over the last six years no one else has dealt with my intellectual immaturity and personal shortcomings more than Sterling, and I thank him for his patience. I should use this forum to tell him how much I appreciate his support, particularly when campus authorities took exception to what I still see as harmless comments. This is also the place where I should thank Dr. Evans for supporting my decision not to enter academia. He invested so much effort into molding me to be a history professor, and I know how much my decision stung him. But Sterling's support has never wavered. Words cannot begin to describe how gratifying it is to have an adviser who respects my wishes and encourages me to pursue my aspirations, regardless of how counterintuitive they may appear.

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I'm grateful that Jim told me to step up my game. Thank you, Jim, for teaching me the question that all historians should be able to answer: "So what?" You also earned my sincerest appreciation for helping me find a title to this dissertation. Ben Keppel merits mention for many things, namely for appropriately dismantling my half-brained arguments that defied logic and lacked rigor. More than one person has told me about the support Dr. Keppel has given me during my time in Norman, and I hope he knows that his encouragement fortified me during many difficult days.

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I never intend to stop thanking Amílcar Challú for his encouragement since we met in 2007. He would've been justified to tell me to kick rocks several times, but he never did. When self-doubts overwhelmed me while writing this dissertation, Amílcar graciously took my phone calls, and he has no idea how much he helped. *Gracias por la fortaleza*.

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begging for favors. She knows that this dissertation would have never begun without her kindness to a stranger. I must thank each of the persons who allowed me to interview them for this dissertation. Most of your names didn't make the final draft, and I sincerely apologize. But each of you has helped me understand so much about Efraím Hernández, and I will remain indebted to all of you for a long time. No one appreciates Marce Ramírez's work as a librarian more than me. His procurement of articles, documents, and random pieces of information helped me tremendously. Jorge Ocampo's generosity and patience are immeasurable, and I thank him for educating me on agricultural education in Mexico. His colleagues at Chapingo's Archivo Histórico – Hiram Núñez, Rosaura Reyes, and their assistants – went above and beyond the call of duty and I will forever be grateful. Other *amiga(o)s* who deserve recognition include José Antonio López, Cristóbal Sánchez, Erasmo Vásquez, Yasmani Rafael Arenas, and Dani. Cristóbal, Toño, and Erasmo, my apologies for nearly getting us into trouble in Oaxaca. I owe the Velasco household quite a bit for their kindness during my time in Chalco. For his hospitality, I thank Dr. Alejandro Tortolero. Finally, I must recognize Marina, who made my time in Mexico truly memorable.

Archivists are a historian's friends. Accordingly, I thank many staff members at the Archivo General de la Nación for helping with a number of requests. At the Hernández archive, Verónica and Dr. Josué Kohashi-Shibata proved immensely helpful and both helped with countless favors for which I will always be grateful. Staffers at the Biblioteca Central in Chapingo, particularly Marce Ramírez, Jorge Ocampo, Hiram Núñez, and Rosaura Reyes, deserve hugs for the guidance they gave me when I was lost

in Mexico. Lee Hiltzik and several employees at the Rockefeller Foundation Archive deserve many thanks, too.

Many people in Oklahoma have helped me tremendously over the last six years. Sara Huber and Molly Murphy in the Interlibrary Loan Department at OU found many obscure titles that I needed to complete this project, and they know that their work proved instrumental in helping me complete this dissertation. The Graduate College and the Department of History at the University of Oklahoma helped defray some of the costs of my research trips, and I recognize their contributions in this space. But most of the money that it took to fund this dissertation came from my job with the National Park Service in Oklahoma City, and I am happy to acknowledge the individuals who supported me. Bruce Noble, Tucker Blythe, and Skip Wheeler must be mentioned for giving me time off while I researched in Mexico. Other people in Oklahoma City – John Withers, Karena Minor, Frank Torres, Michael Washington, Melanie Sander, Lindsay Compton, Athena Gonzalez, Alicia Bento, Tawna Dickens, Natasha Moore, Brandan Crabill, Leon Gillum, Craig Baxter, Randy Roschal, James Sing, and Bill Wright – have tolerated my contrarianism for years, and I am grateful for their patience.

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Abstract

This study deals with untold or underemphasized epidodes in Mexico's agricultural history. Drawing on sources from Mexico's Colegio de Postgraduados, interviews, and archives in the United States and in Mexico, this dissertation highlights some of the major debates and visions that determined farming in Mexico during the 1950s and 1960s. It also details how those people chosen to deliver modernization to Mexican farmers demanded a reorientation to the direction of agronomy.

INTRODUCTION

This dissertation began with two frustrations. After reading some of the scholarship dealing with Mexican agriculture in the twentieth century, I was struck with how often authors mentioned the Rockefeller Foundation (RF). This was because RF officials and the Mexican government signed a small venture to improve farming in Mexico in 1943 that became the basis for huge changes in the Mexican countryside. Yet, I still thought that there was more to Mexican farming outside of RF work and scientists. Thus, my first immature frustration was a desire to write about Mexican agriculture in the 1950s and 1960s minus a monolithic RF presence. I wanted to write a study about agriculture in the middle of the twentieth century without dedicating too much discussion to the work done by RF workers and their partners between 1943, when the Mexican government and Foundation leaders began their collaboration to improve agricultural production, and 1966. My second frustration dealt with broaching the same topic without disproportionately relying on RF archival material in the United States. I always found it odd that more than one historian had traveled to New York to study the history of farming in the deserts, jungles, and highlands south of the Rio Grande.

But the research process immediately taught me that my dissertation would be incomplete without consultation of the Rockefeller Foundation Archives. RF scientists led projects during three different decades that transformed the Mexican countryside, and my desire to minimize the impact of these efforts amounted to a flawed approach. Moreover, the success of RF work in Mexico served as a model for similar projects in

the "developing" world during the 1960s and 1970s. I consequently made an obligatory visit to Tarrytown, New York, which proved fruitful.

I found a small degree of success in dealing with my second frustration. Talks with several agronomists and a series of accidents led me to the Efraím Hernández Xolocotzi archive. Hernández was arguably Mexico's most influential botanist of the twentieth century at the country's most important public agricultural college, the Escuela Nacional de Agriculture (ENA; the National College of Agriculture). An eccentric scientist with a strong personality, he was known for zealously championing *campesino* (peasant) modes of agricultural production during a period in which fealty to empiricism, Neo-Malthusianism, and technocratism held primacy in Mexican academic circles.[1] Some of Hernández's last students took time to compile his letters, reports, and notebooks to build an unofficial archive after he died in 1991. After months of digging through this cache of semi-organized boxes and items in file cabinets, I realized that I had found material related to episodes in agricultural history that scholars had either glossed over or not yet discussed.

This dissertation, therefore, is a contribution to modern Mexican agricultural history. It deals with untold chapters in rural development from the early 1950s to 1967, a period known as the heyday of the "Green Revolution." Primarily relying on sources from the Hernández archive, material from the college where he taught, oral histories, and other records from Mexico's national archives, I scrutinize the people who shaped farmers' futures, and these people's policies. I also discuss some of the

[1] In this dissertation, I use *campesino* to mean a peasant farmer or someone who practices subsistence farming.

figures who imagined the country's rural future in alternative ways, particularly the agronomy students chosen to deliver modernization to growers.

FROM SMALL VENTURE TO "REVOLUTION"

The "Green Revolution" has roots going back at least to 1940. After attending the presidential inauguration of Mexico's Manuel Ávila Camacho, U.S. Vice President Henry Wallace returned to the United States and subsequently opened discussions with representatives from the Rockefeller Foundation about the possibility of taking the organization's efforts and resources to Mexico City. In July 1941, RF leaders sponsored a trip by three premier U.S. agronomists to tour the country and assess the possibility of Foundation work south of the United States.[2] About two years later, Marte Gómez, Mexico's Minister of Agriculture, agreed to open the Office of Special Studies, which would oversee the training of young men and would lead research projects to improve production levels of basic crops (maize, beans, and wheat).

Thus began what Gómez later suggested was Mexico's "agricultural revolution."[3] What became known as the Mexican Agricultural Program (MAP) proved to be a productive endeavor for more than two decades.[4] Hundreds of students worked as interns at MAP installations, and at least five hundred young men received RF-

[2] This was not the Foundation's first project in Mexico or in Latin America. RF researchers, for example, led public health campaigns in Mexico during the early 1900s; see Armando Solórzano, "Sowing the Seeds of Neo-Imperialism: The Rockefeller Foundation's Yellow Fever Campaign in Mexico," *International Journal of Health Sciences* 22, no. 3 (1992): 529-554; and Anne-Emmanuelle Birn, *Marriage of Convenience: Rockefeller International Health and Revolutionary Mexico* (Rochester, NY.: University of Rochester Press, 2006). Consult Marcos Cueto's edited volume for studies related to Latin American efforts; *Missionaries of Science: The Rockefeller Foundation and Latin America* (Bloomington: Indiana University Press, 1994).

[3] Marte R. Gómez, *Escritos agrarios* (Chapingo, Estado de México, Mexico, Colegio de Postgraduados-Escuela Nacional de Agricultura, 1976), 25-27.

[4] The Program officially lasted through 1965. However, some people have suggested that RF involvement in Mexican agriculture has not ended because of the presence of the International Maize and Wheat Improvement Center.

supported scholarships to study agriculture at U.S. colleges. With assistance from the Rockefeller Foundation, Mexican leaders opened the country's first graduate college dedicated to agricultural research in 1959. The government also opened a handful of experiment stations staffed with a small army of botanists, pathologists, geneticists, and other trained personnel. "Green Revolutionaries" like Ed Wellhausen, Norman Borlaug, and their interns fulfilled MAP goals and more, as volume levels and yields for basic grains increased substantially, and research on disease resistance improved tremendously.[5] Mexico became self-sufficient in wheat production by 1956, and in subsequent years, the country became an exporter of certain crops. In many corners of the countryside, growers transitioned from subsistence farming with beasts of burden and a *coa* (digging stick) to farming with genetically-altered seeds, synthetic fertilizers, and modern equipment.

MAP work proved so impressive early on in its existence that Foundation officials and governments around the world initiated similar projects. Colombian leaders began a partnership with the Foundation in 1950. Six years later, programs in Chile and India began. The Filipino government and the Ford and the Rockefeller Foundations cooperated to open the International Rice Research Institute in 1959. Over the course of the 1960s, agricultural technology – particularly improved wheat seeds – and experiences that began in Mexico helped countries like Pakistan and India substantially increase production levels. Dwarf wheat seeds developed under the leadership of Norman Borlaug eventually helped Indian and Pakistani officials avoid

[5] For a comprehensive inventory of the Mexican Agricultural Program, see Delbert Myren, "The Rockefeller Foundation Program in Corn and Wheat in Mexico," in *Subsistence Agriculture & Economic Development*, Clifton R. Wharton Jr., ed. (New Brunswick, NJ.: Aldine Publishing Company, 2008): 438-452.

serious threats of famine during the late 1960s. In the same decade, other improved wheat seeds that had their origins in Mexico also helped in Turkey.

In March 1968, William Gaud, an administrator for the U.S. Agency of International Development, delivered a short speech that alluded to the work that had begun in Mexico and had spread around the world. His message was that support for international aid, primarily agricultural assistance, to the "developing world" should continue. But it was a phrase in Gaud's introduction that became famous. Development professionals, he said, were "on the verge of an agricultural revolution." Then he summarized proof of his claim: Pakistan would have a record-level wheat harvest in 1968 because of high-yielding seeds; improved seeds would help India achieve self-sufficiency in different grains within four years; Turkey's upcoming wheat harvest looked extremely promising; and high-yielding rice seeds would soon ensure that the Philippines would not have to import its most important grain. These and other advances, Gaud continued, "in the field of agriculture contain the makings of a new revolution…I call it the Green Revolution."[6] The term became synonymous with modern agricultural science – fertilizer-responsive seeds, agribusiness, and controlled irrigation as a key component to farming – and many people in 1968 argued that the many "miracle seeds" helped offset famine in different corners of the world.

Norman Borlaug won the Nobel Peace Prize for his role in the "Revolution" nearly three years after Gaud's words. Wheat seeds that he and others developed had allowed governments in the "non-affluent world," particularly Asia, to avoid food shortages. Near the end of his Nobel Lecture in 1970, Borlaug said that the "green

[6] William S. Gaud, "The Green Revolution: Accomplishments and Apprehensions" (speech delivered before the Society for International Development, Washington, DC., March 8, 1968), http://www.agbioworld.org/biotech-info/topics/borlaug/borlaug-green.html.

revolution has won a temporary success in man's war against hunger and deprivation; it has given man a breathing space."[7] The award represented a crowning moment for work that the Rockefeller Foundation and the Mexican government had begun more than two decades earlier.

Scholarship about the "Green Revolution" dates back decades and can be categorized under two different rubrics. The first of these two, which began in the 1970s and lasted through the 1990s, amounts to a series of critiques against the Green Revolution. Authors criticized unequal access to inputs necessary for farmers, environmental decay from pesticides and fertilizers, and operational advantages towards large-scale farming for specific export crops. With few exceptions, works from Harry Cleaver, Bruce Jennings, Stephen Lewontin, Cynthia Hewitt de Alcántara, and Angus Wright discuss the shortcomings of the Green Revolution in different places. Published in 1976, Alcántara's study describes in exhaustive detail the socioeconomic consequences related to the introduction of modern agriculture into Mexico. Jennings's small book has a similar critical tone towards the Mexican Agricultural Project. Wright's *The Death of Ramón González* (1990) highlights the ecological damage and contradictions stemming from the introduction of modern agriculture into the Mexican countryside after the 1940s. These early works contain substantive arguments and insightful discussions, but the authors also seem bent on making pointed indictments instead encouraging nuanced discourse.[8]

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[7] Norman Borlaug, "Nobel Lecture: The Green Revolution, Peace, and Humanity," Nobelprize.org, Nobel Media AB 2014, http://www.nobelprize.org/nobel_prizes/peace/laureates/1970/borlaug-lecture-html.

[8] These works include Harry M. Cleaver, "The Origins of the Green Revolution" (PhD diss., Stanford University, 1975); Kenneth A. Dahlberg, *Beyond the Green Revolution: The Ecology and Politics of Global Agricultural Development* (New York: Plenum Press, 1979); Cynthia Hewitt de Alcantara, *Modernizing Mexican Agriculture: Socioeconomic Implications of Technological Change, 1940-1970* (Geneva: United Nations Research Institute for Social Development, 1976); Bruce H. Jennings,

This pattern changed over the course of the 1990s. Studies became less focused on disparaging the Green Revolution and the shortcomings of "miracle seeds," and more about studying how the Revolution was connected to the politics of the Cold War. John Perkins made the case that advances in botanical sciences intersected with geopolitics during the Cold War. Joseph Cotter and Karin Matchett drew on several sources to shift the focus of the scholarship onto Mexico, and both offered instructive histories about agricultural development during the twentieth century. Over the last few years, Nick Cullather and Tore Olsson adopted transnational approaches. Cullather demonstrated scientific agriculture's role in U.S. Cold War policy in Asia. Olsson's study brilliantly chronicles the origins of RF agricultural work in Mexico, describing how a handful of reformers remade the rural American South and how some of these men partnered with likeminded visionaries in Mexico to remake the rural landscape there.[9]

Foundations of International Agricultural Research: Science and Politics in Mexican Agriculture (Boulder, CO.: Westview Press, 1988); Stephen Lewontin, "The Green Revolution and the Politics of Agricultural Development in Mexico since 1940" (PhD diss., University of Chicago, 1983); Andrew Pearse, *Seeds of Plenty, Seeds of Want: Social and Economic Implications of the Green Revolution* (Oxford: Clarendon Press, 1980); David A. Sonnenfeld, "Mexico's 'Green Revolution,' 1940-1980: Towards an Environmental History," *Environmental History Review* 16, no. 4 (1992): 28-52; and Angus Wright, *The Death of Ramón González: The Modern Agricultural Dilemma* (Austin: University of Texas Press, 1990). Vandana Shiva shared a similar tone in an Indian context; *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics* (London: Zed Books, 1991). Exceptions to this category are Lester R. Brown, *Seeds of Change: The Green Revolution and Development in the 1970s* (New York: Praeger, 1970); Deborah Fitzgerald, "Exporting American Agriculture: The Rockefeller Foundation in Mexico, 1943-1953," *Social Studies of Science* 16, no. 3 (1986): 457-483; and Anneliese Markus de Kennedy, "The Office of Special Studies: A Study of the Joint Mexican Secretariat of Agriculture – Rockefeller Foundation Program in Agriculture, 1943-1963," (PhD diss., University of North Carolina, 1973).

[9] See Gilberto Aboites Manrique, *Una mirada diferente de la Revolución Verde: ciencia, nación y compromiso social* (Mexico City: Editorial Plaza y Valdés, 2002); Joseph Cotter, *Troubled Harvest: Agronomy and Revolution in Mexico, 1880 – 2002* (Westport, CT.: Praeger, 2003); Nick Cullather, "Miracles of Modernization: The Green Revolution and the Apotheosis of Technology," *Diplomatic History* 28, no. 2 (2004): 227-254 and *The Hungry World: America's Cold War Battle Against Poverty in Asia* (Cambridge: Harvard University Press, 2010); Jonathan Harwood, "Peasant Friendly Plant Breeding and the Early Years of the Green Revolution in Mexico," *Agricultural History* 83, no. 3 (2009): 384-410; Karin E. Matchett, "Untold Innovations: Scientific Practice and Corn Improvement in Mexico, 1935-

While I recognize the transnational trend, I also think that room exists in the scholarship for the traditional nation-centered approach towards examining the Green Revolution. To that end, this dissertation discusses how important actors managed agricultural development in Mexico from the early 1950s to 1967. It deals with the debates and conflicts that government officials, educators, and students had vis-à-vis their country's rural future after the introduction of modern agricultural science. How did Mexicans manage agriculture after the Rockefeller Foundation substantially downsized its operations from the country after 1961? What were some of the alternative visions that people considered and advocated? How did Mexicans deliver the Green Revolution to farmers?

Chapter One begins with the last question. I trace how the governor of the State of Mexico, Salvador Sánchez, began an agricultural extension program to help his constituents via the demonstration lot method, which had its antecedents in the American South. One of my two claims is that Mexicans led the efforts to deliver what is known as "La agricultura de Iowa" (U.S. Midwest-style agriculture) to farmers.[10] This thesis counters an inference – that the Green Revolution was an attempted transplantation of Iowa on the Mexican *campo* - that I gathered from some studies. The chapters also demonstrates that Sánchez and other leaders in Mexico thought that growers would adopt modern farming by seeing it or hearing about it. I contend that

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1965" (PhD diss., University of Minnesota, 2002); Tore Carl Olsson, "Agrarian Crossings: The American South, Mexico, and the Twentieth-Century Remaking of the Rural World" (PhD diss., The University of Georgia, 2013); Servando Ortoll, "Orígenes de un proyecto agrícola: la Fundación Rockefeller y la Revolución Verde," *Sociedades Rurales, Producción y Medio Ambiente* 4, no. 1 (2003): 81-96; John H. Perkins, *Geopolitics and the Green Revolution: Wheat, Genes, and the Cold War* (New York: Oxford University Press, 1997).

[10] I thank many of the Mexican agronomists who I interviewed for leading me to this argument. "La agricultura de Iowa" is not a pejorative term, according to what I gathered from Mexican agronomists and researchers.

one of the precepts for agricultural development after 1954 was the rule that those people armed with science degrees needed to instruct growers, particularly peasants, how to cultivate their crops.

The second chapter recounts Efraím Hernández's early life and how he adopted a peculiar approach to botany that was antithetical to what Sánchez's program advocated. I describe how a trip to Mexico after high school exposed Hernández to the privations among the country's peasantry and inspired him to promise to return to help. After he returned, I discuss how Hernández spent years canvassing the countryside and developed a profound respect for subsistence farming methods - so much that he considered *campesinos* as sources of agronomic knowledge. Such inclinations frustrated him after he became a professor at Mexico's Escuela Nacional de Agricultura (National College of Agriculture), which is the setting for the third and fourth chapters of this study.

Known as Chapingo, the Escuela Nacional was the site of the Green Revolution's educational birthplace, as well the site where the fealty to agricultural science met its end in Mexico. Commitment to modernizing farmers on the part of the Mexican government, philanthropy from the Rockefeller and Ford Foundations, and support from international lending agencies turned the college from an institution that lacked textbooks and laboratories throughout much of its existence into a college with money to spare and worthy of global recognition. By the 1960s, the school became the place where students from all over the world learned advanced agriculture and were taught that they were the people who would fuse science with agrarian reform to help peasant farmers, and consequently, help fulfill one of the ideals of the Mexican

Revolution. Things, however, failed to unfold so seamlessly, as many members of the agronomic vanguard became disillusioned for a number of reasons over the course of the early 1960s.

The final chapter chronicles the shutdown that took place at Mexico's agricultural colleges during the summer of 1967. I describe how a small campus protest morphed into a national shutdown, with many students demanding an overhaul of the prevailing model of agricultural education, and by extension, a reassessment of rural development. Drawing from informant records, oral histories collected by officials at Chapingo, and the Hernández archive, I make the case that the unrest in 1967 represented the symbolic end of Mexico's Green Revolution.

Before this historic protest, the first chapter deals with the optics and sounds of the Revolution in the 1950s. Mexican officials, I argue, encouraged growers to adopt modern farming via appeals to their senses - seeing the results of utilizing improved seeds and techniques, and through hearing about agricultural advances. I claim that leaders banked on the idea that agriculturalists had to be told how to grow their crops because such a methodology had worked with farmers in the United States. This approach to rural development, as we will see, had built-in flaws and drawbacks.

CHAPTER ONE
MEXICO'S AVATARS OF MODERN FARMING: THE DISCOURSE OF AGRICULTURAL DEVELOPMENT AND DELIVERING "LA AGRICULTURA DE IOWA" TO MEXICO[11]

And it is useless to try to convert it [Peru's agrarian problem]…into a technical-agricultural problem for agronomists. – José Carlos Mariátegui, "The Problem of Land" (1928)[12]

On July 4, 1952, agronomist Antonio Sánchez mailed a threatening letter from his Federal Ministry of Agriculture office in Mexico City to a colleague, Enrique Caballero, in Torreón, Coahuila.[13] "Despite the many instances," the letter began, "in which this office has reminded you to mail your monthly labor reports to us, as of today we have yet to receive anything from you for February, March, April, and May" of the current year. Using unflattering language, Sánchez mentioned that it was "illogical" of Caballero to think that he could be paid for months without reporting on his extension activities during that period. The letter, thus, served as a last reminder for Caballero to fulfill his duties. Otherwise, "higher authorities" would soon become involved and harsher consequences would likely follow.[14]

Caballero's reply cannot be found in the Ministry of Agriculture records, but he likely would not have been shocked to receive such a biting correspondence from Mexico City. Shortly before Sánchez's letter, Mexico began an important agricultural

[11] "*La agricultura de Iowa*" is a familiar saying in Mexico that connotes industrial farming, along with idyllic, yeoman images.
[12] José Carlos Mariátegui, "The Problem of Land," in *Seven Interpretive Essays on Peruvian Reality*, trans. by Marjory Urquidi (Austin: University of Texas, 1971), 32.
[13] The term *agrónomo* translates to agronomist. Generally, the term is associated with an official who has formal training in different areas of agriculture. These areas include botany, ethnobotany, agronomic engineering, land surveying, livestock, extension, and hydraulic engineering.
[14] Antonio Sánchez Hidalgo, "Encomiándolo a rendir sus informes de labores," July 4, 1952, Secretaría de Agricultura y Recursos Hidráulicos (hereafter SARH), box 211, Archivo General de la Nación, Mexico City (hereafter AGN).

extension project. The program became supported by the federal government, by the state's governor, and by the Rockefeller Foundation that represented a wholesale effort to disseminate newly-generated crop seeds, fertilization methods, and cultivation techniques that researchers at the Office of Special Studies (OSS) had developed for nearly a decade. As discussed in the introduction, researchers like Edwin Wellhausen (EJ), J.G. Harrar, Norman Borlaug, and their Mexican interns had been hard at work breeding seeds that increased yields substantially and conducting research towards improving agricultural production levels in Mexico. By 1951, some Mexican leaders found it high time to ensure that the technology and know-how arrived to farmers. With a small corps of agronomists beginning to trickle back to Mexico after advanced study at U.S. universities, armed with degrees in agricultural sciences, the time had arrived for these men to translate what they had learned abroad into action.[15] The State of Mexico pilot program represented an opportunity to deliver modern agronomy to farmers.

The scholarship concerning the history of Mexican agriculture after the 1940s has a certain trajectory. In 1941, Paul Mangelsdorf, Elvin Stakman, and Richard Bradfield conducted the famous survey of Mexican agriculture for the Rockefeller Foundation (RF) and subsequently recommended that the foundation expand its operations in Mexico beyond its previous work in public health. Two years after the survey, the Office of Special Studies opened in Mexico City. Led by leaders in their respective fields from the United States and aided by Mexican interns during the 1950s and 1960s, the office received credit for developing high-yielding, disease-resistant maize, wheat, and bean seeds. By the 1970s, after Norman Borlaug received the Nobel Peace Prize for his work towards developing wheat strains that allowed much of Asia to

[15] Based on all records that I have reviewed, all but one OSS intern was male.

avert famine, criticisms of what became known as the "Green Revolution" became common among critics of development, environmentalists, and anthropologists. Scholars justifiably discussed the unequal access to "Revolution" technology, the success of this technology under optimal circumstances and inputs (e.g., synthetic fertilizers, irrigation, large-scale farms), and environmental damage stemming from the technology.[16]

Following this critical vein, some authors have implied that the "Green Revolution" constituted a transplantation of U.S. agriculture in the Mexican countryside. That is, RF workers mistakenly tried to transfer "*La agricultura de Iowa*" into the Mexican countryside. It follows that blame for many of the negative characteristics associated with the Green Revolution and the stories of declension in post-1940s Mexican agriculture fall on U.S. figures like Borlaug, Henry Wallace, and RF leaders.[17] In his assessment of the Green Revolution, historian Adolfo Olea-Franco argued that "the 'green revolution' was a *planned* business strategy and in no way a

[16] See Ryan M. Alexander, "Fortunate Sons of the Mexican Revolution: Miguel Alemán and His Generation, 1920-1952" (PhD diss., University of Arizona, 2011); Lester R. Brown, *Seeds of Change: The Green Revolution and Development in the 1970s* (New York: Praeger, 1970); Kenneth Dahlberg, *Beyond the Green Revolution: The Ecology and Politics of Global Agricultural Development* (New York: Plenum Press, 1979); Cynthia Hewitt de Alcantara, *Modernizing Mexican Agriculture: Socioeconomic Implications of Technological Change, 1940-1970* (Geneva: United Nations Research Institute for Social Development, 1976); Stephen Lewontin, "The Green Revolution and the Politics of Agricultural Development in Mexico since 1940" (PhD diss., The University of Chicago, 1983); Andrew Pearse, *Seeds of Plenty, Seeds of Want: Social and Economic Implication of the Green Revolution* (Oxford: Clarendon Press, 1980); Vandana Shiva, *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics* (London: Zed Books, 1991); John H. Perkins, *Geopolitics and the Green Revolution: Wheat, Genes, and the Cold War* (New York: Oxford University Press, 1997) and Perkin, "The Rockefeller Foundation and the Green Revolution, 1941-1956," *Agriculture and Human Values* VII, no. 3&4 (1990): 6-18; and David Sonnenfeld, "Mexico's 'Green Revolution,' 1940 – 1980: Towards an Environmental History," *Environmental History Review* 16, no. 4 (1992): 28-52.

[17] For examples, see Deborah Fitzgerald, "Exporting American Agriculture: The Rockefeller Foundation in Mexico, 1943 – 1953," *Social Studies of Science* 16, no. 3 (1986): 457-483; and Angus Wright, *The Death of Ramón González: The Modern Agricultural Dilemma* (Austin: University of Texas Press, 1990).

philanthropic enterprise to end hunger in the world" (emphasis mine).[18] Until recently, the scholarship about the history of Mexican agriculture has been one of Yankee domination and the inference that RF researchers mistakenly tried to turn the *campo* into something similar to the U.S. Midwest.[19]

Sources do not uphold this narrative, however. I argue that if there was an intentional agricultural model transfer, Mexican agronomists played a larger role in trying to implant a derivation of Iowa to the Mexican countryside than did Rockefeller Foundation researchers, U.S. politicians, or agribusiness vendors. As referenced above, extension agents by 1951 were trying, in earnest, to professionalize and systematize the delivery of modern agricultural development to farmers. And as Sánchez's letter to his colleague suggests, agricultural extension carried weight with the Ministry of Agriculture. In other words, state leaders unequivocally led the effort to carbon copy U.S.–style agronomy. To prove this, I utilize the most widely circulated agricultural journals of the 1940s and 1950s, along with extension agents' reports from the State of Mexico, to highlight how much Ministry of Agriculture chiefs and politicians, beginning in 1951, sought to install the demonstration lot method and county agent system south of the Rio Grande. Within five years, a state pilot program became the

[18] Adolfo Olea-Franco, "One Century of Higher Agricultural Education and Research in Mexico (1850s-1960s), with a Preliminary Survey on the Same Subjects in the United States" (PhD diss., Harvard University, 2001), 721.

[19] See Tore Carl Olsson, "Agrarian Crossings: The American South, Mexico, and the Twentieth-Century Remaking of the Rural World" (PhD diss., The University of Georgia, 2013); Jonathan Harwood, "Peasant Friendly Plant Breeding and the Early Years of the Green Revolution in Mexico," *Agricultural History* 83, no. 3 (2009): 384-410; Joseph Cotter, *Troubled Harvests: Agronomy and Revolution in Mexico, 1880-2002* (Westport, Connecticut: Praeger, 2003); Servando Ortoll, "Orígenes de un proyecto agrícola: La Fundación Rockefeller y la Revolución Verde," *Sociedades Rurales, Producción y Medio Ambiente* 4, no. 1 (2003): 81-96; and Karin E. Matchett, "Untold Innovations: Scientific Practice and Corn Improvement in Mexico, 1935-1965" (PhD diss., University of Minnesota, 2002); and Edward D. Melillo, "The First Green Revolution: Debt Peonage and the Making of the Nitrogen Fertilizer Trade, 1840-1930," *American Historical Review* 117, no. 4 (2012): 1028-1060.

basis for a national program, adopted and supported by Mexico's federal government. And by 1959, the attempted grafting of Iowa-style agriculture onto Mexico's countryside was all too evident. My contention, then, is that the model of transplantation was derived in the United States, but Mexicans delivered such a scheme.

The other substantive discussion in this chapter concerns Mexicans' adoption of the discourse of modern agricultural development. In their roles as experts, trained in the United States, Mexico's extensionists embraced a discourse – a body of ideas and vocabulary that defined practices and courses of action – that endowed peasant farmers with certain needs and characteristics.[20] They regarded peasant growers (*campesinos*), who made up the majority of the agriculturalists with whom they worked, as an ensemble of antiquated subjects who lived in misery and destitution. But agronomists, trained in modern sciences and having access to high-yielding seeds and modern techniques, possessed the technology and knowledge to make *campesinos* modern farmers, and by design, innovative, "progressive" citizens. In their work, however, agronomists exercised a top-down method of instruction. They talked *at* peasants; they did not talk *with* peasants. In the calculus of agricultural development, *extensionistas* and their leaders overlooked the human element in their work. Thus, they neglected the histories and knowledge, particularly local agronomic knowledge, of the subjects with whom they worked. Consequently, this chapter also deals with how Mexican leaders attempted to deliver "development" – in this case, agricultural development.

[20] Anthropologists Arturo Escobar and James Ferguson, both of whom deal with Michel Foucault's theories about discourse, influence my ideas related to development. See Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton: Princeton University Press, 2012); and Ferguson, *The Anti-Politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho* (Minneapolis: University of Minnesota Press, 1994).

EXTENSION AS PANACEA

Extension refers to the dissemination of agronomic research to those people who possibly stand to benefit from new cultivation methods and technology. With the professionalization and advances in agricultural research in Europe during the 1800s, leaders in universities, private organizations, and in governments took it upon themselves to ensure that the advances reached constituents or clients.[21] To different ends, extension agents go to their audience to train and promote new technologies (e.g., fertilizers, genetically modified seeds) or cultivation methods (e.g., crop rotation, pest management, soil utilization). They deliver services via an array of techniques that historically have included demonstration lots, movies, lectures, radio programs, nature-study programs, and hands-on instruction.

For much of the first half of the twentieth century, Mexico's agricultural extension services were miniscule, almost nil. Until the 1940s, public institutions of scientific research were limited to the Department of Science at the National University in Mexico City.[22] Because of a lack of funding and an emphasis on professional research prior to the Mexican Revolution, what could have been labeled as extension did not begin until 1911.[23] For much of the second half of the nineteenth and early

[21] For discussion of the history of early state-led extension efforts, see Jonathan Harwood, *Europe's Green Revolution: The Rise and Fall of Peasant-Friendly Plant Breeding* (New York: Routledge, 2012).
[22] Hebe M.C. Vessuri, "Academic Science in Twentieth-Century Latin America," in *Science in Latin America*, ed. Juan José Saldaña, trans. Bernabé Madrigal (Austin: University of Texas Press, 2006), 215.
[23] This is not to suggest that Mexico was devoid of scientific research in botany or agriculture. I am suggesting that research towards the public remained minimal. For examples of advanced research derived in Mexico, see Rick A. López, "Nature as Subject and Citizen in the Mexican Botanical Garden," in *A Land Between Waters: Environmental Histories of Modern Mexico*, ed. Christopher R. Boyer (Tucson: University of Arizona Press, 2012): 73-99; Jeri Reed, "The Corn King of Mexico in the United States: A South-North Technology Transfer," *Agricultural History* 78, no. 2 (2004): 155-165; Alejandro Tortolero Villaseñor, *Notarios y agricultores: crecimiento y atraso en el campo mexicano, 1780-1920* (Mexico: SIGLO XXI, 2008); and Karin E. Matchett, "At Odds Over Inbreeding: An Abandoned Attempt at Mexico/United States Collaboration to 'Improve' Mexican Corn, 1940-1950," *Journal of the History of Biology* 39, no. 2 (2006): 345-372.

twentieth centuries, the National College of Agriculture, the country's largest institution of higher education, trained students on how to manage peon labor on *haciendas* (large estates with feudal labor conditions) rather than on generating scientific research.[24] According to one report, a "reduced number of *técnicos* [agents] and installations" were spread thinly around the country when it opened. The office remained small in the decade after its founding. By 1922, an extension department, then called the Office of Regional Agronomists, counted only twenty-two field workers who were charged with serving millions of farmers. The name of the department changed to the Department of Agricultural Development by 1936, and its agents were called Agrónomos Regionales (Regional Agronomists). In terms of the number of staff members, it remained minimal, with only forty employees.[25] The bureau where *agrónomos* worked closed in 1941 – another telling symbol that officials gave to extension.[26]

Extension lacked in qualitative terms, too. Agrónomos Regionales received instruction from a headquarters in Mexico City and replicated what they were told by supervisors in their respective geographic zone. The problem with such a method of extension was that Mexico has an extremely diverse topography, growing regions, altitudes, and climates that should have allowed for adaptation to farmers in a specific region. Moreover, the research and its dissemination, per the Rockefeller Foundation's Agricultural Survey Commission in 1941, were severely inadequate. Lacking transportation, men (records do not suggest women were allowed any role in extension until the early 1950s) spent their days answering letters and passing out leaflets. Most

[24] Ramón Fernández y Fernández, *Chapingo hace 50 años* (Chapingo, Mexico: Escuela Nacional de Agricultura, 1976).
[25] Informe, No date listed, SARH, box 184, AGN.
[26] Nathan L. Whetten, *Rural Mexico* (Chicago: University of Chicago Press, 1948), 334-335.

important, perhaps, the men in charge of the research stations around the country merely carried out the orders of "a more or less competent man who sits at a desk." A field worker was "not an independent investigator, neither by training, nor permission." If he displayed any skills, he likely received promotion to a desk job.[27]

This situation changed by the mid-1940s with the availability of researchers and resources after the opening of the Office of Special Studies (OSS). For years, diffusion of research results generated by OSS staff members consisted of distribution of Folletos Técnicos (Technical Pamphlets) or Folletos de Divulgación (Distribution Pamphlets), which were reports of an academic nature, to farmers.[28] Growers in the surrounding OSS researcher centers also visited the centers' grounds for Días de Demostración (Demonstration Days) or they were invited to see demonstration lots that researchers had arranged – in a variety of ways – on local farmer's plots.[29] Stakman et al. describe the method: "One corn farmer was interested in obtaining seed of one of the strains under test," and E.J. Wellhausen, head of maize research at the Office of Special

[27] Elvin Stakman, Paul Mangelsdorf, and Richard Bradfield, "Agricultural Conditions and Problems in Mexico: Report of the Survey Commission of the Rockefeller Foundation," August/September 1941, p. 55, Archivo del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (hereafter AINIFAP), Biblioteca Nacional Forestal "Ing. Roberto Villaseñor Ángeles," Mexico City (hereafter BNF); Anneliese Markus de Kennedy, "The Office of Special Studies: A Study of the Joint Mexican Secretaríat of Agriculture – Rockefeller Foundation Program in Agriculture, 1943-1963" (PhD diss., University of North Carolina, 1973), 42.

[28] For a small sampling of these pamphlets, see E.J. Wellhausen, "Comparación de variedades del maíz obtenidas en el Bajío, Jalisco y en la Mesa Central," *Folleto Técnico* no. 1, Programa de Agricultura Cooperativo de la Secretaría de Agricultura y Ganadería y la Fundación Rockefeller (December 1947); E.J. Wellhausen and L.M. Roberts, "Rocamex V-7: Una variedad sobresaliente de maíz para sembrarse de riego en la Mesa Central," *Folleto de Divulgación* no. 3, Oficina de Estudios Especiales, Secretaría de Agricultura y Ganadería (August 1948); J. J. McKelvey and D. Parker, "Nuevos insecticidas," *Folleto Técnico* no. 2, Oficina de Estudios Especiales, Secretaría de Agricultura y Ganadería (October 1948); N. E. Borlaug, J. A. Rupert, and J. G. Harrar, "Nuevos trigos para México," *Folleto de Divulgación* no. 5, Oficina de Estudios Especiales, Secretaría de Agricultura y Ganadería (June 1949). Pamphlets formerly located at AINIFAP, BNF.

[29] To convince farmers to try new seeds and methods, Norman Borlaug sometimes resorted to wrestling with farmers. Per one former MAP fellow, Borlaug challenged farmers to a wrestling contest. If he won the match, then the farmer would grow OSS seeds or farm as advised. Unidentified, interview with the author, Montecillo, Estado de México, Mexico, August 4, 2013.

Studies, gave the farmer some seeds. Afterwards, the farmer agreed to manage his field "throughout the season as directed" by OSS staff members. The man had a "fabulous crop" that became the showcase at a field day that President Miguel Alemán (1946-1952) visited. "Farmers had never seen such corn!" according to Stakman et al., and word spread to the Mexican press about the fruits of OSS research. One field day became the feature story in *El Universal*, one of Mexico City's most-widely read dailies.[30] The demonstration lot and field day method (some included dinners for attendees), combined with the distribution of bulletins "written at the popular level in Spanish," and a traveling slide show accompanied by lectures to farmers, as Deborah Fitzgerald discussed, became the go-to way of extension by 1949.[31]

The demonstration method of extension had a history that was familiar to OSS leaders from the United States. It had its roots in a campaign led by Seaman Knapp in the early 1900s in the US South. To combat the boll weevil that hit crops in the South, Knapp founded a program that sought to improve agricultural practices among farmers. Knapp's agents located farmers and convinced them to implement an agricultural package on their lands to improve their practices and thereby eradicate boll weevils. Part of the package promoted by Knapp workers included the use of improved seeds, increased fertilization, and mechanization. Advice to farmers also included technical advice concerning early planting or eradicating cotton stalks after harvesting. Agents also promoted crop diversification to break the cycle of monocrop conditions in the South, which had contributed to the boll weevil epidemic in the 1900s. Interstate commerce laws prevented Knapp from getting federal USDA support to spread what

[30] Cited in E.C. Stakman, Richard Bradfield, and Paul C. Mangelsdorf, *Campaigns Against Hunger* (Cambridge: The Belknap Press of Harvard University Press, 1967), 200-201.
[31] Fitzgerald, "Exporting American Agriculture," 471-472.

came to be known as the "Knapp method." But he received help from the Rockefeller Foundation in 1906, when the foundation's General Education Board agreed to support him in states outside of Texas, where his work had begun in Terrell.[32] This method of allowing farmers to see modern farming became known as the demonstration lot method.

To complement the method, Knapp also directed his efforts at youth. He promoted youth Boy's Corn Clubs and Girl's Canning Clubs. His reason for reaching out to the youth was straightforward: if a younger generation of farmers would adopt agricultural scientific farming, their parents would do the same. As Deborah Fitzgerald summed up, "He reasoned that no farmer would want to harvest a yield poorer than that of his son."[33] Nearly a decade after Knapp's work began in the South, the demonstration method and government-sponsored extension services were codified into law after Congress passed the Smith-Level Act, which created the USDA's Cooperative Extension Service, in May of 1914. The county extension agent, a professionally-trained person who traveled to farms and establishments to deliver consultative services to local growers on everything from home economics to 4-H educational initiatives, had come into existence. Agricultural improvement and modernization among farmers was a matter of farmers seeing how to improve and being told by experts how to improve. Extensionists were the foot soldiers who delivered advice and guidance.

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[32] For more information concerning Knapp and U.S. extension, see Joseph C. Bailey, *Seaman A. Knapp: Schoolmaster of American Agriculture* (New York: Columbia University Press, 1945); Roy V. Scott, *The Reluctant Farmer: The Rise of Agricultural Extension to 1914* (Urbana, IL.: University of Illinois Press, 1970); and for a sense of the racism of Knapp's workers, and more on his program, see the last chapters of O.B. Martin, *The Demonstration Work: Dr. Seaman A. Knapp's Contribution to Civilization* (Boston: Stratford, 1926). For a *very* critical discussion about Knapp's legacy, see James Giesen, *Boll Weevil Blues: Cotton, Myth, and Power in the American South* (Chicago: University of Chicago Press, 2011), 136-137.

[33] Fitzgerald, "Exporting American Agriculture," 460.

As we will see, the demonstration method came about in Mexico in small steps. Via local media outlets, OSS staff members spread word in areas near research centers about a field day. Farmers arrived to tour the grounds at the center. Led by an intern *agrónomo* or one of the U.S. researchers, visitors saw fields grown with the latest-generated seeds under different experimental conditions meant to maximize yields and visual appeal. They learned about the latest methods for combating pests or plant diseases, and they heard advice on cultivation techniques. Having studied at many land-grant universities in the United States and having been trained by some of the most respected foreign researchers in their fields, agents who delivered the tours and talks casted themselves as experts vis-à-vis their audiences.

Embedded in this model of instruction by *agrónomos* lay prejudices and assumptions. Articles in agricultural journals during the 1950s and 1960s are littered with articles that revealed the attitudes that extension agents had towards peasant farmers. In December of 1948, Augusto Pérez, delivered a paper that underscored *agrónomos*' ideas and modern technology's role in improving peasants' lot in life. "In Latin American countries," Pérez began, "where much of the peasant populations are comprised of indigenous peoples," agricultural improvement remained paramount. Yet, despite the advancements of agrarian reform after the Mexican Revolution, new forms of communication technology, new machinery and credit for peasants to purchase the equipment, and the use of new fertilizers, peasants remained at the "margins of the advancement of agricultural science." They continued to be day laborers, "less appreciated than a unit of farm machinery." In Pérez's estimation, this situation was due in part to peasants' lack of formal education. Citing the Yucatecan Maya as a case

in point, he argued that *campesinos* would soon enough gain the know-how and Spanish language to become more capable farmers. Then they would appreciate the social reforms of the Mexican revolution and the benefits of modern science. Education and literacy would destroy the "mental prison" of Mayan religious beliefs in the metaphysical and other religious ceremonies that were counter to modern science, which collectively forbid the Maya from "progressive ideas." Furthermore, without literacy and training in modern agriculture, peasants and indigenous groups would never gain the requisite skills to apply for credit from banks to increase their crop yields and thus their income. The lot of Indian peasants in 1950s Mexico, in Pérez's reading of history, was linear: Indian peasants needed literacy to overcome their supernatural beliefs in order to understand Spanish and modern science. Literacy and science offered solutions to the problems of millions of *campesinos*.[34]

Pérez, however, alluded to a method that would help peasants: agricultural extension. It came from a model that had "magnificent results" in the United States. Farmers north of the border possessed a "modern mentality" and realized the wonderful benefits from extension. If Mexico's extension service received more support, then peasants would effectively understand the benefits they stood to gain from the "magnificent" method from the United States.[35] In his conclusion, Pérez suggested that it was of capital importance that government leaders would supplement extension with "help[ing]" peasants with literacy and learning how to speak Spanish "for the *Revolución* and *la Patria*."[36] The conflation of the social and political circumstances of

[34] Augusto Pérez Toro, "El Indio en la Agricultura," *Tierra* IV, no. 5 (May 1949), 296-299.
[35] Ibid.
[36] Pérez, "El Indio en la Agricultura," *Tierra* IV, no. 6 (June 1949), 365-368. *Patria* is a Spanish term that has several interpretations, but generally indicates nationhood or homeland.

peasants with science-shall-solve-complex-problems approach was all too evident. Furthermore, extension would serve as a technical palliative to peasant farmers' adjustment to modernization.

The tone and substance of Pérez's article became the *lingua franca* among agronomists in relation to how agronomists discussed peasant agriculture. While they respected many growers' cultivation methods, they also saw potential for improvement via modern science and easy transfer of this science via a method from the United States. They saw their potential to transform peasants in their work.[37] *Tierra*, the journal where Pérez's ideas were published, became the Ministry of Agriculture's official magazine in 1950. It became the organ to help and guide farmers "who needed so much help in their pursuit of progress" on their farms and in their homes.[38] The growing body of agronomists in Mexico regarded peasants, who numbered at least three million (and about 10 percent of the population), as subjects in need of guidance in agriculture and education.[39] Just as important, *agrónomos* saw themselves as workers who owned the skills and knowledge that were essential to peasants' deliverance from pre-modern farming. Science in the modern world, according to an editorial in *Tierra*, had become important in all human activities. And it was imperative, according to one writer, for *agrónomos* to find "effective methods" for *campesinos* to utilize and benefit from the fruits of modern science.[40] In Mexico, as historian Nick Cullather said about Asia during the Cold War, science "offered a unique medium" for inculcating

[37] Works by Tore Olsson, Joseph Cotter, and Deborah Fitzgerald helped me arrive at this idea about the transformative role that agricultural state workers could exercise.
[38] Y Gai Liberté, "Editorial, Órgano Oficial," *Tierra* V, no. 4 (May 1950), 209.
[39] José Hernández Mota, "La Población Indígena Mexicana Permanence al Margen del Progreso," *México Agrícola* XI, no. 141 (November 1965), 48-49.
[40] Gai Liberté, "Editorial, Congreso," *Tierra* IV, no. 9 (September 1949), 527.

democratic and "progressive values" in their pursuit to modify the psychology of peasants.[41] Left out of Mexican agronomists' conception of agricultural development was consideration of what *campesinos* may already have known about agriculture, their cultures, and their histories.

TEACHING PEASANTS

The most commonly used of these effective methods of *agrónomos* taking science to peasants would be, as Pérez suggested, agricultural extension based on a model from the United States. By 1949, young Mexican men had traveled to the United States where many of them witnessed U.S.-style extension. They had seen the cooperative efforts between county extension agents and land-grant universities. Having interned and worked in the Días de Demostración at OSS research stations, many of the young agronomists decided to take what they saw as a transferable system to Mexico. Salvador Sánchez, one of those who had studied U.S. agriculture and had by the early 1950s gained a position of influence in politics, was most responsible for ushering in modern extension in Mexico.

Sánchez embodied the Mexican *ingeniero agrónomo* who sought to rectify problems in the Mexican countryside via techniques and technology from the United States. The son of peasant parents in Atlacomulco, State of Mexico, he was born in 1912. He earned a scholarship from the government to attend a high school in the state of Hidalgo to study agriculture. In 1935, he graduated from Mexico's premier agricultural studies college. After graduating, he taught botany in northern Mexico

[41] Nick Cullather, *The Hungry World: America's Cold War Battle Against Poverty in Asia* (Cambridge, Massachusetts: Harvard University Press, 2010), Introduction, Kindle edition.

before he took a trip to study citrus fruit production in the United States. Upon returning, Sánchez went to work for National Bank of Ejido Credit, the state-funded bank mandated to offer credit to *ejidatarios* (communal land owners) after the Mexican Revolution. From the 1944 to 1946, he worked for the Ministry of Agriculture. In 1946, he became the Director of the Mexican Ministry of Agriculture, simultaneously serving as a state senator in Mexico's national congress. While in charge of the department, he became "well acquainted with [J.G.] Harrar [Director of the Mexican Agricultural Program] and the research program of the Office of Special Studies."[42] In the same year, he was one of the founders of *Tierra*, which became the journal of the national Ministry of Agriculture in 1950. Influential people like Sánchez, and other Rockefeller Foundation fellows, as historian Joseph Cotter wrote, "praised the MAP [Mexican Agricultural Program] and its hybrids, attended U.S. universities, and worshipped U.S. science."[43] Six years after founding the country's largest agricultural journals, Sánchez became the governor of the State of Mexico.[44]

He took office in September of 1951 with ambitious plans. During his campaign, he gave more than four thousand talks with people in his state, and it became clear to Sánchez that agricultural production was low. Farmers, he said in an interview, "cannot solve their own problems and do not even have a clear idea of their most urgent needs." Proof, he indicated, was evident because throughout his campaign tour, not one farmer asked if his administration would help provide farmers with fertilizers, "despite it being of capital importance in farming." In addition to farmers not knowing their

[42] Stakman et al., *Campaigns Against Hunger*, 204.
[43] Cotter, *Troubled Harvests*, 240.
[44] Roderic Ai Camp, *Mexican Political Biographies, 1935-2009* (Austin: University of Texas Press, 2011), 877-878.

own needs, he delineated other issues in the state: soil erosion because of monoculture; low crop yields; lack of irrigation (88 percent of the state lands were irrigated by unreliable seasonal rain for irrigation); under-utilized lands that could be converted into productive pasture lands; and "many years of irrational [forest] exploitation."[45]

Upon taking office, Sánchez already had plans in mind. To solve each of the state's problems, members of his staff were going to install meteorological stations around the state to get to know its climatic zones. Researchers would then determine which crops thrived best in different areas. The erosion problem would be solved via reforestation campaigns. Interested farmers would also gain easier access to credit to purchase agave plants to restore the health of the soil in many areas of the state. To help diversify crop yields, the Sánchez administration was to distribute hybrid seeds. In relation to a lack of irrigation, his administration planned on capturing rain water in lakes. With help from the Ministry of Hydraulic Resources, Sánchez planned on digging deep subsoil water wells and tap groundwater resources as deep as 60 meters. In dealing with forest exploitation, a team of researchers had already begun a forest inventory to find out what areas of the state required reforestation. To supplement these efforts, workers at nurseries had begun growing trees to be planted in many areas, with the hope that forest coverage could return to 1920's levels. These same nurseries would provide seed materials to plant around the state to diversity crop production. Among the plants that should go into production when Sánchez became governor were apples, pears, peaches, quince, walnuts, avocadoes, oranges, bananas, and cherimoyas. Some

[45] "El Ingeniero Agrónomo Salvador Sánchez Colín: Gobernador del Estado de México Nos Habla de Agricultura," *Tierra* VI, no. 11 (October 1951), 628-631.

of the "most modern milking instruments" and fine livestock were also on the way to help increase dairy production in the state's expansive valleys.[46]

An agenda of such reach required manpower and resources. Sánchez noted that plans were already in place. To ensure that the efforts in Sánchez's plans arrived to farmers, he founded an agricultural extension department. They would "orient farmers in their work." The extension workers would help farmers "realize and enjoy the different parts" of Sánchez's program. Benefits of the state project, however, could not come to reality solely on the efforts of the state's finances and the government's cooperation with farmers. The federal government and other agencies would help. "I have no doubt that it will be easy," Sánchez finished, "to get cooperation between interested farmers and the government. And we will successfully solve the current and future agricultural problems in the state." Interviewers left Sánchez's office "convinced in his [Sánchez's] faith in his mission," and confident about the future and the will needed to accomplish the program in the State of Mexico.[47]

Weeks later *Tierra* writers followed Governor Sánchez to the Office of Special Studies research station on the campus of the National College of Agriculture in Chapingo to witness a Demonstration Day. He arrived with important company. In tow were county supervisors from his state, who, Sánchez commented, "should do everything they could to help spread the word about government plans to resolve the grave rural problems in the state." Interns and students at the station divided up the functionaries and gave them tours through the different fields dedicated to different research. They visited small plots dedicated to forage and grass research; the bromine

[46] Ibid.
[47] Ibid.

and panic grasses appeared promising towards helping to reverse soil erosion. Visitors learned about Rocamex H-1, hybrid maize that was in its testing stages but looked to have promising yield levels.[48] The experimental wheat fields highlighted the day. Visitors, including Sánchez, "politely assaulted" the bus that drove people around the grounds to go see about 2,000 wheat strains being generated by researchers. At the wheat fields, Norman Borlaug lectured on the seeds in the works that would hopefully be resistant to the latest species of *chahuixtle* (rust disease).[49]

The day ended with an overwhelming appeal to visitors' visual senses at the lots under the Office of Special Studies in Texcoco, a town about ten kilometers from Chapingo. Strategically located alongside the highway that went from Chapingo to the city of Texcoco, farmers had planted lots with maize, wheat, sorghum, potatoes, beans, grasses, and other crops. A harvesting machine stripped potatoes from a field, allowing visitors to see the "abundance" of legumes and to realize that "potatoes, contrary to what state local farmers thought, could in fact be grown" in the region. At the maize fields, according to *Tierra* writers in attendance, E.J. Wellhausen discussed the advantages of recently-developed hybrid maize. Wellhausen stood in front a large pile of shucked ears of hybrid and *chalqueña* (a regional landrace) maize to "make plain and obvious" the superiority of hybrid maize. He then lectured on the size difference in ears and mentioned the 54 percent yield superiority that hybrid maize versus local maize. The day concluded following the tour of the demonstration lots.[50]

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[48] As a symbol of their cooperative efforts, many seed varieties developed by the Office of Special Studies were labeled "Rocamex" to signify the cooperative efforts of the Rockefeller Foundation and Mexico.
[49] "La Oficina de Estudios Especiales Demuestra que…" *Tierra* VI, no. 11 (November 1951), 714-715 and 747.
[50] Ibid. A landrace is a domesticated plant (and animal) species of a given ecological region.

Image 1.1 E.J. Wellhausen and Salvador Sánchez, both at right-center, demonstrating the superiority in size and yield of hybrid maize versus local landraces (from Universidad Autónoma Chapingo, Biblioteca Central, *Tierra*, November 1951).

The Demonstration Day represented a pitch for agricultural technology. Center interns and researchers delivered lectures on the most up-to-date seed technology in Mexican agriculture. Guests received advice from experts, such as Borlaug and Wellhausen, in agricultural technology, and how and why they should promote hybrid seeds, and introduce new crops to their constituents. The demonstration lots, *Tierra* authors noted, was alongside a busy road, for Mexicans to see "progress" in a tangible form. In delivering their promotions to the visitors, Wellhausen and interns produced with piles of local and hybrid ears of maize for visitors to appreciate the superiority of agricultural technology. The maize on display and the aesthetic appeals to visitors represent something similar to what historian Nick Cullather called the "apotheosis of technology." In his examination of IR-8 rice deployed throughout Southeast Asia during the 1960s, *technicity* referred to "the use of a technology…to visualize a boundary between tradition and modernity."[51] The visual appeals displayed in

[51] Cullather, "Miracles of Modernization: The Green Revolution and the Apotheosis of Technology," *Diplomatic History* 28, no. 2 (April 2004), 229.

Chapingo to Sánchez and company were spectacles meant to charm visitors by simply looking at the crops. Writers for *Tierra* led one to believe that visitors were captivated with what they saw, the equivalent of the experience that José Arcadio Buendía had the first time he saw ice in Gabriel García Márquez's *One Hundred Years of Solitude*.[52] Unsaid yet explicitly clear was the suggestion that the benefits of modern agricultural technology – in this case, corn – had arrived to Mexico, and, with the notable yield and size superiority of hybrid maize versus local strains, it was all too clear why Mexican farmers should opt for hybrid seeds. And by extension, it was incumbent for the officials that Governor Sánchez had invited to the day's events to make sure that their constituents be introduced to modern agricultural technology.

This much was clear in an elegiac *Tierra* editorial written about the day in Chapingo. The writer praised Sánchez because of his zeal and interest in improving agriculture, which had a "capital importance." He also commended the efforts of OSS researchers, saying that they had "made good on their offer towards improving the country's agriculture." The demonstration day, the writer added, symbolized "a step forward" for Mexico. But, he concluded, "a more organized, formal manner was needed to ensure that farmers" received the technology displayed and methods taught in Chapingo. Farmers needed an extension service "constituted of *técnicos* trained in dissemination, who tour the countryside and effectively sermonize the gospel of progress."[53]

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[52] Gabriel García Márquez, *One Hundred Years of Solitude*, trans. Gregory Rabassa (New York: HarperPerennial, 2006), 16-18. I must thank Arní Álvarez for bringing to my attention the gravity of this scene in García's novel.
[53] Gai Liberté, "Editorial, Demostraciones," *Tierra* VI, no. 11 (November 1951), 699.

Another editorial echoed these words a couple months later. The author spelled out the gravity of *técnicos*' gospel and a rationale for adopting modern agricultural technology:

> Farmers, by nature, are suspicious, and – at times, with plenty of reasons - do not accept easily change that disrupts their routines, which were tested over many generations, but deficient. To convince them, it is necessary to capture their trust and show them, via demonstration, what they really need. The intimate union between research and practice is the only way to advance our agriculture down a path towards a new era of progress and wellbeing.[54]

Wellhausen added urgency to an extension program in the same *Tierra* issue. "The experimental work," taking place in Mexico, "had no value if it did not arrive to farmers, who could not conduct experiments, but could utilize new things."[55]

Image 1.2 Norman Borlaug at a Día de Demostración discussing wheat rust disease with visitors (from Universidad Autónoma Chapingo, Biblioteca Central, *Tierra*, August 1952).

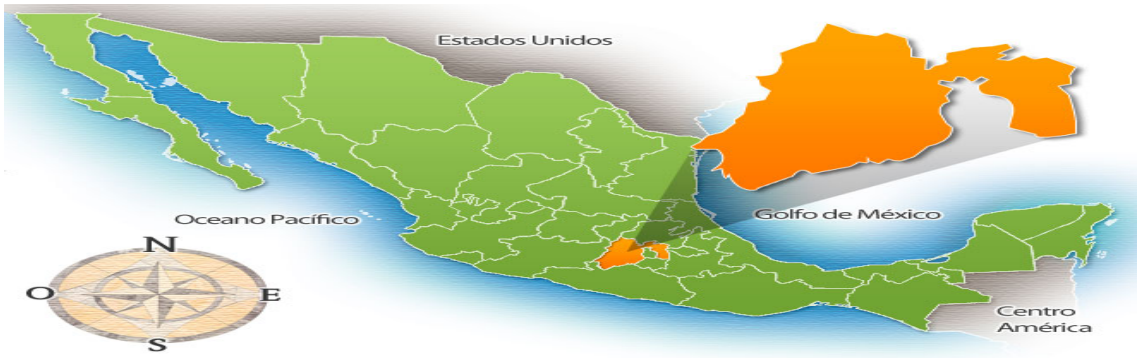
[54] ----, "Editorial, Extensión Agrícola," *Tierra* VII, no. 8 (August 1952), 517.
[55] "Nos Habla el Dr. Wellhausen de los Trabajos de la Oficina de Estudios Especiales," *Tierra* VII, no. 8 (August 1952), 534-539. Wellhausen made similar comments about U.S. farmers, including his own father; see Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas*, Volumen 1 (Chapingo, Mexico: Colegio de Postgraduados, 1984), 296.

Image 1.3 A *técnico*, at left-center, explains advances in wheat breeding at the Santa Elena Experiment Station *día de campo* (from Gobierno del Estado de México, Dirección de Agricultura y Ganaderia, *Campo Experimental Agrícola Santa Elena, Informe Num. 1, 1952 – 1954*, Archivo Efraím Hernández Xolocotzi, September 1954).

Sánchez wasted no time in making sure that a professional extension program began in his state. He consulted with J. George Harrar, at the time the Director of the Mexican Agricultural Program and in charge of the Office of Special Studies, if his office would support a pilot extension program. Harrar offered a "strong recommendation" of support for the idea, and in January of 1952, a program began.[56] With funding from the state government and the Rockefeller Foundation, Sánchez invested nearly $3 million to build a new research station in Santa Elena in the Toluca valley. The money allowed for the purchase of 50 hectares of land that had previously been an *hacienda*. Equipped with water wells and buildings to house experiment stations, service roads on the grounds, tractors, and a modern laboratory, the station represented a substantial investment in money and planning. According to one of his bulletins, the center had several purposes: production of high-yielding agricultural seeds adapted to climate conditions in the state, entomological studies and prevention, soil studies, seasonal crop studies, fertilizer development, herbicide production, and forage

[56] Stakman et al., *Campaigns Against Hunger*, 204.

development.[57] Between the Santa Elena and Chapingo research stations, the State of Mexico had, according to an interview E.J. Wellhausen gave months after the extension program began, "enough experiment stations to produce the materials with respect to new varieties of crops, or through the experimental work, for the entire state, to cover all the different regions in the state."[58]



Map 1.1 State of Mexico (from http://www.travelbymexico.com/estados/estadodemexico).

With an idea of the flora, topography, and climate zones of the state, Sánchez and his staff divided the state into eight geographic regions, each of which ranged in size from about 2,000 to 5,000 square kilometers of land. Researchers assessed each region according to the crops grown there, the communications available in the region, topography, and climate. Sánchez assigned each zone a regional agronomist. Covering an expanse of the 119 *municipios* (similar to a county in the United States), they were each provided a vehicle for travel and distributed operating funds, and unlike Mexico's older extension service department, the agronomists had autonomy to accommodate

[57] Gabriel Itié C., "El Campo Experimental de Santa Elena, Lerma, Mex.," *Tierra* IX, no. 10 (October 1954), 737-739.
[58] Interviews: GWG, Dr. E. J. Wellhausen, Mexico City, August 15, 1952, Record Group (hereafter RG) 1.1, series 323, box 4, folder 25, Rockefeller Foundation Archives, Tarrytown, NY. (hereafter RFA).

their zones, minus interference from Mexico City.[59] Their assignment: "to take the materials and knowledge or results that have been obtained in experiment stations and extend them to the farmers" in their regions.[60] Like U.S. county agents during the early 1900s and those who had been a part of Seamann Knapp's demonstration scheme, agents would roam around their zone and "with time, all the farmers would get to know him." "He would," said Wellhausen, "gain the confidence of peasants, which was naturally important." Agents would recommend the right suggestions and not administer bad or false advice. "He first needs to demonstrate, on a small scale, everything that he recommends," so that farmers will later "adopt what they have seen in the demonstration plots, and the program will be complete."[61] Sánchez's pilot program with the Rockefeller Foundation had an almost mechanistic methodology for changing farmers.

Image 1.4 Salvador Sánchez was the designer of Mexico's agricultural extension program after 1951 (from Universidad Autónoma Chapingo, Biblioteca Central, *Tierra*, October 1951).

[59] "El Estado de México, Abanderado del Progreso Agrícola," *México Agrícola* II, no. 17 (May 1955), 15-19; Stakman et al., *Campaigns Against Hunger*, 204.
[60] Interviews: GWG, Dr., E. J. Wellhausen, Mexico City, August 15, 1952, RG 1.1, series 323, box 4, folder 25, RFA. Wellhausen indicates agronomists for seven regions in this source, but other sources that deal with the program mention eight.
[61] "Nos Habla el Dr. Wellhausen de los Trabajos de la Oficina de Estudios Especiales," *Tierra* VII, no. 8 (August 1952), 534-539.

THE ORIGINS OF IOWA IN MEXICO

Sánchez's state pilot program spawned profound changes over the next decade. From the first day of the program, Sánchez later said, the utmost concern was to "give countenance to the mandate that the people" gave him when he became governor.[62] The cadre of agronomists in his state grew from seven to nearly two dozen, and their responsibilities expanded tremendously. With some difficulties, they represented what Deborah Fitzgerald called, in reference to the engineers who led the change towards an industrial ethos among farmers in the United States, "carriers of cultural change."[63] *Agrónomos* led rural household construction programs for peasants. They managed rural sanitation initiatives, led rural youth programs, and founded a vocational college for teenagers of peasant extraction. These cultural engineers were so successful that early in the life of Sánchez's project the Mexican president praised the type of work that they delivered to growers. The state program became the origin of national agricultural extension. Promoting a pedagogy that showed and told peasants what do, the extensionists gave birth to the modern system of Mexican agricultural extension. The *extensionistas* also became foot soldiers who attempted to deliver U.S.-style agriculture to Mexico.

The first year of the program was frustrating at times for Sánchez's state agents. Available reports from the state indicate that the extension workers dealt with the vagaries of nature and a lack of supplies.[64] Most important, they dealt with the human

[62] Itié, "El Campo Experimental de Santa Elena, Lerma, Mex.," *Tierra* IX, no. 10 (October 1954), 737-739.
[63] Deborah Fitzgerald, *Every Farm a Factory: The Industrial Ideal in American Agriculture* (New Haven: Yale University Press, 2010), 76.
[64] These reports come from federal extension agents, not agents from the State of Mexico. However, the federal government coordinated their efforts with Sánchez's program; see "El Estado de México, Abanderado del Progreso Agrícola," *México Agrícola* II, no. 17 (May 1955), 15-19.

element of extension. Farmers often lacked faith in the extension workers, and the workers' frustration is evident in their reports. Dagoberto Aguilar, working in the northeastern part of the state, began his report from April with unpromising terms. During his first months, he had, "despite much work trying to convince them," not identified one farmer to cooperate with the project. Generally, he reported, locating a farmer who was amenable towards allowing his land to become a demonstration lot was difficult because doing so "entailed obligations and expenses that were unnecessary," according to growers. Aguilar, therefore, found it more effective to hold informal talks with small groups of farmers, "small conferences" during which he gave advice about seed selection and disinfection, and fertilizer usage.[65] Alfredo González had more luck than Aguilar in a central part of the state with finding demonstration lots, but Michoacán 21, the hybrid seed that he had been sent to promote, proved to be a failure in his zone. He asked for the Santa Elena research station to send a maize more acclimated to his zone's climate, keeping in mind that a compatible maize variety will "keep the interests of farmers" in his area.[66] Some months later, González had some luck, saying that he "celebrated some talks" with peasant wheat farmers in his area. In this same report, he reported that rain and hail in the central part of the state had undermined local potato crops, but recently introduced potatoes yielded a good harvest.[67]

[65] Dagoberto Aguilar Vergara, "Se rinde informe trimestral de labores," April 17, 1952, SARH, box 211, AGN.
[66] Manuel Lezama Mayorga, "Se rinde informe trimestral de labores," July 5, 1952, SARH, box 211, AGN.
[67] ----, "Rindiendo informe trimestral de labores de esta Jefatura," October 6, 1952, SARH, box 211, AGN.

Severe challenges in the early days of the program notwithstanding, agents in the State of Mexico program adjusted to circumstances in their zones, and more importantly, they began to believe confirm their faith in the demonstration method. One summer report from Dagoberto Aguilar, the same worker who had terrible luck finding cooperative farmers, shows how quickly fortunes changed. Months after reporting that he had challenges, he continued to roam his zone, and things had improved. He was, in contrast to previous reports, holding talks with small groups and had, "with regularity," begun trips around his zone to consult with farmers with a new tact. He utilized a gradual approach to not "profoundly modify" farmer's practices; instead, he "introduced better daily practices." This way "farmers to get used to small changes that will ultimately improve their current agricultural practices that do not align with the modernization of our [Mexican] agricultural system."[68] A report by Felipe Delgado reported that "despite the noble intentions" of the project he was carrying out in his zone, "he has yet to find someone who was not resistant" to parts of the work he conducted. At a *ranchería*, farmers opposed the parts of the program because they thought that it would offer their community "not one benefit." But he had not "neglected, in no way, the importance" of his project in his zone. Hence, he had no problem with intervening in disputes among local peasants over irrigation sources between different groups and land invasions. Moreover, he discovered a new form of agricultural diffusion: motion pictures. Borrowing films from the U.S. embassy and a local DuPont vendor, Delgado claimed that farmers "reacted favorably to this type of education." Finally, he had arranged for farmers to visit demonstration lots in use "with

[68] Aguilar, "Se rinde informe de labores desarolladas durante el Segundo trimester del presente año," June 30, 1952, SARH, box 211, AGN.

the objective that they personally witness the magnificent results of using good seeds and following the advice that modern agricultural techniques has to offer."[69]

If there was any doubt that Mexican agronomists considered peasants incapable agriculturalists and that extension represented an avenue for improvement, one need only read a reaction to Sánchez's program in agricultural journals of the day, and the calls that followed from agronomists for more extension services. After opining that *agrónomos* needed to convince government officials that agriculture was an art and a science that needed to be advised to farmers by "expert advice" and "needed to have the benefit of scientific research," Gonzalo Blanco begged for a larger extension service. Agents, he suggested, were obligated to pressure the national Ministry of Agriculture to establish a national program that would be serviced by "well-prepared in their apostolic mission" of delivering science to the countryside to "banish forever quackery, ignorance, risk" and the hunger that so many Mexican peasants suffered. He finished: "We [*agrónomos*] must try to dignify, 'technify' our damned national agriculture."[70]

In 1953 President Adolfo Ruiz and the Minister of Agriculture, Gilberto Flores, decreed a national emergency plan to increase maize and corn production. In accordance with the plan, according to one editorial, the president provided extra funds and manpower to help farmers in designated areas increase maize and bean production.[71] Extension, specifically accelerating the delivery of advice to farmers via

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[69] Felipe Delgado Castro, "Informe de labores comprendidas del 13 de mayo al 12 de julio de 1952, que rinde el Agrónomo Regional," July 12, 1952, SARH, box 211, AGN. Delgado became accustomed to showing films to farmers; see Delgado, "Informe número 2. – octubre y noviembre," December 1, 1953, SARH, box 211, AGN.

[70] Gonzalo Blanco Macías, "Dignifiquemos Nuestra Agricultura: Urge Establecer al Servicio de Agrónomos Regionales" *El Campo* XX, no. 724 (June 1952), 34-remainder of page numbers cut off in photographs.

[71] Gai Liberté, "Editorial, Plan de Emergencia," *Tierra* VIII, no. 3 (March 1953), 183.

the demonstration method, was also one of the key parts of the emergency plan.[72] Writers like Alfonso Díaz del Pino offered an extensive solution to low agricultural production, particularly maize. On one hand, he agreed with others, arguing that it was the departure of many farmers to work as farmhands in the United States in the Bracero Program that added to stagnation in national production levels.[73] On the other hand, the more salient reason was that manufacturing in Mexico had increased, and workers left the countryside as wage laborers. He also said that maize farmers continued "the traditional method that had been practiced for hundreds of years, with negative results." He implored farmers to modernize, and specifically, take note of demonstration plots that offered, in "plain view," the methods they should adopt.[74]

Another writer argued that agriculture was, relative to other sectors of the national economy, growing "at a rhythm without comparison." But agricultural yields of important crops remained low because of "poor practices" among farmers who "because of ignorance or a lack of resources." Additionally, the irrigation works taking place around the country, the credit becoming available to farmers, the highway system

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[72] International Maize and Wheat Improvement Center, *Cronología de la evolución y desarollo del CIMMYT*, November 15, 1978, 10-12, http://libcatalog.cimmyt.org/download/cim/82257.pdf.

[73] Alfonso Díaz del Pino, "El problema de la producción de maíz en México," *Tierra* VIII, no. 5 (May - 1953), 347-349. Blame expressed towards the Bracero Program can also be found in Alberto Salinas Ramos, "El problema de los braceros," *Tierra* VIII, no. 4 (April 1954), 309-311. Begun in 1942 to procure farmhands on U.S. farms during World War II, the Bracero Program, over its more-than-two-decade existence, allowed millions of Mexican workers to leave for migratory work. The most recent works dealing with the effects of the program in Mexico – plenty exists concerning the poor conditions workers dealt with on U.S. farms – countryside are Deborah Cohen, *Braceros: Migrant Citizens and Transnational Subjects in the Postwar United States and Mexico* (Chapel Hill, NC: University of North Carolina Press, 2011); Ana Elizabeth Rosas, "Flexible Families: Bracero Families' Lives Across Cultures, Communities, and Countries, 1942-1964" (PhD diss., University of Southern California, 2006); and Michael Snodgrass, "Patronage and Progress: The Bracero Program from the Perspective of Mexico," in *Workers Across the Americas: The Transnational Turn in Labor History*, Leon Fink, ed. (New York: Oxford University Press, 2011): 245-266. Sources do, however, suggest that Díaz del Pino and other Mexicans thought the program had a detrimental effect of the "exodus of our [Mexican] man" to the United States. See "Editorial," *El Campo*, XX, no. 738 (August 1953), 4-5.

[74] Díaz del Pino, "El Problema de la Producción de Maíz en México," 347-349.

being constructed in the country, and the other works on the part of governmental institutions would be for not if Mexicans did not "see the reality in which peasants, those that make up the rural population [of the country], live." Peasants, he added, "need training, an objective education of how to get the most from their parcels of land, their water resources, how and when to apply fertilizers, different types of high-yielding seeds, combating diseases, etc.[,] etc." The author suggested that extension agents should be people who "speak in a language appropriate" to the farmers in their zones. When they "hear and see" and later implement the advice that the lessons that agents taught, *campesinos* "shall be convinced that they are contributing to their own improvement and that of their communities, and ultimately, to their *patria*." After elaborating on how extension agents embodied the sources that shall educate peasants and explaining how extension workers shall, by default, contribute to the social and economic progress of Mexico, the author implored the government to increase support for extension services.[75]

A few months later in the same magazine, Francisco García echoed a similar logic. Using methods that ranged from "the most elementary to more technical methods," extension agents were mandated to adjust their work to their constituents. This was important because "as farmer's practices and income improve, they will discover a new path and new ways of working will translate into improvements in

[75] GARBE, "Los Servicios de Extensión Agrícola," *México Agrícola* II, no. 1 (August 1953), 27-28. More on the extensive irrigation efforts after the 1940s can be found in Evan R. Ward, *Border Oasis: Water and the Political Ecology of the Colorado River Delta, 1940-1975* (Tucson: University of Arizona Press, 2003); Mikael Wolfe, "Bringing the Revolution to the Dam Site: How Technology, Labor and Nature Converged in the Microcosm of a Company Town in 1930s and 40s Mexico," *Journal of the Southwest* 53, no. 1 (Spring 2011): 1-31; Sterling Evans, "La angustia de La Angostura: consequencias socioambientales por la construcción de presas en Sonora," *Signos Históricos*, no. 16 (2006): 46-78; and Benny J. Andrés Jr., *Power and Control in the Imperial Valley: Nature, Agribusiness, and Workers on the California Borderland, 1900-1940* (College Station, Texas: Texas A&M University Press, 2014).

peasant's economic, social, and cultural lot in limitless ways." García added that Mexican agriculture was "rather elementary," and farmers "need such rudimentary lessons that they appeared to be aberrations as people in the twentieth century." Millions of peasants who lived in misery were "irrationally exploiting their land, compounding their problems and, everyday, making their lot in life tougher because of a lack of someone to guide them" and somehow show them how to improve their lives, via the most "elementary" of practices.[76]

Such thoughts about peasants were common among *agrónomos*, and the answer to address *campesinos*' agronomic inertia was extension.[77] Agronomists assigned to peasants certain characteristics and traits. By conceptualizing peasants in these terms, it followed that they needed to be shown how to cultivate, to see and learn. Armed with training and know-how in modern agricultural methods and technology from the United States that they venerated, and being advised to do so by their foreign mentors like Borlaug, *agrónomos* pleaded to leaders in Mexico to expand efforts to aid peasants. Not mentioned in the pleas for the expansion of the extension was the idea that an expansion offered vocational legitimacy and more jobs for *agrónomos*. The logic that they employed made all too much sense to many agronomists in the early 1950s.

Sánchez and company overlooked other important considerations in their work. By traveling to farmers and bestowing their "modern," non-elemental knowledge, extension became a hierarchical form of instruction.[78] Advice concerning fertilizers,

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[76] Francisco García Uribe, "El Servicio de Extensión," *México Agrícola* II, no. 3 (October 1953), 54-56.
[77] I borrow the "agronomic inertia" from a letter by Efraím Hernández Xolocotzi, Archivo Efraím Hernández Xolocotzi, Rama de Etnobotánica, Botánica, Colegio de Postgraduados, Montecillo, Estado de México, Mexico.
[78] Extension workers in Costa Rica during the 1950s also employed a similar method of extension. See Wilson Picado Umaña, "En busca de la genética guerrera. Segunda Guerra Mundial, cooperación agrícola y Revolución Verde en la agricultura de Costa Rica," *Historia Agraria* 56 (April 2012): 107-134.

soil maintenance, and other lessons in modern agriculture constituted a body of knowledge gifted by extensionists to peasants. The process of educating the masses of farmers was equivalent to what Paulo Friere, one of Latin America's most famous spokesmen for peasants, called the banking concept of education. Modern knowledge was "a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing."[79] While they sympathized with peasants' lot in life, extensionists neglected the possibility that *campesinos* might know what they were doing as farmers. Extension precluded any serious study of local knowledge and consideration for factors of the communities in which they worked, such as culture and history.

Less than two years after it began, Sánchez's program started receiving praise from outsiders and from him. Not solely based on increased agricultural production, the project, according to one writer, had "great achievements and deep importance." In his second annual report on the project, Governor Sánchez explained to constituents that the program dealt with issues ranging from "farmer education" to the founding of an agricultural machinery center. Changing the state departments that dealt with agriculture, he divided the Sub-ministry of Agriculture, Livestock and Forestry into three separate departments. In relation to each of the areas of emphasis in President Ruiz's agricultural Emergency Plan, Sánchez's report said that despite a bad rainfall year, the state should make up for the shortfall with a strong winter wheat harvest with Santa Elena 52, a seed developed at the Santa Elena research station. Bean production appeared favorable in the southern region of the state, which helped the federal

[79] Paulo Freire, *Pedagogy of the Oppressed*, trans. Myra Bergman Ramos (New York: Continuum, 1993), 53.

government's national emergency plan. To deal with the thousands of hectares that were subject to erosion in the state, extension agents had "applied diverse methods of objective learning" to teaching soil conservation "with the idea of correcting the waste [and] deterioration of soil." Project workers had distributed 54,500 kilograms of imported tubers in 1952 to build a potato industry in the state. The next year, they distributed nearly double this amount, 94,468 kilograms. Fertilizer distribution went from 6,800 tons in 1952 to 10,000 tons the following year. In relations to improving the livestock industry in the state, ten imported bulls with good bloodlines had been responsible for producing more than 600 head of cattle within two years. Although twenty-four counties had outbreaks of Dengue fever, affecting more than one-hundred thousand heads of cattle, Sánchez mentioned how extension agents had vaccinated more than half of the effected heads. To address reforestation in the state, workers had planted more than 1.7 million trees around the state. Sánchez and company also promoted the formation of cooperative farming efforts. Funding for local credit unions grew from $1.6 million in 1952 to $11 million in 1953. This same year Sánchez opened a machinery plant that housed machines to help growers with soil rotation, and fallowing fields.[80]

At the heart of these efforts was Sánchez's corps of extension agents. "The results obtained," Sánchez's second annual review said, from these agents "suggests that they are the fundamental elements in the government's agricultural program." The number of demonstration lots, which represented the "most effective way to convince farmers about the greatness of technical agricultural practices," had increased from

[80] José E. De la Cruz, "El Estado de México, Segunda el Programa Presidencial en Material Agrícola," *Tierra* VIII, no. 10 (October 1953), 762-770.

seventeen in 1951 to thirty-two by the end of 1953. The diversity of crops in these lots varied from maize, wheat, and beans, to potatoes and other horticultural products. The agronomists had also organized conferences at which they trained rural schoolteachers to help "spread the vigorous pulse" that *campesinos* needed. These Regional Teacher Training Centers provided *extensionistas* venues during which they gave teachers lessons in modern agricultural techniques that teachers would hopefully share with their students. To spread the work that extension agents promulgated and notices about the research being generated at the state's two research centers (Chapingo and Santa Elena), six bulletins had been distributed throughout the state. The Ministry of Hydraulic Resources and the national Agrarian Department provided funding to *ejidatarios* who had received land near Lerma, in the center of the state, and *extensionistas* taught the beneficiaries how to steward their new irrigation resources and land.[81]

Sánchez's administration received substantial federal government support for his state program, particularly from functionaries with a background similar to his own. In 1953, Joaquín Loredo became the Chief of Agricultural Extension in the national Ministry of Agriculture and a coordinator in President Adolfo Ruiz's emergency plan. Loredo was a Rockefeller Foundation (RF) fellow and, like Sánchez, had trained in the United States. After graduating from the National College of Agriculture, he received a scholarship to Cornell University in 1947. After earning his Master's degree from Cornell, he returned to Mexico to serve as the assistant director in the soils research department for the Office of Special Studies.[82] According to a 1954 RF annual report, he received $1200 "to visit the United States Department of Agriculture (USDA) and

[81] Ibid.
[82] "Nueva Directiva de los Ingenieros Agrónomos," *Tierra* XII, no. 12 (March 1957), 226.

various state service centers."[83] Within months of the visit to USDA centers, Loredo's offices began supporting Sánchez's program by appropriating federal funds to the program and adding twelve more extension agents.[84]

Other agronomists shared a high opinion and conviction about U.S. extension. In 1954, Gabino Vázquez, a writer for one of Mexico's non-state agricultural journals, visited the United States to learn more about USDA's Department of Agricultural Extension. He shared details about his trip in glowing terms, eulogizing about county agents in the United States and their work with poultry farmers and 4-H clubs, and the Domestic Economy courses that Demonstration Agents imparted on North American women, which taught how farmers "live better utilizing their own resources, via lectures and demonstrations about home economics, the kitchen, hygiene, childcare, sewing." He all but demanded that Mexico adopt an identical replica. In almost *malinchista* terms, he finished the summary of his visit with "The Extension Department and Information Services that saturate the American rural environment, with numerous publications, and radio, television and theater productions, make it possible that American countryside becomes more prepared for technical agricultural development that yields abundance, creating an environment of prosperity and human dignity in this country [the United States] where the majority of the country's wealth comes from its exemplary populace."[85]

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[83] *The Rockefeller Foundation Annual Report, 1954* (New York: Rockefeller Foundation Archives, 1956), 168, http://www.rockefellerfoundation.org/uploads/files/75f30fd8-a787-465e-9fa6-47c89c37a6d3-1954.pdf. Also in 1954, George Harrar, an RF official, said that Mexico's extension services key personnel had training in the Mexican Agricultural Program; see Bruce H. Jennings, *Foundations of International Agricultural Research: Science and Politics in Mexican Agriculture* (Boulder, CO.: Westview Press, 1988), 106-107.

[84] "El Estado de México, Abanderado del Progreso Agrícola," *México Agrícola* (May 1955), 15-19.

[85] Gabino Vázquez Alfaro, "Extensión Agrícola: El sistema de Extensión Agrícola y los Servicios Informativos Aumentan la Producción Agropecuaria y el Bienestar Rural en los Estados Unidos de

With financial support from the federal government and vocal support from the likes of Vázquez, Sánchez opened a small vocational school for students of "*campesino* extraction."[86] Located in Chalco, the Agricultural and Livestock Technological School offered intensive courses in different parts of modern agricultural technology. Instructors taught five intensive courses of eight weeks each throughout the calendar year. Any literate farmer eighteen years of age or older could participate free of charge. Students learned the most elementary of lessons, such as how to watering household gardens, to more advanced lessons like how to use sprayers and dusters to combat plant diseases. They also gained hands-on experience in grafting, pruning, or planting trees, and mixing fertilizer. Instructors also taught meat packing, cheese production, and vegetable canning. The school's goal was that course participants would take what they learned to their town or *ejido* and "impart progress to their region," with the idea that "farmers would copy and put into practices the new agricultural techniques."[87]

Students "learned *by doing things*" in Chalco (emphasis in original). Mornings consisted of formal instruction, with lectures and books. In the afternoons *extensionistas* utilized "new and novel" techniques that one article called, "audiovisual." That is,

> farmers learn [by] watching movies, overhead images, photographs, and *maquetas* [dioramas; models] of every lesson that the instructor wishes to plant in the students' minds, successfully doing so with a certain of ease because the lessons that penetrate the eye or the eye is easily retained in the mind.[88]

Norteamérica," *México Agrícola* II, no. 14 (February 1955), 23-24 and 34. *Malinchista* is a term that indicates a Mexican who venerate or prefer foreign customs vis-à-vis local customs, aesthetics, culture, etc.

[86] De la Cruz, "El Estado de México Segunda el Programa Presidencial en Material Agrícola," 769.

[87] "Hacia el Progreso y Bienestar Rural," *Tierra* X, no. 6 (June 1955), 496-497.

[88] Ibid.

The school graduated hundreds of students after its opening, and according to what *Tierra* writers implied, aided towards accomplishing the goal of establishing Mexico's ascendance as a country, as well as "progress and rural wellbeing."[89]

Image 1.5 Farmers at the Agricultural and Livestock Technological School in Chalco (from the Biblioteca Central, Universidad Autónoma Chapingo, *Tierra*, June 1955).

The same year that congratulatory articles began appearing in journals, the essence of Sánchez's program expanded into other areas. Mexico's Secretary of Agriculture Gilberto Flores, who also had a penchant for modernizing Mexican agriculture, began pushing a Mexican version of 4-H clubs.[90] Called Rural Youth Clubs, these organizations operated under the mandate of capacitating "children and young adults of both sexes about agricultural production, poultry and domestic animal exploitation, via application of modern techniques that help their families to increase their incomes and improve their nutrition." Collaborating with the Ministry of Education, extension agents traveled to schools in their assigned zones to select students who ranged ten to eighteen years old who would work together on cooperative and individual projects. Such undertakings included poultry farming, honey making, or

[89] Ibid. For more proof of the elegiac tone that agronomists attached to the school, see "La Escuela Tecnológica Agrícola en Acción," *Tierra* X, no. 7 (July 1955), 542-543; and Gai Liberté, "Editorial, Educación Agrícola Rural," *Tierra* XI, no. 7 (July 1956), 575.
[90] International Maize and Wheat Improvement Center, "2013 Annual Report: Agricultural Research for Development to Improve Food and Nutritional Security" (2013), 22, http://repository.cimmyt.org/xmlui/bitstream/handle/10883/4080/99444.pdf.

cultivation and maintenance of family gardens. Agents also took club members to visit research stations, demonstration lots, and reforestation projects. Home visits by extension agents, to check on *socios*' family gardens were common. By 1955, extension workers in Sánchez's state oversaw more clubs than any other state in Mexico.[91] In the same year, one fawning editorial mentioned how youth clubs had functioned for many years in countries like the United States and in other countries. The author added that the clubs ensured that the rural class was to become "well-trained and open to modern ideas."[92]

The substance of Sánchez's fourth annual report had not changed much since his first one. Engineers had modified canyons stemming from the Lerma River so that when heavy winds passed through them, erosion damage remained minimal. Fertilizer usage among farmers had increased five times since the program's inception. State farmers, according to Sánchez, "had overcome the well-known resistance to behavior habits," and thus, farmers were adopting improved seeds. The dairy and livestock sectors had improved. More than two million trees had been planted to help in the reforestation efforts. Some extension agents helped with a rural outreach program that offered advice on hygiene to peasants and household issues, particularly to women, about issues such as nutrition and child health. Días de Demostración continued, too. The caption next to a picture in the article containing Sánchez's report contained a photograph similar to those of Norman Borlaug and E.J. Wellhausen leading a demonstration day in the early 1950s. It read: "Farmers and *ejidatarios* periodically meet at research stations and, via lecture from *agrónomos*, they realize, on their own,

[91] María Elena Jiménez Lozano, "Los Clubes Juveniles," *Tierra* X, no. 9 (September 1955), 724-725.
[92] Gai Liberté, "Editorial, Clubes Juveniles Agrícolas," *Tierra* X, no. 8 (August 1955), 643.

the advantages of the methods and variety of seeds that they are recommended." Sánchez proudly opened his report saying that the program in his state was helping the "national battle" that Mexicans had undertaken against low maize and bean production. He added that the program's results were small, but he remained certain that "we are explaining and showing the values of agricultural promotion; we are gaining the understanding and sympathy from the interested groups; we are identifying and coordinating our programs with those of the rest of the country, conscious that only in this manner shall we accomplish our governmental responsibilities."[93]

Sánchez's extension agents held an equally high opinion of the project. At a conference, Gilberto Mendoza said that he and others were parts of a program that delivered an all-encompassing program. Moreover, staffers carried out their work "with much fondness" and "with the hope of generating" new traditions among *campesinos*. These traditions, they hoped, "after translated into the future, will make life in the countryside easier." The self-congratulatory words about how the importance of extensionists work continued, as Mendoza explained, was that extension constituted "an aggregate of simple knowledge and skills," with which one could attain positive results quickly, that was apart from "complicated science." "It was, in a certain way, the method to make sure that many groups scarce of urbanity…received the results of research and scientific speculation reduced to simple rules and capable of adaptation and application by the subjects to whom they were imparted."[94]

Such self-congratulations translated into the monthly agent reports. This much was clear by Saúl Rodríguez's report from the summer of 1955. At an *ejido* in

[93] "Fomento Agrícola en el Estado de México," *Tierra* X, no. 9 (September 1955), 763-767
[94] Gilberto Mendoza Vargas, "La enseñanza y extensión agrícolas," *Problemas agrícolas actuales* (Mexico City: Ediciones Atenagro, 1955), 104.

Miraflores, his advice to farmers helped combat spider mites "with much success" after applying sulphur as an insecticide. A downpour of rain and hail, Rodríguez implied, on one of his maize demonstration farms in Chalco damaged the local maize, but did nothing to the H-1 and H-124 hybrid stalks of maize. He told a supervisor in Toluca, "You will appreciate some of the photos I have included of the *criollo* maize that was affected by the hail." Just outside the city of Amecameca, Rodríguez had taken three groups of ten farmers to visit a maize demonstration lot that showed the contrast in size versus local brands of maize. To this same lot, he took his rural youth club school group so that "at a young age they gain a clear understanding about the advantages that one obtains by using improved seeds and fertilizers. On top of seeing this lesson, they will extend these lessons to their classmates and parents." The nine *huertos familiares* (home gardens) that he managed were "great successes." They were "no longer producing for the immediate families who owned the gardens, but also served as a lesson to neighbors." He finished the report with a discussion about new demonstration lots that he had begun during the month and numbers taken from the state meteorological stations in his zone.[95]

That same year, some of Rodríguez's colleagues shared the same tone in their reports. Francisco Escobedo described how a maize lot displayed the visible difference between H-1 hybrid maize with and without organic material and with fertilizers applied. He included a picture of two of his newly recruited rural youth club from an elementary school at Ejido "La Tenería."[96] In Atlacomulco, another colleague did the

[95] Saúl Rodríguez Reyes, "Se rinde informe de labores correspondiente al mes de julio/55," August 2, 1955, box 211, SARH, AGN.
[96] Francisco Escobedo González, "Informe de labores correspondientes al mes de junio de 1955 se rinde el Delegado de Extensión Agrícola de la zona de Tenancingo, Mex.," No date, box 211, SARH, AGN.

same work of organizing clubs in his zone and, as he reported, delivering lectures to several groups about current problems like "maize diseases in the region, and their control, conservation of soil moisture, fertilizers, etc."[97] By all indications, the demonstration method and youth outreach that were part and parcel of Sánchez's program were effective.

During the same year, 1955, Sánchez's program received other nods, explicitly and implicitly. One article in *México Agrícola* titled "The State of Mexico, Standard-bearer of Agricultural Progress" sang about Sánchez's program. It detailed the different parts of the program – the training center in Chalco, the Trabajadoras Sociales program aimed towards helping *campesinas* become more active in civic and household duties, rural teacher agricultural training programs, equine breeding program, and dairy cooperatives. The author made special mention of Santa Elena research station, with its "tangible results" like the H-124 hybrid maize and its research on wheat and other products. Of particular interest to the author was the extension system that Sánchez's program advocated. He mentioned that the State of Mexico's extension program coincided with the formation of the National Committee for Agricultural Planning. The Ministry of Agriculture and Livestock organized a meeting of every state in the country to organize a national plan for agricultural extension. The program in the State of Mexico served as the model by which other states "would unify the possible applied programs" on a nation-wide basis.[98] Sánchez's program, in other words, was a model to be emulated in all of Mexico.

[97] Name unidentifiable in report, "Se informe sobre las actividades desarolladas durante los meses mayo, junio y julio del presente año," August 5, 1955, box 211, SARH, AGN.
[98] "El Estado de México, Abanderado del Progreso Agrícola," *México Agrícola* (May 1955), 15-19.

Image 1.6 An *extensionista* with his Club (from Archivo General de la Nación).

Three months after the article in *México Agrícola* Sánchez's state program appeared to have earned the notice of Mexico's highest politician. President Adolfo Ruiz gave his annual state of the union to the country over the radio. He mentioned that Mexicans had attained the stated goals for the agricultural emergency plan begun in 1953. Farmers had produced 4.5 million tons of maize to match the stated goal. Growers had also met goals for wheat production. Furthermore, expectations for bean production were short of the 500,000 tons sought, but the amount that farmers produced was enough to satisfy national demands. Ruiz finished his introduction by saying that Mexico shall continue with irrigation projects and credit to farmers would remain accessible. Then he finished with nods to activities that were part and parcel of Sánchez's program (though he did not specifically mention the State of Mexico program): "The use of mechanical equipment will spread. The use of improved seeds will intensify, as will the fight against plant disease. With these items, and with the accompanying soil conservation practices, and the ever-increasing use of fertilizers, our *campesinos* are learning a new concept of their labor and its yields."[99] In only four

[99] "El Aspecto Agrícola del Informe Presidencial," *Tierra* (September 1955), 733-735 and 778-780.

years, Sánchez's program became the standard-bearer for agriculture in all of Mexico.[100]

MEXICO'S NATIONAL EXTENSION PROGRAM

National officials did not waste time in almost entirely carbon copying Sánchez's program on a national scale. By 1956, programs similar to Sánchez's rural outreach initiative began receiving praise in other states.[101] Officials made credit available to many farmers to purchase machinery, seeds, and other inputs. Federal funds went towards meteorological stations and research stations around the country. Rural Youth Agriculture Clubs increased in scope of their projects and in membership numbers. The number of extension workers increased (see Table 2.1). It was difficult to identify differences between Sánchez's program of the early 1950s and the one adopted by the federal government years later. Agronomists' presumptions and prejudices towards peasants continued, too, as well as the top-down approach to extension. The only change involved the use of certain new technologies for extension. By 1959, evidence of Mexicans trying to implant U.S.-style agriculture was clear on a national scale.

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[100] Only one other source hints at – but does not explain the trajectory of – the influence of Sánchez's program. See Sergio Reyes Osorio et al., *Estructura agraria y desarollo agrícola en México: Estudio sobre las relaciones entre la tenencia y uso de la tierra y el desarollo agrícola de México* (Mexico: Fondo de Cultura Económica, 1979), 921.

[101] Roberto Durán M., "Entrevista de *Tierra*: Nos Habla de Bienestar Social Rural el Señor Sergio Jiménez Benítez," *Tierra* XI, no. 12 (December 1956), 1060-1061 and 1106-1107; and Itié C., "Entrevista de *Tierra*: Nos Habla la Señorita María Elena Jiménez, Ingeniero Agrónomo, del Mejoramiento del Hogar," *Tierra* XII, no. 2 (February 1957), 136-137 and 178-180.

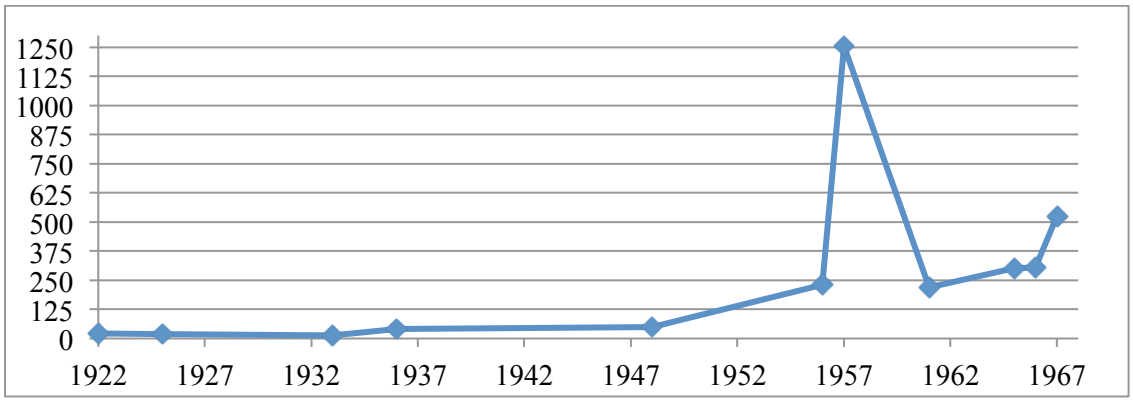

Table 1.1 Number of workers in Mexico's agricultural extension department between 1922 and 1967 (from various sources).[102]

The campaign to convince peasants to try modern seeds and listen to *extensionistas* was amplified after 1955. In *Tierra*'s February issue, an editorial underscored the acceleration and methods by which government implored farmers to change. José Uribe, a farmer in Ameca, Jalisco, had recently won a contest to see which *de temporal* (seasonal irrigation) farmer had the highest maize yield in a given season. Uribe farmed an "unheard of" amount of 6,824 kilograms of maize per hectare. It was an extraordinary yield, according to the editor. What was the "magical formula that Sr. Uribe applied to find himself suddenly at the head of Mexican maize producers?" the editor inquired. He answered his own rhetorical question. Uribe's marvelous harvest "was not about any abracadabra, but about a good farmer, someone who knows their region and used to giving their all to their lands." But there was more.

[102] "Informe," No date listed, SARH, box 184, AGN; Cotter, *Troubled Harvests*, 68; Reyes et al., 913; Markus de Kennedy, "The Office of Special Studies," 96; "Inauguración Oficial de los Cursos en la Escuela Nacional de Agricultura, Chapingo, Mex.," *Tierra* XII, no. 4 (April 1957), 316-317; Stakman et al., *Campaigns Against Hunger*, 205; "Informe Trimestral de Labores, correspondiente a los meses de septiembre, octubre y noviembre del presente año," December 4, 1965, SARH, box 181, AGN; Dirección General de Agricultura. – Jefatura. 204, "Informe trimestral de labores," December 7, 1966, SARH, box 184, AGN; Dirección General de Agricultura. – Jefatura. 204. -, "Informe Trimestral de labores correspondiente a los meses de diciembre, eneroy (*sic*) febrero," March 7, 1967, SARH, box 184, AGN. I must mention that these sources may differ as to what constituted an extension woker versus extensionist.

"Destroying his routine, Sr. Uribe resolved himself to listen to the lessons from *agrónomos* and apply to a 'T' the letter of techniques they recommended: good preparation of the soil, application of better fertilizers for his soil, hybrid maize (H-309), application of labor at the right time to combat against freezes, and many other techniques in line with high yields." The editorial concluded with a reminder to readers that Uribe had opened a new road towards progress. His example also proved that there were farmers "who were not obstinate towards progress…many farmers were eager to utilize advanced agricultural methods."[103] Almost in an overt appeal to prove to readers that Uribe's story was not exaggerated and true, two *Tierra* writers traveled to Ameca to interview him and gave more details about his success story.[104]

At times, some agronomists tried other methods to send their gospel to farmers. José de la Cruz, one of the founders of *Tierra*, was the guest on a radio show in the northern state of Durango. After allowing de la Cruz to introduce his background, the interviewer asked: "You know that many farmers persistently use old cultivation practices because they think that what they learned from their fathers or grandfathers is most appropriate. Do you think that *Tierra* has managed to modify this belief in an appreciable number of farmers?" De la Cruz responded that he was certain that extension workers with the Ministry of Agriculture had succeeded in convincing "thousands of new farmers, *ejidatarios*, and ranchers applied technical advice" about everything from crop rotation, fertilizer application, and methods for combating disease. He was confident that farmers were interested to learn and apply modern science. Before encouraging farmers to write *Tierra* with any technical farming inquiries, de la

[103] Gai Liberté, "Editorial, Maíz," *Tierra* XI, no. 2 (February 1956), 115.
[104] "Entrevistas de 'Tierra,' En Ameca, Jal., Nos Habla el Señor José Uribe, Campeón Nacional del Maíz Temporal," *Tierra* XI, no. 5 (May 1956), 392-393 and 438.

Cruz commented on how useless it was for all the government-sponsored research and work to be done if farmers "did not feel an impulse" to progress. "Every farmer who has tried improved seeds, fertilizers on their soil, and other aspects related to modern practices, has to become a constant advertiser," de la Cruz concluded in the short interview.[105]

Months later President Ruiz also recognized extensionists in what he said was a fine year of agriculture for Mexico. He began his annual presidential address with positive words: "National agriculture increased past 1954-1955 goals – and I say with all due cause – with earnest and because of understanding by our farmers and peasants in general." Then he outlined proof of the progress made in agriculture. Wheat production was 400,000 tons greater than the previous year, so much that important reserves were possible to help regulate prices and supplies. Despite bad weather during the current fiscal year, there was enough maize for national consumption, and the 1956-1957 cycle appeared promising. Oils produced from coconuts, cotton, peanuts, and sesame seeds all saw productive years. Officials opened seven new agricultural research stations. And, the president added, "extension services gave technical instruction to peasants" at more than two thousand demonstrations and agents had participated in 44 agricultural expositions during the previous year.[106]

By 1956, then, the Mexican president, agronomists, and leaders in the Ministry of Agriculture had not changed the program that they adopted from the State of Mexico. They remained convinced that if peasants could hear and see the fruits of modern

[105] De la Cruz, "Mi Diálogo con los Hombres de Campo de Durango," *Tierra* XI, no. 4 (April 1956), 322-324.
[106] "Extraordinario Aumento de Nuestra Producción Agrícola, Aspecto Agrícola del Informe Presidencial," *Tierra* XI, no. 5 (September 1956), 786-789.

agricultural technology the prophecy of improving their cultivation would be self-fulfilling. Highlighting José Uribe's story in Jalisco, they utilized vignettes of everyday farmers who saw the light in modern techniques and technology. They invited readers to imagine themselves as Uribe, the *campesino* who decided to listen to what agronomists had to say and benefitted immensely. De la Cruz's radio interview revealed that Mexicans continued to have prejudices about peasants' stubbornness and ignorance, but leaders in the agronomic world remained convinced that once farmers were introduced to technology they would change. And President Ruiz's address explained how much extension had grown and how much his administration supported the efforts.

Praise for *extensionistas*' work continued in 1957, as did the encouragement for farmers to consult with an extension agent. One *Tierra* writer underscored the work of an extension agent. Farmers should consider agents "a kind of lay missionary," charged with imparting "the Gentiles [with] agronomic material: the good word that multiplies the tassels [of corn] and reverberates in the landscape." The author explained how extension works - agents traveled to their assigned zones to study local conditions and areas for improvement, followed by them visiting with as many farmers possible to deliver advice. "But individual contact with farmers" was always limited. Hence, agents found other methods for working with famers, such as demonstration lots, trips to Días de Demostración, model ranches, and radio programs. Agents employed whatever method they could "to convince farmers of the need and convenience of abandoning routine trails and enter, as a result, on the road to progress," which was the goal for farmers and their families. The author concluded: "Readers, if you are already

in contact with the Extension Department in your area, continue to take advantage their advice; if you are not, search for their name… and solicit their help, which will be very valuable."[107]

If there were changes in the federal administration of extension, it was in scale. Field Days remained the same in coverage in agricultural magazines and journals, and the content remained the same. In 1956, for example, at the Chapingo OSS research station, interns "objectively explained how to grow hybrid maize" and showed visitors fields well adapted to the region. Visitors also saw "with their own eyes" the effects of fertilizers and crop rotation.[108] In Guanajuato two years later, a similar Demonstration Day took place at another station and the method with visitors was no different than other days since the late 1940s. Farmers, an article noted, "wanted to obtain more adequate training" about their crops. Hence, they listened to experts about the latest research on local crops.[109] The next month, another magazine published a summary of another Demonstration Day at the OSS research station in Veracruz, where groups toured the grounds while specialists informed visitors about their work and showed the results "in plain view."[110] One year later, demonstrations days continued in the same format in Ciudad Obregón, Sonora.[111] Thus, by 1957, demonstration days had not substantively changed, but their larger geographic breadth was evident.

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[107] Gai Liberté, "Editorial, El Delegado de Extensión Agrícola," *Tierra* XII, no. 3 (March 1957), 227.
[108] "'Día de Campo' en el Campo Experimental 'El Horno', en Chapingo, Mex., octubre 1, 1956," *Tierra* XI, no. 10 (November 1956), 973.
[109] "Noticias del 'Día de Demostración' Llevado al Cabo en el Campo Agrícola Experimental 'La Cal Grande' Gto.," *El Campo* II, no. 794 (April 1958), 60-70.
[110] Sebastián Hernando Castilla, "Entrevistas de *Tierra*, Un día de Demostración en Cotaxtla, Ver.," *Tierra* XIII, no. 5 (May 1958), 397-399.
[111] Antonio Canizales, "Día del Agricultor en el Ciano, Ciudad Obregón, Sonora," *Tierra* XIV, no. 5 (May 1959), 418 and 473-474.

According to extension agents' monthly reports, too, little had changed in the methodology for reaching out to farmers – again, except for geography. Federal extension reports from after the mid-1950s, after the State of Mexico pilot program became well-known among national political leaders, read almost identically to ones in previous years, when Salvador Sánchez's program had begun. One report from José Saucedo, located in the state of Coahuila, described him spending most of November touring demonstration lots, schools, and *ejidos*. He nearly spent every day of the last week of the month "giving demonstrations," at one point he delivered eight talks at two *ejidos* in a single day.[112] Jupiter Barrera, based in northern Mexico, reported about giving away improved bean seeds to farms that would attract local growers.[113]

Certain characteristics become noticeable in the extension reports, which collectively reveal how extensionists and Mexico's leaders embraced a discourse, a constructed mode of knowledge that defined possibilities and realities, that deduced agriculture to simply planting seeds in the soil and tending to the plant afterwards. Reports became more quantitatively derived, more technical. Extension was derived in numbers – how many bulletins agents gave away, how many people attended, what brand number of fertilizer or seed they promoted, how many school gardens they visited. Agents offered no explanation why their lots were successful or how many farmers attended. They assumed that because people attended demonstrations or lectures that extension was effective; numbers of those in attendance were rarely consistent and, many times, agents did not report how many people attended.

[112] José Saucedo Rodríguez, "Se informe de los trabajos desarollados en el mes de noviembre próximo pasado," January 18, 1957, SARH, box 211, AGN.
[113] Jupiter Barrera Flores, "Informe trimestral correspondiente a los meses de octubre, noviembre y diciembre," December 30, 1957, SARH, box 211, AGN.

Noticeably absent in the reports from the 1950s – and in future reports – was any qualitative discussion. Agricultural extension continued to be a one-sided affair in which those regarded with knowledge and expertise expounded to those who needed said expertise. Agents presumed that their method functioned effectively minus any discussion – farmers understood because they were told how to farm and saw the results of modern technology. They disclaimed any interest in the ecological, economic, social, political, and cultural matrix in which they diffused this technology, however, because of development discourse that they embraced.

The visual and auditory teaching techniques aimed at farmers took on new forms by the 1960s. By 1959, the Ministry of Agriculture and the Office of Special Studies began producing 16-millimeter films, which aired in black-and-white and in color, for farmers. With the expansion of the Extension Agricultural Department, agents began trying to, according to one report, "find ways of making information accessible to farmers" and films became a common tool.[114] One magazine article gave details about some of these movies. In "Protect Your Harvest," Juan, a make-believe farmer, purchases a granary to protect his season's yield with extra money from a previous harvest. An extension agent "visits him [one day] and lends him an insecticide sprayer," and Juan and his wife successfully label their grains on a shelf in the storage unit. Juan appeared in another film, "Bean Farming." In this instance, he grows beans with help from an *extensionista*. An agent advises him to select a genetically improved variety, which he plants on one side of his land. On the other side, he plants a "popular bean," which is attacked by plant disease. Another make-believe agent visits Juan and

[114] Dirección General de Agricultura, "Informe de Labores correspondiente a los meses enero, febrero y marzo 1959," April 1959, SARH, box 200, AGN.

convinces him to plant improved seeds and to use a new insecticide. "At harvest," according to the film's synopsis, "Juan becomes convinced that it is better to farm with improved seeds and work with the modern technical advances." Listed at the top of the catalog of films available to farmers was the cliché, "A picture teaches more than a thousand words."[115] In the same year of the release of such films, agents traveled with what were called "moveable audiovisual service units" that aired movies to farmers.[116]

The appeal to senses was not limited to motion pictures. "Voces del Campo" (The Voices of the Countryside) represented the apogee of agronomists' methods to convince farmers of the accolades and advantages behind agricultural technology. It was a radio program that, according to the earliest record available, began in 1959 to "take information to the country's farmers that is useful as answers to current issues" and to deliver notices concerning techniques and practices. While not able to cover every corner of Mexico – at its height in 1966, the program aired out of 107 transmission stations - "Voces del Campo," aired hundreds of weekly programs on Sundays two to three times a day in the late 1950s through at least 1967. During one trimester, SAG officials broadcast 5,000 programs in twenty-six states. Programs began as technical advice on how and why farmers should plant soy or other products to a social program dealing with Mexico's troubled youth.[117]

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[115] "Películas Agrícolas Educativas de 16 mm. con Sonido, 'Una Imagen Enseña más que Mil Palabras,'" *México Agrícola* VI, no. 64 (June 1959), 61.

[116] Direc. Gnal. De Agric. Jefatura 204, June 11, 1959, SARH, box 200, AGN. This same report mentions units traveling to multiple sites in at least five different states.

[117] Dirección General de Agricultura, "Informe de Labores correspondiente a los meses enero, febrero y marzo 1959," April 1959, SARH, box 200, AGN; Dirección General de Agricultura, "Informe de labores correspondiente al mes de mayo del presente año," June 11, 1959, SARH, box 200, AGN; Dirección General de Agricultura, "Informe de Labores correspondiente a los meses de abril, mayo y junio" July 15, 1963, SARH, box 200, AGN; and Dirección General de Agricultura Jefatura – 204, "Informe de labores que comprende el período (*sic*) del 1o. de septiembre de 1965 al 31 de agosto de 1966," May 23, 1966, SARH, box 184, AGN The last transcript available in the Ministry of Agriculture archive was from July

Two program transcripts exemplify agronomists' faith in science and technology, and their regard for farmers' knowledge. A 5 June 1959 program began with a song titled "Mi Linda Tierra" ("My Beloved Land"), followed by the program's slogan: "'Voces del Campo,' [Voices from the Countryside] it is the program of progress, dedicated to all farmers in this region, every Sunday at the same hour" on a "privileged" radio station. The disc jockey followed with an introduction to the *ingeniero* and reminded listeners that the Department of Agricultural Extension had programs airing "all over the Republic with the aim of more contact with all of you who work" the soil. Another song played before the extension agent explained to listeners about a disease that was, at the time, affecting alfalfa crops. "To ensure that *alfaferos* in your region were not susceptible to the disease," the *ingeniero* advised, "consult an extension agent." In the same program the agent announced the winners of a contest of maize yields in the state of Jalisco. Congratulating the winners, he assured listeners that they could also enjoy hybrid maize. The program finished with the agent inviting farmers to substitute maize for sorghum, mentioning that it could be used for human consumption, "industrial sale," and as forage. "We recommend that you do whatever possible to grow it [sorghum] on your land," and if they had any doubts, "consult the *ingeniero* in your area and they will, with pleasure, *tell* you what to do" (emphasis mine).[118]

30, 1967; see "Voces del Campo, Programa Dominical, Tema: 'La Juventud, Sus Problemas e Inquietitudes,'" July 30, 1967, SARH, box 215, AGN.

[118] Dirección General de Agricultura, S.A.G., Departamento de Extensión Agrícola, Sección de Radio, "Pulgón manchado de la alfalfa.- sorgo," June 5, 1959, SARH, box 216, AGN. Ironically, many farmers embraced sorghum cultivation, so much so that it constituted what one scholar called "Mexico's Second Green Revolution." See Billie DeWalt, "Mexico's Second Green Revolution: Food for Feed," *Mexican Studies/Estudios Mexicanos* 1, no. 1 (1985): 29-60.

The next week a program aired with an *ingeniero* trying to convince farmers to grow sesame seed and soy. He opened his segment by saying that "Among the oilseeds that had an industrial demand were sesame seed and soy." His explanation for switching to sesame seed cultivation, he said, was the plant's short growing period, the minimal amount of labor that it demanded, and how little water it required. Furthermore, "In concerns to markets, sesame seed was an easy sell, at a good price, and national demand had yet to be met…and it could be exported." In reference to soy, the agent attempted to entice listeners by saying "currently, there exist markets interested in industrial production of soy." Concluding the program, he said to listeners, "My farmer friend….if possible for you to farm oilseeds on your land, do it! I assure you that you'll have strong earnings and you'll help to supply national markets." If listeners had questions, they should locate their nearest extension agent, and "with pleasure" they would help "for NOT ONE CENT!" (emphasis in original). The program ended with a reminder that the Department of Extension was "a combined effort of the State and the people, to achieve progress and the wellbeing the peasant family" of Mexico.[119]

The national Extension Department became a marketing department by 1959. Agents broadcasted programs all over the country radio segments in which they attempted to instill into Mexican farmers – millions of whom still practiced subsistence farming – an entrepreneurial, industrial approach to farming. They encouraged farmers to "progress" and grow crops that required little labor, few costs, and ones for which remuneration was high. Hybrid maize yields spoke for themselves and *ingenieros*

[119] Dirección General de Agricultura, S.A.G., Servicio de Extensión Agrícola, Sección de Radio, "Oleaginosas (ajonjolí, soya)," June 11, 1959, SARH, box 216, AGN.

hinted to listeners that they, too, could partake in such wonderful bounties. *Agrónomos* encouraged growers to behave like businessmen – to abandon or downsize cultivation of traditional crops like maize in exchange for plants like soy, sorghum, or sesame seed because these plants had market demands. *Extensionistas* were rural transformers. They possessed the knowledge and materials for agricultural modernization and it was on their shoulders to transform the ethos of Mexican farmers.[120]

The year that the first "Voces del Campo" began, the same industrial, entrepreneurial ethos that characterized U.S. agriculture during the first half of the twentieth century was visible in Mexican agriculture. In April, T.E. Marlow, a manager for International Harvester in Mexico wrote an article in *México Agrícola* about agricultural technology and machinery. He opened the article saying that Mexican agriculture had the power to increase production and, via "technology with rational farming," it was paramount for everyone interested in the progress of this great country had the "moral duty to work together intelligently and dynamically to achieve economic harmony." The time had arrived to produce more and Mexicans had the tools and machines in their hands to achieve progress. "We have the wonderful soil and water needed to germinate generously underneath our benign climate. The only thing left to do was put into action the army of farmers to work…so they can acquire the available machinery and repair those that they have in use, and provide them with seeds, fertilizers, insecticides, etc. that they need." He finished by saying "We should train in the use and service of agricultural equipment. In a word, [we should] enthuse them so that they throw themselves into a project that stimulates their motivations." The article

[120] I again thank Deborah Fitzgerald's *Every Farm a Factory* for her work on helping me arrive at the idea that experts can change farmers' minds.

contained images of men with *sombreros* in a field learning how to use a tractor and another photo of men staring at an image from a projector that detailed how to operate heavy equipment. These images are contrasted with a peasant behind oxen that pulled a plough. The picture's caption read: "Modern machinery offers more production with less effort, which contributes towards freeing farmers from a brand of slavery that employs crude and rudimentary tools…This farmer, despite all his efforts, will scarcely be able to provide for his family."[121]

Four months later, *México Agrícola* featured an article about a field day at the Santa Elena research station that further captured the fealty – in bombastic terms - that agronomists paid towards science and the gravity of the technology available to Mexican farmers. In attendance were representatives of the Rockefeller Foundation, the governor of the state, state director of the Department of Agriculture and Livestock, T. E. Marlow of International Harvester, a professor from Cornell University, head of the Extension Department in Mexico, and a handful of government officials. According to the article, three thousand special attendees were "witnesses to the extraordinary advances in productive techniques" at the research center. They were there to celebrate the center's accomplishments since its opening and showcase the center's latest advances. Since agriculture offered the material toward the wellbeing of humanity "it was only right to make agriculture respond to the demands created by demographic growth and the need to elevate equally the living standards for everyone, via the intensification of rational agriculture with the use of improved seeds and mechanical procedures." The duty of making sure that the work done at the research center

[121] T. E. Marlow, "De la Explotación Racional de la Agricultura Depende el Progreso Industrial de México," *México Agrícola* VI, no. 62 (April 1959), 48-52.

"transformed and multiplied as gifts for humanity" demanded the "selfless dedication" of the researchers at Santa Elena. Visitors to the center toured the poultry research center, which would soon offer subsidized services to poultry farmers. They learned about other advances: the predicted increase in maize production from 80 tons to 600 in the year to come because of varieties developed at the center; and Toluca I, a barley variety that was worthy of being exported to other states in Mexico and foreign countries. The article proudly concluded that Santa Elena, "without a doubt," will "grant a new impulse to implant rational agriculture" in the State of Mexico and every state in the country. A prominent image in the article was a photo of the governor of the state atop a diesel tractor.[122]

At the end of that year Thomas E. Marlow of International Harvester led a sponsorship deal with the Mexican Department of Extension. Along with representatives from Shell Mexico, Universal Tractors, Sears, Roebuck, DDT Products, Diamond Leaf of Mexico, DuPont, Ralston Purina, and other transnational businesses, Marlow and other members of a committee of donors were finalizing details about a sponsorship that the companies would provide towards "new and dynamic" rural agricultural youth clubs in Mexico. Companies from the United States had collaborated to support an expansion of Mexico's version of 4H clubs by one hundred chapters in the next twelve months. The committee members agreed to offer $1,000 to the *extensionista* who they judged to have performed most outstanding in expanding the program.[123] Representatives from U.S. agribusiness firms had noticed the work that

[122] "El Campo Agrícola Experimental 'Santa Elena' Señala Nuevos Rumbos para Tres Mil Agricultores," *México Agrícola* VI, no. 66 (August 1959), 58-60.
[123] "Nuevo y Dinámico Programa de Clubes Juveniles Rurales," *El Campo* XXIV, no. 814 (December 1959), 68 and 70.

extension workers did and they wanted to fund an expansion of the work they did with future Mexican farmers.

If U.S.-style agriculture is attached to certain characteristics, then by 1960, leaders in Mexico had gone a decade trying in earnest to copy the mode of agricultural development north of the border. Improved maize, beans and wheat seeds, and fertilizers had translated into greater yields and income for U.S. farmers, thus Mexican leaders pushed the same technology on their farmers at demonstration days and demonstration lots. Mechanized agriculture was common in the United States, so leaders in Mexico offered accessible credit to farmers to purchase equipment like tractors. An image of the State of Mexico governor sitting atop a diesel tractor at the Santa Elena research station in 1959 and T.E. Marlow's article about ploughs pulled by oxen suggest that farmers should have embraced mechanized agriculture. Finally, if one characteristic of U.S. agriculture was the presence of agribusinesses, then one only need to consider the partnership that Mexico's extension department made with International Harvester, Sears and Roebuck, DuPont, and other companies to expand agricultural youth clubs.

CONCLUSION

Many Mexicans thought that by 1959 they had an outstanding model of agricultural development. The country had a national research apparatus that generated maize and wheat seeds that were worthy of being sent abroad. There was a corps of capable agronomic researchers spread out in research centers around the country. This group of workers had found, they thought, effective methods for delivering modern

technology and the knowledge and rationale for its use to millions of needy farmers and *campesinos*. Furthermore, the model for agricultural development that Mexican leaders adopted had worked in the United States. It was a mobile archetype that Salvador Sánchez and others had championed and worked to import to Mexico.

Some people, however, saw the contradictions in the attempt to implant a derivation of Iowa in the Mexican *campo*. They had reservations about the idea of transplanting an agricultural system that had its antecedents from a place extremely different in culture, languages, and history from Mexico's. They also had frustrations about *extensionistas* and their disregard for *campesinos*' knowledge about agriculture. Efraím Hernández Xolocotzi is the topic of the chapter that follows.

CHAPTER TWO
A DISSENTING VOICE: EMBRYONIC RUMBLINGS AGAINST THE GREEN REVOLUTION

I am cognizant of the truth in the half-truth that 'the shoemaker should stick to his shoes'...It is not the function of the agricultural program to solve or undertake the [sociological] studies suggested, but it is its function to suggest that studies be made of the non-agricultural effects of its wonderful achievements in agricultural technology in Mexico. – Efraím Hernández Xolocotzi, 1956[124]

Apparently we aim to achieve agricultural development in a population whose social, historical and philosophical antecedents are different from those of the society whose agricultural development we would like to use as a norm. – Efraím Hernández, 1980[125]

If the extension efforts discussed in the previous chapter constitute evidence that the Mexican state thought that peasant agriculture in the 1950s and 1960s was backwards and needed to improve, and that Green Revolution technology was going to facilitate this change, then Efraím Hernández's career represented the antithesis to such a discourse. If the rule in Mexico during the 1950s and 1960s seemed to be that few people expressed reservations about how the diffusion of technology was a top-down process devoid of consideration of indigenous agricultural knowledge or local dynamics like culture or history, then Hernández was the exception. Decades before scholars critiqued the Green Revolution for its disregard of local knowledge, ecological damage, and the consequences of technology, Efraím Hernández had vocalized many of the

[124] Efraím Hernández Xolocotzi, "Need to Supplement the Agricultural Program with Sociological Studies, Which Would Define the Repercussions of the Technological Advances," folder Correspondencia del año 1955, June 27, 1956, Archivo Efraím Hernández Xolocotzi (Archivo EHX hereafter), Colegio de Postgraduados, Centro de Botánica, Montecillo, Estado de México, Mexico (COLPOS hereafter).
[125] ----, "Traditional Agriculture and Development," folder Agricultura tradicional y desarollo, August 25, 1980, Archivo EHX, COLPOS.

common criticisms that came later.[126] Ironically, he was also part of the "revolution's" earliest and most formative years.

This chapter has three objectives. First, I introduce Hernández to readers outside of the Mexico. While an academic legend to many Mexican botanists, agronomists, and anthropologists, and known to some historians, Hernández remains an obscure figure outside of his country. Scholarship concerning Mexican agriculture after the early 1940s typically – and justifiably – focuses almost exclusively upon sources derived from the United States, principally the Rockefeller Foundation Archives.[127] Historians are familiar with figures like Norman Borlaug, E.J. Wellhausen, and Paul Mangelsdorf. Usually discussed by scholars in critical or laudatory terms, these names and their influence continue to be prominent in the scholarship concerning modern Mexican agricultural history. There are, however, other figures whose works merit discussion. Efraím Hernández is one these people. Consequently, this chapter chronicles his background to underscore his origins as a peasant, to a graduate of the Ivy League, to a respected agronomist by the 1950s, and finally, to a detractor of what

[126] See Lester R. Brown, *Seeds of Change: The Green Revolution and Development in the 1970s* (New York: Praeger, 1970); Kenneth A. Dahlberg, *Beyond the Green Revolution: The Ecology and Politics of Global Agricultural Development* (New York: Plenum Press, 1979); Cynthia Hewitt de Alcantara, *Modernizing Mexican Agriculture: Socioeconomic Implications of Technological Change, 1940-1970*. (Geneva: United Nations Research Institute for Social Development, 1976); Stephen Lewontin, "The Green Revolution and the Politics of Agricultural Development in Mexico since 1940" (PhD diss., University of Chicago, 1983); Andrew Pearse, *Seeds of Plenty, Seeds of Want: Social and Economic Implications of the Green Revolution* (Oxford: Clarendon Press, 1980); Vandana Shiva, *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics* (London: Zed Books, 1991); Angus Wright, *The Death of Ramón González: The Modern Agricultural Dilemma* (Austin: University of Texas Press, 1990); Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton: Princeton University Press, 2012).

[127] The most important exception to this trend is Tore Carl Olsson, "Agrarian Crossings: The American South, Mexico, and the Twentieth-Century Remaking of the Rural World" (PhD diss., The University of Georgia, 2013).

eventually became known as the Green Revolution.[128] Thus, much of this chapter will explore Hernández's early life and career.

Second, this chapter discusses the person who inspired Hernández's approach to science and pedagogy: Liberty Hyde Bailey. By the time the two met in 1948, Bailey was a revered educator, botanist, and philosopher. He was no longer an administrator at Cornell University, a position that he held decades before 1948. But Hernández already knew plenty about the octogenarian's influence in botany and his approach to science, agriculture, and life. Bailey, this chapter demonstrates, imbued his work as a scientist with a purpose. Research, Bailey argued over his career, should contribute to something greater than publications, and the results of research should be beneficial and accessible to groups outside of the academy. Scientists, moreover, should be willing to challenge traditions and trends in their fields; science should not be considered

[128] A handful of scholars have mentioned Hernández and some discuss his influence. No scholar, however, has ever consulted his archive. The most comprehensive piece concerning his career and influence is Gustavo Esteva, "Hosting the Otherness of the Other: The Case of the Green Revolution," in *Decolonizing Knowledge: From Development to Dialogue*, ed. Fréderiqué Apffel-Marglin and Stephen A. Marglin (New York: Oxford University Press, 1996): 249-278. Other works mention him in passing. See Adolfo Olea-Franco, "One Century of Higher Agricultural Education and Research in Mexico (1850s-1960s), with a Preliminary Survey on the Same Subjects in the United States" (PhD diss., Harvard University, 2001), 426, 427, 455-456, 520, 537-538, 649, and 693; Angus Wright, *The Death of Ramón González: The Modern Agricultural Dilemma* (Austin: University of Texas Press, 1990), 148 and 255; Joseph Cotter, *Troubled Harvest: Agronomy and Revolution in Mexico, 1880 – 2002* (Westport, CT.: Praeger, 2003), 292-293; Anneliese Markus de Kennedy, "The Office of Special Studies: A Study of the Joint Mexican Secretariat of Agriculture – Rockefeller Foundation Program in Agriculture, 1943-1963" (PhD diss., University of North Carolina, 1973), 97, 144-145, and 211; E.C. Stakman, Richard Bradfield, and Paul Mangelsdorf, *Campaigns Against Hunger* (Cambridge: The Belknap Press of Harvard University Press, 1967), 61, 165, and 261; Gilberto Aboites Manrique, *Una mirada diferente de la Revolución Verde: ciencia, nación y compromiso social* (Mexico City, Mexico: Editorial Plaza y Valdés, 2002), 221-223; Arturo Warman, *Corn and Capitalism: How a Botanical Bastard Grew to Global Dominance*, trans. Nancy L. Westrate (Chapel Hill: University of North Carolina Press, 2003), 223-231. In the biological sciences, discussion of Hernández's influence focuses on the influence of his later career and ideas. See Stephen R. Gleissman, *Agroecology: Ecological Processes in Sustainable Agriculture* (Boca Raton, Florida: CRC Press, 2000), xix. Also see Gene Wilken, *Good Farmers: Traditional Agricultural Resource Management in Mexico and Central America* (Berkeley: University of California Press, 1987), x. For some discussion related to his work on the barbasco and Mexico's *Dioscorea* commission, see Gabriela Soto Lavaega, *Jungle Laboratories: Mexican Peasants, National Projects, and the Making of the Pill* (Durham: Duke University Press, 2009).

sacrosanct and inflexible. These were truisms that Hernández "transnationalized," as he took them to Mexico amid a period during which statistics and facts held primacy.

Finally, this chapter discusses the early years of Hernández's career after his arrival back to Mexico in 1938. Following high school graduation in 1932, he returned to Tlaxcala, the state of his birth, and saw what he called the "privations" in Mexico's countryside. He vowed to again return.[129] Between the time of his repatriation and 1953, when he became a professor of botany professor, Hernández held several jobs, each of which took him to almost every region of the country. During those years, he gained an incipient understanding of *campesino* agriculture. He also began to note flaws in the strategy for agricultural development in Mexico (i.e., what later came to be known as the Green Revolution), and expressed vague criticisms. Nevertheless, his complaints became motivation for Hernández to dedicate his career towards undoing the "Green Revolution."

FROM TLAXCALA TO ITHACA

Until a couple years before his death in 1991, many of Hernández's closest students and colleagues knew only a limited amount about his background. Each of the persons interviewed knew that he was from the state of Tlaxcala. They were aware of his family moving to the United States and that he had worked his way through Cornell University. Some knew about the challenges that his family faced as immigrants to New York City during the Great Depression. But many of them were reticent to ask

[129] Hernández, "Experiences Leading to a Greater Emphasis on Man in Ethnobotanical Studies," *Economic Botany* 41, no. 1 (1987), 6.

more details. In 1985, however, Xolo, as his Mexican students and friends called Hernández, discussed his childhood and *formación*.

Born in the throes of the Mexican Revolution in 1913, Efraím Hernández Xolocotzi did not live in the town of his birth for a long time. He was born in San Bernabé Amaxac de Guerrero, a small village about 140 kilometers east of Mexico City, in Tlaxcala, at the time one of the poorest states in the country. Antonio Hernández and Micaela Xolocotzi, Efraím's grandparents, were some of the town's earliest registered inhabitants. Antonio participated in settling the town, going as far as building the town's first Catholic chapel. No record remains on why, but don Antonio converted from Catholicism to Methodism between his settling in San Bernabé Amaxac in 1878 and the early 1910s. Soon thereafter Bibiana Guzmán, a schoolteacher, arrived in the town. She taught elementary classes at the school that don Antonio founded inside his home, which took in children who were orphans and homeless because they lost one or both parents during the Mexican Revolution. By 1913, she and Luis Hernández, the youngest of don Antonio and doña Micaela's eleven children, had four boys of their own. Efraím was the youngest. For the first few years of his primary schooling, he attended school with his mother's indigent students.[130]

When Efraím returned to San Bernabé years later, he described the town. "In 1938, the town's center at the edge of a canyon consisted of a small plaza, a Catholic church (part of which was [still] utilized as a school), one building made up of two levels for the local government and older businesses." A dirt road marked the only route to the nearest urban areas, which were miles away. Thin power lines supplied electricity to a handful of homes in town. Most houses had private bathrooms and

[130] ----, "Avances, JUNIO 1989," Archivo EHX, COLPOS.

temascales (ancient Mesoamerican vapor sweathouses). Public bathhouses still existed in town.[131]

San Bernabé Amaxac was an agricultural village. The majority of its residents were farmers. Efraím's father, according to one person who met him, was short in height and had calloused, powerful hands that gave away his occupation as a "*trabajador de campo*" (peasant farmer).[132] The eastern part of the town's thin and sandy soils permitted farmers to grow only rain-fed maize. A little further away, one found soils utilized to grow beans, potatoes, squash, and peas. Farmers in areas with irrigation grew maize, alfalfa, and some *hortalizas* (horticultural products - cultivated plants for household consumption or for ornamental use). Underneath sandier parts of the soil in these areas, farmers used the shade provided by tree undergrowth to cultivate lentils and other crops during the winter. Residents divided the lands with more rainfall into terraced parcels on which they grew maguey for pulque. Other growers tended to other types of trees: *tejocote* (similar to crabapple), peach, apple, white *zapote* (small, fleshy fruits from the *Sapotaceae* family), and white cedars. An adequate water supply remained an uncertainty in town, even for the small factories in the village. Yet, agriculture and small industry could not keep residents there, as many left to "open new economic horizons" as a wage laborers elsewhere.[133]

Problems of another sort affected the Hernández family in San Bernabé, so much so that they eventually left Tlaxcala. Some of the Catholics in town did not take kindly to the alternative spiritual beliefs of the Hernández household, particularly don

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[131] ----, "Introducción," in *Xolocotzia: obras de Efraím Hernández Xolocotzi, Tomo I* (Chapingo, Mexico: Universidad Autónoma Chapingo, 1985), 15.
[132] Lauro Bucio Alanís, interview with the author, Mexico City, Mexico, November 29, 2013.
[133] Hernández, "Introducción," 15-16.

Antonio's decision to become a Methodist. Not even Bibiana's role as a schoolteacher for less-fortunate children in town, helped to "diminish friction" and they left Tlaxcala in 1915.[134] Hernández never gave the exact reasons that his family left, but his short autobiography makes clear that part of the reason was religious intolerance on the part of people in his family's hometown. For the next eight years, don Luis and family lived in several places, including Mexico City and Puebla. In 1922, Bibiana's oldest son left for the United States to work as a *bracero* and his mother, some of his aunts, and Efraím followed. Bibiana's husband eventually returned to his seven hectares of land, that he called "'man's roots,'" in Tlaxcala.[135] A young Efraím learned English in New Orleans from, as he later expressed, "magnificent" teachers. The stay in Louisiana was short, however, as the family moved to New York City in 1926.

The academic success continued in New York. Hernández attended Stuyvesant High School, located in southeastern Manhattan, an area that in the late 1920s and early 1930s was undergoing its own social transformation inspired by the bohemian movement among its many Jewish and Italian residents. The school to a handful of Nobel Prize winners, Stuyvesant's student body was extremely competitive.[136] Parents wanted their children to attend the school, Hernández said, because its rigors secured many students college admission, which helped overcome the anti-Semitism and other forms of discrimination practiced by admissions departments at some state universities in New York.[137] Efraím shined at Stuyvesant. Jerry Schur, one of his science teachers,

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[134] Ibid., 16.
[135] Ibid.
[136] Stuyvesant's Nobel Prize-winning alumni include Joshua Lederberg (medicine, 1958), Robert Fogel (economic sciences, 1993); Roald Hoffman (chemistry, 1981), and Richard Axel (physiology, 2004). Other prominent graduates include a U.S. Attorney General, senior presidential advisers, and famous entertainers.
[137] Hernández, "Introducción," 17.

had good memories of Ef, as Hernández was called by many of his friends. In a 1959 letter to his former student, Schur wrote that he was "very fond" of Ef and that he had "high hopes" for him in science.[138] At the time of Hernández's graduation in 1932, he earned one of the highest graduating marks in the school's history and he left school with the plan to become an electrical engineer.

Growing up in a bohemian neighborhood, Hernández found a love for traveling while in high school. Along with friends, he hitchhiked to the Midwest, visited national parks, and saw much of rural New York. In exchange for food or lodging, the boys offered their labor. In one instance they picked fruit. Other times, they simply asked larger grocery stores for food or slept "wherever we were allowed permission."[139] One trip with a friend after graduating from high school in February of 1932 was to Mexico, and they found their way to San Bernabé. Upon arrival at the town's outskirts, the recent graduates asked residents in a hut for directions on how to find don Luis (Efraím's father). "Who is looking for him?" asked one the hut residents in town. "I'm his son, Efraím," Hernández replied. Pilar, the man from the hut and his uncle, soon led the youngsters to don Luis. The coming days involved a couple episodes of heavy pulque drinking and touring San Bernabé. Later, minus his friend, Efraím saw more of Mexico, going east from Tlaxcala through the state of Veracruz to the country's east coast.[140]

The trip to Mexico was a transformative experience. Hernández saw the disciplined lifestyle that his father and other *campesinos* practiced, and he noticed some

[138] Jerry Schur, Letter to Efraím Hernández, folder Correspondencia del año 1959, July 28, 1959, Archivo EHX, COLPOS.
[139] Hernández, "Introducción," 17.
[140] Ibid.

of the intricate ways that farmers overcame natural obstacles like a lack of irrigation, mountainside plots, and the vagaries of rain-fed agriculture. More important, he witnessed the conditions in which millions of rural Mexicans, particularly those in central Mexico, lived. According to his notes, many of the peasants he saw dealt with a lack of potable water. Electricity remained a luxury in the villages that he visited. Meals for many people consisted of beans, peppers, and tortillas. "On Sundays," people added "a piece of *chicharrón* (fried pork crackling)" to meals.[141] The low standards of living disturbed him as he traveled to Veracruz to catch a bus bound for New York.

The Federal Census Office conducted a study of rural Mexico between 1931 and 1933 that offers quantitative details about the countryside that Hernández saw during his trip. According to the report, nearly one fourth of the residents in the more than 3,000 villages were comprised of residents who spoke an indigenous language. In the northern part of the country, the population was primarily ethnic whites or mestizos. Indians only made up 1.3 percent of the population in Nuevo León and the percentage was slightly higher in Tamaulipas. Southern Mexico's situation was different: Yucatán's was more than 93 percent Indian and Oaxaca at nearly 78 percent Indian. About one half of the communities retained some form of communal landholding, especially in Oaxaca, Puebla, and Guerrero. Rural wages in more than 80 percent of the country were one peso or less per day. *Tiendas de raya* (company or plantation stores), a remnant of the hacienda system in which worker's wages were paid in kind instead of cash, could still be found in some rural places.[142]

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[141] Hernández, "Avances, JUNIO 1989," Archivo EHX, COLPOS.
[142] Frank Tannenbaum, "Technology and Race in Mexico," *Political Science Quarterly* 61, no. 3 (1946): 365-383.

Other parts of the study underscored the level of rural isolation in the country. "Mexican agriculture," Tannenbaum reported, "is still in many places a hoe agriculture." "'Fire agriculture'" (i.e., slash-and-burn) remained prevalent in many places. In more than 90 percent of the villages studied, residents did not own tractors, seed drills, cultivators, threshing machines, steel plowing implements, or shelling machines. In terms of rural isolation for many Mexicans, the statistics are not surprising. Nearly 2,000 of the more than 3,000 villages under consideration did not have a store. Railroads were largely outside of most village limits. Towns rarely had a post office. Automobiles existed in fewer than 10 percent of the villages. Telephone communication was absent in about nine out of every ten villages, thus most places were "without telephone communication with the outside world."[143]

Not long after its revolution, then, the Mexican countryside was isolated in more than one way. Culturally and linguistically, the country was fragmented. Despite a constitutional mandate restricting their presence, vestiges of a pre-revolution, feudal economy remained with *tiendas de raya*. Technology vis-à-vis agricultural production remained, by certain standards, antiquated, un-mechanized, and resembled that of centuries past. Land tenure, too, continued to be a problem. Finally, villages were geographically isolated. Many Mexicans had extremely little contact with the "outside" world. Mexico's "imagined community," as scholar Benedict Anderson named the term for the modern nation-state, was nebulous.[144]

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[143] Ibid.
[144] Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (New York: Verso, 1991).

Hernández later shared the impressions of his visit in 1932. He found it difficult to overlook the "penury and many privations."[145] Before returning to New York, while still in Mexico, Hernández had made up his mind that he would return.[146] Realizing that an undergraduate degree equipped him with a limited amount of skills and expertise, he nevertheless made up his mind to "somehow help." Besides, he added, in the United States there existed "an extremely competitive environment, one in which individuals had to sacrifice themselves to attain certain levels of material comfort."[147] He soon abandoned the plan of becoming an electrical engineer and decided to study agronomy.

These new plans and reality, however, were not compatible. Being a resident of New York and having the grades required for admission, Hernández could have easily gained admission into the nearest university with an agricultural curriculum. But funding for school was a problem. Like many migrant families to the United States, Hernández's education through high school involved large sacrifices on the part of his family. It had been a household project - his mother and oldest brother had funded the secondary educational expenses. After discussing the plan to study agriculture, though, his mother and brother admitted that they could not afford to help with any more than two years of college. Thus, Hernández attended the State Institute of Applied Agriculture, a vocational institute, in Farmingdale, New York. The institute was, according to what one of its directors in 1924, a "finishing school in vocational

[145] Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas, Volumen I* (Chapingo, Mexico: Colegio de Postgraduados, 1984), 236-237.
[146] Edmundo García Moya, interview with the author, Montecillo, Mexico, October 9, 2013.
[147] Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas*, 237.

agriculture, training specifically for country life and closely allied fields."[148] Hernández later acknowledged that the school allowed him to *practice* agriculture, and a job on a dairy farm helped pay for expenses. While there, Hernández finished at the top of his class.[149] In a recommendation letter, the institute's director, Halsey Knapp, wrote, "He [Hernández] has proved to be an earnest, serious, thorough and careful student who seeks to be unprejudiced in his approach and fair in his judgment." And, "Mr. Hernandez has always been particularly interested in those fields in which human values are dominant. I believe that he has a real contribution to make in such fields."[150]

Hernández matriculated at the Agricultural College at Cornell University in June 1934. But his savings from working on the farm did not last long. Like other students in college during the Great Depression, Hernández defrayed costs by washing dishes at a campus fraternity house. His performance in classes eventually earned him a scholarship. By year three of college, with a part-time job as a dishwasher to help living expenses, a scholarship to help with tuition, and a second part-time job at the university's herbarium, graduation soon approached and the future looked promising. Cornell University's Agricultural College, by the 1930s, was one of the flagship institutions in its field. Along with other universities like the University of Wisconsin, Iowa State University, and Michigan Agricultural College, it ranked among the best in agricultural education in the country. By 1913, it had the largest faculty among all colleges in the United States. Also around the same time, Cornell had nearly as many graduate students attending as every agricultural school combined. Since its

[148] Quoted in Frank. J. Cavaioli, *Farmingdale State College, A History* (Albany, NY.: State University of New York Press, 2012), 84.
[149] Hernández, "Introducción," 18.
[150] Halsey Knapp, Letter from Halsey Knapp, April 20, 1938, Archivo EHX, COLPOS.

inauguration, it was not uncommon for administrators to seek (and, many times, attain) whatever talent they wanted. During the late 1920s and early 1930s, administrators in the college counted Franklin Delano Roosevelt and his wife Eleanor as supporters (Roosevelt served as New York's governor in the late-1920s).[151]

Innovation on the part of administrators and teachers at Cornell explained the school's reputation and success. The college had begun extension programs with local farmers early after its formal inauguration in 1903. It was not uncommon for Cornell students to lead workshops in any number of different areas of agricultural study, with the idea that the college's mission was to help New York farmers. Part of their curriculum included community outreach programs that involved devising methods for disseminating agricultural technology to local growers, dairy farmers, or any interested New Yorkers. One pioneer in agricultural education and technology, Henry A. Wallace, said that the extension program at Cornell was better than he had seen in any western state in the country. The college had also been one of the first in the United States to offer courses focused on something more than the outside of the productive side of agriculture, including rural sociology and outdoor art. Administrators encouraged students to enroll in classes outside the "hard sciences," such as in anthropology, philosophy, and education. Such innovation and flexibility paid off for students, as, according to one estimate, 85 percent of graduates gained positions at other colleges and the United State Department of Agriculture (USDA).[152]

[151] Gould Patchin Colman, "A History of Agricultural Education at Cornell University" (PhD. diss., Cornell University, 1962), 278, 385-386, and 453-454.
[152] Ibid, 198, 459, and 494.

THE MAN WITH A SMILE THE SIZE OF A CRESCENT MOON

Much of the success of the college was because of the vision and efforts of Liberty Hyde Bailey. Administrators at Cornell hired Bailey away from Michigan Agricultural College to teach horticulture in 1888. Within a couple years, he became the dean of the agricultural college, a well-known philosopher about topics ranging from ecology and conservation to rural education, and a nationally-sought after speaker whose contacts included New York politicians and more than one U.S. president. He was also one of the country's leading botanists. Based on the interviews with several of his closest colleagues and students, Hernández never elaborated much on the source of his intellectual inspiration. He did, however, mention to one student that Bailey was his "role model, if not hero."[153]

Bailey was, in his own words, "born against the primeval forest" of South Haven, Michigan, in 1858. He spent his youth "on the farm cut from the forest" that his father, a devout Puritan, built after the family moved to the frontier from Vermont.[154] When not working on the family's farm, he spent many days exploring his surroundings. This included haunts to local caves where he collected snakes or turtles; bird watching was another hobby to which he dedicated many hours as a child (he later lamented the extinction of the passenger pigeon). Plants constituted a special fascination, and he studied everything about them intensely – their growth patterns, shapes, seeds, and colors. The studying paid off, as Bailey was grafting apples in his father's and neighbors' orchards by the age of ten. As a teenager, he began public

[153] Peter Bretting, "In Memoriam: Ingeniero Efraim Hernandez Xolocotzi," *Plant Science Bulletin* 37, no. 3 (1991), 17.
[154] Liberty Hyde Bailey, *The Holy Earth: Towards a New Environmental Ethic* (Mineola, NY.: Dover Publications, Inc., 2009), ix. Bailey's original piece *The Holy Earth* was published in 1915.

speaking to local crowds, with topics ranging from grafting to birds. A farmer who believed that all men should earn their daily keep, Liberty Hyde Bailey, Sr., thought that his inquisitive son "will never be worth his salt."[155]

The senior's youngest son turned out to be a better scholar than apple grafter. A small detail about any subject easily piqued Bailey's interest. In grade school, after gaining permission from his father to read Charles Darwin's *Origin of Species*, Bailey became intrigued with evolution (later, this fondness for evolution was evident in his studies about the domestication of plants). But it was Darwin's use of the term *a prori* that motivated Bailey to learn Latin. Asa Gray's *Field, Forest and Garden Botany* furthered Bailey's interest in botanical studies. In 1878, after meeting respected botanist William James Beal, Bailey enrolled at the Michigan Agricultural College (MAC) in East Lansing. Having studied under Gray, who counted Charles Darwin among his correspondents, Beal had a strong academic pedigree.[156] Gray also was a leader in the small class of U.S. scientists who helped make systematic botany and taxonomy comparable with that in Europe, which for most of the nineteenth century was more advanced.[157] Four years after arriving at college, Bailey graduated, and with a recommendation from Beal, he worked as Gray's assistant.[158]

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[155] Andrew Denny Rodgers III, *Liberty Hyde Bailey: A Story of American Plant Sciences* (Princeton, NJ.: Princeton University Press, 1949), 8-9.
[156] Gray challenged Darwin's theory of evolution (part of what were called the "Darwin wars"); see Rodgers III, *Liberty Hyde Bailey*, 11-14. For discussions of Darwin, and the challenges of his time, see José Sarukhán, *Las musas de Darwin* (Mexico: Fondo de Cultura Económica, 2013). Sarukhán likely was Efraím Hernández's first graduate student. *Las musas de Darwin* is dedicated to Hernández. Another discussion concerning Darwin and his influence is found in Edmund Russell, *Evolutionary History: Uniting History and Biology to Understanding Life on Earth* (Cambridge: Cambridge University Press, 2011).
[157] Rodgers III, *Liberty Hyde Bailey*, 22 and 28.
[158] Harlan P. Banks, "Liberty Hyde Bailey, 1858-1954," Biographical Memoir, National Academy of Sciences (1994), 5-6.

At age twenty-six, Michigan Agricultural College hired Bailey to teach horticulture. It was at his alma mater that he began displaying some of the eccentricities and characteristics that made him famous. As a researcher, he made a point of making his work accessible to the general public. *Talks Afield: About Plants and the Science of Plants* (1885), one of his earliest books, published in his first year as a professor, attempted to make professional botany available to rank-and-file farmers. This trend continued the next year with a speech-turned-monograph entitled *The Garden Fence* (1886), which argues that the imaginary border between trained biologists and farmers was a metaphorical "fence" that needed to be overcome. Bailey's involvement in the community in Michigan also added to his notoriety, as he traveled the state delivering talks to farmers at National Grange meetings or county fairs. With students in tow to these events, it was no surprise that they adored him and that he rejected professional customs like the discouragement of fraternization between faculty and students. Also during the same decade, Bailey became the country's expert on *Carex* (commonly known as sedges).[159]

That Michigan Agricultural College was one of the country's first land-grant college was not a fact that Bailey took lightly. Signed into law by President Abraham Lincoln in 1862, the Morrill Act granted every state federal land where states could endow colleges with the mandate to teach practical agriculture, engineering, and military science. Universities and higher education prior to the act had largely been inclined towards studying the sciences and "the classics." Having grown up on a farm in the frontier, Bailey took to heart MAC's mission. In 1904, he would say that the agricultural colleges in the land-grant college system had the mission of transferring

[159] Rodgers III, *Liberty Hyde Bailey*, 55-56.

science to farmers. A college of agriculture, however, "really stands for the whole open country beyond the bounds of cities….These institutions mean not one iota less than the redirecting of the practices and ideals of country life." Land-grant colleges, he added, had to "begin to formulate a new social economy."[160] From his early days as a professor, Bailey accorded lofty meanings and goals to his role as an educator and botanist.

His pedagogical methods were unorthodox, especially when compared to the rote memorization that was common in colleges at the time. A normal lecture or traditional exam was anathema. While he thought that a student must have the discipline needed to sit and study a topic for hours, Bailey also thought that students should infuse their studies in science with some imagination. According to the author of Bailey's most exhaustive biographer, sometimes he walked into classrooms already a couple sentences into a lecture. And the lessons "fired their [student's] imagination."[161] Exams were just as atypical. In one exam, students read a short prompt on the chalkboard: "Tell me about the strawberries." Students then were required to elaborate on the botanical facts about strawberries. But they could also discuss a strawberry's beauty, its aroma, or its shape. Bailey was not adverse to a student integrating aesthetics into their work. At Cornell, his house became a gathering place where professors and students recited poems on Sunday nights.[162]

In 1888, after having delivered a lecture series at Cornell University, Bailey received an offer for a position in Ithaca, which he accepted. His legend grew in New

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[160] Quoted in Scott Peters, "A New Day Coming: Liberty Hyde Bailey's Prophetic Educational Vision" (lecture given at the opening of the Exhibition: *Liberty Hyde Bailey: A Man for All Seasons*, Ithaca, New York, Cornell University, June 10, 2004), 2.
[161] Rodgers III, *Liberty Hyde Bailey*, 90.
[162] Philip Dorf, *Liberty Hyde Bailey: An Informal Biography* (Ithaca: Cornell University Press, 1956), 55.

York. As a professor, his demanding and unorthodox pedagogical methods continued. As a researcher, Bailey helped gain horticultural studies respect among professional botanists, which during the 1890s, a time in which the biological sciences lacked an emphasis on making research relevant to the general public. In 1892, he was a founding member of the still-existing Botanical Society of America.[163] He also became a pioneer in botany with his work on controlled experimental breeding, particularly hybridization. His publications while at Cornell included *Cyclopedia of American Horticulture* (1900) and *Cyclopedia of American Agriculture* (1909), which are both still required texts at some schools and agencies that study American flora and agriculture. Not long after being established in New York, Cornell, the land-grant school in the state, published bulletins for farmers in the area to help with the most mundane – yet practical – farming issues for local growers. During the years in which Bailey participated in these extension activities, he wrote about half of all of the college's bulletins.[164]

He took seriously this extension work. After Cornell's College of Agriculture earned state funding from New York's governor in 1893, he became the chief of an outreach program designed to help local farmers, such as Cornell's winter-course programs for local farmers. Another part of the program was didactic, involving Cornell students gaining hands-on farming experience and learning from farmers who interacted with the students. The same year the extension programs began on campus, Bailey gave a speech to the Agricultural Association at Cornell, which underscored the lofty and demanding ideals that he assigned to agricultural education and extension. The speech began with a description of how education in the United States had over the

[163] Rodgers III, *Liberty Hyde Bailey*, 85, 180.
[164] Banks, "Liberty Hyde Bailey, 1858-1954," 9.

last couple decades become opened to all social classes. "And if the life of the state is the life of the individuals which compose it," he said, "then it is the privilege – the duty rather – of the state to promulgate education."[165] But colleges of agriculture inadequately helped farmers because "the colleges have not adapted themselves to the farmer's needs." Colleges promoted an education that did not allow "the elasticity which shall enable studies to be taught in their proper times or manner, and it does not fit well into the leisure or unproductive seasons of the farmer."[166] Extension, therefore, must popularize academic work for benefit to farmers, "to inspire all men to better things as individuals and as citizens."

Agricultural instruction, as the last paragraph of the speech read,

> …must be freed from the conventionalisms of mere educational traditions, and relieved from all narrow estimates of its scope and value. It cannot be measured by the common pedagogic methods. It must be cast in a mould (*sic*) of unique pattern. The education of the great agricultural masses is bound to come. These people, the most numerous in our community, are the last to receive adequate instruction in their own occupations. Agricultural education is therefore the coming education. It is the only great field yet unexplored. It is also the most difficult of exploration. The state must foster it. Some institution must come to the fore, free from bigotry and convention and inspired with patriotic hope, to lead the rising armies on to victory.[167]

Bailey ascribed agricultural education with a holy mandate, and he challenged the botanists to modify their practices so that farmers - the group he believed should most benefit from agricultural technology and modern science – stood to benefit. Extension had to be tailored to fit the social and historic contexts in which farmers lived and worked.

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[165] Liberty Hyde Bailey, "Agricultural Education, and Its Place in the University Curriculum" (Ithaca, NY.: Andrus & Church, 1893), 3-4.
[166] Ibid., 8.
[167] Ibid., 18-19.

With such lofty challenges and ideas, Bailey proceeded to implement innovative methods for the overhaul in education that he advocated. He increased the number of farmers' institutes at Cornell. Courses outside of the productive side of agriculture - home economics, rural sociology, and agricultural economics - received much support from Bailey while he was the dean of the college of agriculture. As Colman Patchin writes, Bailey's goal for instruction and extension "was nothing less than technical education based on a sound understanding of scientific principles and supplemented by sufficient emphasis on aesthetics and political science to make the student a happier individual and more effective citizen."[168]

The concern for the wellbeing of rural America grew to dominate the later part of Bailey's career in the early 1900s. Dating back to the 1870s, increased international competition and a slow growth in gold production, relative to the world's money supply, led to dramatic changes in the U.S. countryside. The number of farms more than doubled while income on farms lagged severely behind total national income, and farmers' share of this income declined from one-fourth to one-fifth.[169] Bailey lamented the transformation of the economy from an agrarian economy to an industrial one and its effects on farmers. The countryside-to-cities exodus of the late 1800s and the three decades thereafter troubled him to the point that he tended to speak of farmers in idyllic terms. Bailey consigned farmers with metaphysical ties to the land and assigned them

[168] Colman, "A History of Agricultural Education at Cornell University," 314.
[169] Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: The University of Chicago Press, 1999), 101-102.

romantic notions, similar to the concept that Richard Hofstadter called the "agrarian myth."[170]

He began one 1907 speech by saying that "The first or original real occupation was the management of the land" and most other trades and jobs stemmed from the land. But, "As the demands of civilization have developed, and particularly as world-competition has arisen," as society had become organized in a more complicated manner, farmers found themselves being pulled in two directions. On the one hand, they continued to be strong individualists, with an emphasis on self-sufficiency. On the other hand, farmers, by the early 1900s, the government had begun "interfering with the land-workers…for the benefit of society at large."[171] Greater demands on the countryside by society at large and the intervention of the state had soon left rural institutions – Bailey regarded these institutions everything from county fairs to churches to rural schools – to die out and the country "has been left socially sterilized."[172] Thus it became incumbent on the state to help rural groups. The countryman, he said, "must be able to interest himself spiritually in his native environment as his chief resource of power and happiness."[173] In the speech, Bailey again calls on educators to become less sterile and more practical. This overhaul was so important that it would help in the "radical revivifying and redirecting of all rural institutions" to help the rural populace.[174]

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[170] See Chapter One in Richard Hofstadter, *The Age of Reform: From Bryan to F.D.R.* (New York: Vintage Books, 1955), Kindle edition.
[171] Liberty Hyde Bailey, *The State and the Farmer* (New York: The McMillan Company, 1913), 1-2.
[172] Ibid., 15.
[173] Ibid., 65.
[174] Ibid., 113. In the audience on the day of the 1907 speech was President Theodore Roosevelt. The next year Roosevelt asked Bailey to head the Country Life Commission, a study about virtually every aspect of rural life in the country. The *Report of the Commission on Country Life* (New York: Sturgis & Wilson, 1911) arguably never translated into substantial legislation, Roosevelt's choice of Bailey to head

With such demanding tasks for agricultural colleges, Bailey demanded that educators have a passion for teaching and creativity in their approaches to science. Education, he said, should aim towards something greater than memorization or love of knowledge. If a teacher in the nature-study program that became a part of the extension efforts enacted under his watch in New York did not "feel the living interest in natural objects which it is desired the pupil shall acquire" or if the teacher's enthusiasm was less-than-inspiring, then they "better let such teaching alone."[175] Science had to be dedicated towards improving people's quality of life. About facts and the idea of plant science staying restricted to university halls and laboratories, as was becoming common during the early 1900s in American biological sciences, Bailey bluntly commented, "Fact is not to be worshipped. The life which is devoid of imagination is dead, it is tied to the earth. There need be no divorce of fact and fancy." He continued, "What is called the scientific method is only imagination set within bounds…Facts are bridged by imagination….The very essence of science is to reason from the known to the unknown."[176]

Bailey's ideas did not change after he left Cornell in June 1913. Over the next couple decades he wrote several more books (over his lifetime, at least five dozen books if one counts the revisited editions) and avoided public life. He spent most of his time studying botany, with an emphasis on the domestication and taxonomy of horticultural plants. Sometimes risking his life to do so, he collected plant samples from a number of places: New Zealand, the Bahamas, Trinidad, Brazil, Venezuela, Western Europe,

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the commission serves as proof of how the substance of the 1907 speech resonated among powerful people. Bailey wrote his own account about country life; see Liberty Hyde Bailey, *The Country-Life Movement in the United States* (New York: The MacMillan Company, 1911).

[175] Quoted in Colman, "A History of Agricultural Education at Cornell University," 128.

[176] Dorf, *Liberty Hyde Bailey*, 135-136.

Puerto Rico, Mexico, Panama, Haiti, the Dominican Republic, China, and Canada. The number of plant samples grew into the thousands, and in 1935, Bailey donated his collection to Cornell. A site where botanists could visit to help identify plants, it was appropriately named the Bailey Hortorium.

Although scholars justifiably note that many of his visions never became reality and despite his romantic regard for farmers, Liberty Hyde Bailey was a pioneer in several fields.[177] His work with the Country Life Commission stands as a signpost of the changing of the United States from a rural country to an urban one. *Cyclopedia of American Horticulture* remains a foundational text in plant sciences. Furthermore, *The Holy Earth*, is a required reading for many people who work in environmental studies. Aldo Leopold's "most direct intellectual debt," Roderic Nash writes, was to Bailey.[178] Scholars can also add Efraím Hernández to the list of people that Bailey influenced tremendously.

The two men met once in 1948.[179] After having worked as a volunteer at the Bailey Hortorium while an undergraduate at Cornell and having studied botany, Hernández had apparently come to venerate Bailey. Hernández visited Ithaca to see about the status of a Oaxacan palm that he had mailed to the hortorium for classification. When the sample turned out to be an unclassified species, Bailey recommended the name *Synechanthus hernandez*, the namesake of the species being the person who collected the sample. Instead, Hernández suggested the name *Synechanthus*

[177] For discussions of the shortcomings of Bailey's visions, see Peters, "A New Day Coming," 3 and Ben A. Minteer, *The Landscape of Reform: Civic Pragmatism and Environmental Thought in America* (Cambridge: The MIT Press, 2006), 36-37.
[178] Roderic Nash, *Wilderness and the American Mind* (New Haven: Yale University Press, 1967), 194.
[179] Correspondence between the two was also light. Only one 1948 letter exists, which discusses the classification of a Mexican palm species that Hernández had sent to the hortorium. See Liberty Hyde Bailey, Letter from Liberty Hyde Bailey, June 18, 1948, Folder Correspondencia del año 1948, Archivo EHX, COLPOS.

mexicanus, saying that the geographic origins of the plant were more important than the person who found it. Responding with a smile that looked like a "crescent moon," Bailey appreciated such modesty and proceeded to share details about his life dedicated towards botany and the conservation of cultivated plants. In his eighties at the time this meeting, Bailey commented on how he was living a "*vida regalada*," ("on borrowed time") having lived longer than he had anticipated. Nonetheless, he continued to study and preserve plants. Hernández said that Bailey taught him "more than he [Bailey] could imagine" and his life's work illustrated an "alternative" to the typical career of a biologist. Hernández shared this story with a group of graduating biology students at a university in Michoacán in 1982 – nearly forty years after the incident - because he had not forgotten the day he met the person who encouraged him to do what he loved, but to work towards a purpose, a greater good.[180]

ORIGINS OF *LA XOLOCOTZIA*

Before the 1948 sit-down between Bailey and Hernández, the latter's career as a botanist had begun in Mexico. In the years between high school and the meeting, he had finished at Cornell, worked as a government technician in Mexico's agrarian reform, helped the Allies in World War II, and become a respected researcher. He had traveled to the remotest parts of the country and began understanding peasant agriculture. By the mid-1950s, Hernández was arguably the most knowledgeable person in the country about Mexican flora and the most well-traveled plant explorer in

[180] Hernández, "Palabras a Biólogos recien egresados," 1982, Archivo EHX, COLPOS. In the same unpublished speech, Hernández makes mention of how Edgar Anderson, a famous ethnobotanist and plant breeder, also influenced his approach to plant sciences.

the country. As we shall see, he also became a vocal critic of the route that Mexican leaders had chosen for the country's agricultural development.

As he had done in high school and during his vocational college days, Hernández excelled at Cornell. He visited with the dean three times while in Ithaca. The first time concerned him wanting to take more than the average number of credit hours, and the second because he sought permission to take courses in the humanities. The last visit was at the request of the dean, who wanted to know why Hernández was still a Cornell student, particularly since he had completed the required hours of study for a degree from the College of Agriculture. "I still have more learning to do," was the reply the dean received.[181] Near the time of the visit to the dean, classmates asked Hernández questions about his plans after commencement. Some of them laughed at the response to their inquiry: "I am going to Mexico. I am going to help General Cárdenas."[182] Having lived through the Great Depression and having witnessed the social politics of the New Deal, which involved dozens of scientists, engineers, and other academic professionals working to help the economy out of its turmoil, Hernández sought to participate in Mexico's radical social politics of the 1930s.[183]

The Lázaro Cárdenas populist project (1934-1940) was well under way by the time Hernández graduated from college in the spring of 1938.[184] After labor disputes

[181] Hernández, "Introducción," 18.
[182] García, interview with the author, October 9, 2013.
[183] I thank Amílcar Challú for helping me understand the experimentation in politics of the 1930s and for introducing the term and idea to me.
[184] There is no shortage of scholarship concerning the successes and shortcomings of *cardenismo*. See Christopher Boyer, *Becoming Campesinos: Politics, Identity, and Agrarian Struggle in Postrevolutionary Michoacán, 1920-1935* (Stanford: Stanford University Press, 2003); Adrian A. Bantjes, *As If Jesus Walked on Earth: Cardenismo, Sonora, and the Mexican Revolution* (Wilmington, DE.: Scholarly Resources Books, 1998); Marjorie Becker, *Setting the Virgin on Fire: Lázaro Cárdenas, Michoacán Peasants, and the Redemption of the Mexican Revolution* (Berkeley: University of California Press, 1995); Ben Fallaw, *Cárdenas Compromised: The Failure of Reform in Postrevolutionary Yucatán*

with foreign interests, particularly British and North American interests Cárdenas expropriated the Mexican oil industry. Cárdenas's bold move came a few weeks before Hernández's high school graduation. Before the expropriation, beginning in the Comarca Lagunera, one of the most valuable agricultural commodity regions of Mexico, Cárdenas had begun state-led agrarian reform. He eventually distributed land to more recipients (811,157) than all previous presidents combined and the average number of hectares (22.1) was higher than all his predecessors' agrarian reform put together.[185] Also well underway was his socialist project of sending young educators to the countryside to secularize education and try to improve the living standards of Mexico's countryside. Hernández had kept track of the changes taking place south of the border, and he wanted to part of the *sexenio* that, as historian Adolfo Gilly writes, "brought reality to the delayed promises of the [Mexican] Revolution."[186]

He returned to Mexico in July of 1938 and went to Tlaxcala where he spent one year living in his father's house. Most of this time went towards "relearning Castillian" and "drenching" himself in rural life. He also learned how difficult it was to find a job in a country minus contacts. Eventually, he landed a position with the National Bank for Ejido Credit in the state of Tabasco. Established in 1936, the bank had been opened under President Cárdenas's administration to offer to *ejidatarios*, but the bank never

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(Durham: Duke University Press, 2001); Alan Knight, "Cardenismo: Juggernaut or Jalopy?" *Journal of Latin American Studies* 26, no.1 (1994): 73-107; Mary Kay Vaughan, *Cultural Politics in Revolution: Teachers, Peasants, and Schools in Mexico, 1930-1940* (Tucson: University of Arizona Press, 1997); María Vargas-Lobsinger, *La Comarca Lagunera: de la Revolución a la expropriación de las haciendas, 1910-1940* (Mexico City: Universidad Nacional Autónoma de México, 1999); Frederich E. Schuler, *Mexico Between Hitler and Roosevelt: Mexican Foreign Relations in the Age of Lázaro Cárdenas, 1934-1940* (Albuquerque: University of New Mexico Press, 1998); Myrna Santiago, *The Ecology of Oil: Environment, Labor, and the Mexican Revolution* (New York: Cambridge University Press, 2009); and Nora Hamilton, *The Limits of State Autonomy: Post-Revolutionary Mexico* (Princeton: Princeton University Press, 1982).

[185] Michael J. Gonzales, *The Mexican Revolution, 1910-1940* (Albuquerque: University of New Mexico Press, 2002), 239.

[186] Adolfo Gilly, *El cardenismo, una utopía mexicana* (Mexico: Cal y Arena, 1994), 467.

lived up to its goals due in part because of corruption and poor planning. Hernández's branch in Tabasco closed in 1942.[187]

Hernández began having greater contact with Mexican farmers while working for th bank. He later said of his Tabasco experience, "I really began to learn agriculture." Hernández observed the *roza-tumba-quema* (slash-and-burn) method for clearing land for vegetation that indigenous groups had practiced for centuries. He learned, too, how *tabasqueños* used plants and about what he called "plant-man interrelationships." Most important of the lessons gained in the hot, humid region, was "a deeper understanding of the farmers and of their problems and the way they tried to solve them."[188] Although he wanted to study more about traditional agriculture in the country, Mexico had no viable agricultural research organization in the 1930s.

This embryonic understanding of peasant agriculture grew in the next two years. After more than six "months of fasting due to a lack of a job," Hernández landed a position with the Office of Foreign Economic Administration (OFEA) of the U.S. Embassy.[189] The office was a key part of Mexico's efforts to help the Allies during World War II. As historian Stephen Niblo explains, the office, in exchange for support to the Allied war efforts, fostered industrial agricultural production for products like edible oils and hard fibers. Thus, the office controlled Mexican exports of certain products that the Allies did not want to end up in the hands of the Axis. For example, the Office purchased Mexico's sisal for binder twine so that it would not find its way

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[187] Hernández, "Introducción," 18. In reference to relearning Castillian, Hernández, throughout his career, used the term Castillain to denote Spanish, as in the spoken and written language. Arturo Warman best describes the institutional flaws of the bank in his study of Morelos. See Arturo Warman, *"We Come to Object": The Peasants of Morelos and the National State*, Stephen K. Ault, trans. (Baltimore: The Johns Hopkins University Press, 1980), 133-192; and Gonzales, *The Mexican Revolution*, 235-236.
[188] Hernández, "Experiences Leading to a Greater Emphasis on Man in Ethnobotanical Studies," 6.
[189] Ibid.

towards helping German agriculture during the war.[190] Hernández became an OFEA *técnico* (technician) helping foster the production of castor oil. To promote castor oil – used for manufacturing hydraulic fluid for jacks and brakes on war machines - Hernández traveled to a number of states: Sinaloa, Nayarit, Tamaulipas, and Oaxaca. Other assignments sent him to the Gulf of Mexico to study oil-bearing palms and to Mexico's Pacific coast for other species (*Licania arborea*, *Jatropha curcas*, *Garcia nutans*, *Cocos nucifera*). The office also sent him to Sonora, Guanajuato, Veracruz, and Yucatán. During the war, Hernández became, as he proudly later said, "a botanist at the service of his country."[191] He participated in Mexico's efforts to defeat the Axis by supplying valuable material to the Allies - arguably as important a contribution as Escuadrón 201, the fighter squadron that flew missions in the Philippines in 1945.[192]

"The end of the war meant the end of my job," Hernández later wrote.[193] A recommendation letter on his behalf to Mexico's Secretary of Agriculture in 1945, opened a position as a germplasm collector, particularly of maize and beans, with the Mexican Agricultural Program (MAP). As Chapter One describes, the program was the institutional progenitor of what later came to be known as the "Green Revolution." After 1943, representatives from the Mexican government and officers from the Rockefeller Foundation agreed to begin a joint agricultural program designed to

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[190] Stephen R. Niblo, *War, Diplomacy, and Development: The United States and Mexico, 1938-1945* (Wilmington, DE.: Scholarly Resources Books, 1995), 93-94. This was not the first time that the US government intervened strongly in Mexico's fiber industry; see Sterling Evans, *Bound in Twine: The History and Ecology of the Henequen-Wheat Complex for Mexico and the American and Canadian Plains, 1880-1950* (College Station: Texas A&M University Press, 2007).
[191] Bretting, "In Memoriam," 17.
[192] Mexico was not one of the major belligerents in World War II. Even President Manuel Ávila Camacho's dispatching of Escuadrón 201 was more motivated by politics than desire to participate in the fighting during the war. See Halbert Jones, *The War Has Brought Peace to Mexico: World War II and the Consolidation of the Post-Revolutionary State* (Albuquerque: University of New Mexico Press, 2014).
[193] Hernández, "Experiences Leading to a Greater Emphasis on Man in Ethnobotanical Studies," 7.

improve basic food production in Mexico. Also detailed in Chapter One, the Rockefeller Foundation opened experiment stations around Mexico, with the program's headquarters, the Office of Special Studies (OEE/OSS; Oficina de Estudios Especiales), in Mexico City. This office became the gathering place for conferences where researchers discussed MAP progress and where they scrutinized one another's work.

Over the next several years, Hernández made a name for himself in the program, in large part because of his background. He spoke perfect English (with a Brooklyn accent that he could never shake) and Spanish, and he was familiar with U.S. and Mexican cultural customs. He had attended Cornell and thus had a familiarity with U.S.-style agronomic studies. Moreover, Cornell, where he had attended college, had its own MAP connections, which underscores how Hernández was not outside of elements when it came to botanical and agronomic studies. He likely knew some MAP officials from Cornell. Richard Bradfield, the soils expert on the survey team that in 1941 made the recommendation for the Rockefeller Foundation to begin an agricultural project in Mexico, taught soil studies at Cornell and possibly had Hernández as a student. Albert Mann, MAP's first director, had been dean at Cornell's College of Agriculture (and a protégé of Liberty Hyde Bailey), and Hernández finished his studies during the administration of Mann's successor at Cornell. The OFEA work provided Hernández more exposure to rural Mexico than any other MAP researcher. His linguistic skills and plant collection experience were valuable for the program, as historian Markus de Kennedy has indicated.[194] According to supervisors, he was an "energetic, tough, and fearless" and he was familiar with several of the Indian languages spoken in different parts of Mexico. To compile maize samples in the

[194] See Markus de Kennedy, "The Office of Special Studies," 97.

office's maize breeding program during the early and mid-1940s, he "made his own way - often on foot – into even the most remote villages," and he eventually compiled more than 2,000 maize samples.[195] At the time, this was one of the largest collections of germplasm ever assembled. The collection became the basis for one of MAP's most famous studies.

A document in the Hernández archive by a friend, Garrison Wilkes, tells the story of this major contribution to plant sciences. In 1989, Wilkes wrote a eulogy for Paul Mangelsdorf, another member of the survey team that recommended for the Rockefeller Foundation to enter in a partnership to improve Mexican agriculture in 1941. In the eulogy, Wilkes discussed the foundation for the concept of landraces in plant sciences. It was the "joint idea" of Mangelsdorf, E.J. Wellhausen, and Hernández to draw a large map of Mexico on a patio courtyard floor and place the ears of maize that Hernández had collected around the country on the makeshift map. "After two days of labor, over two thousand ears were on the courtyard drying floor and standing on top of a step ladder the three could see a pattern of uniformity, hybrid zones and uniformity" in colors and shape of the cobs. The research team noticed "ecogeographic adaptation and morphological norms" in the cobs that "fused into landraces." They successfully identified about 25 ancient races of maize, which, at the time, helped describe the evolutionary process of Mexico's huge maize diversity. Subsequently, they also identified over 300 races of maize throughout Latin America. With the results of the experiment, Mangelsdorf encouraged the MAP officials "to collect and save farmer seed because he clearly foresaw the displacement of that germplasm by new elite

[195] E.C. Stakman, Richard Bradfield, and Paul C. Mangelsdorf, *Campaigns Against Hunger* (Cambridge: The Belknap Press of Harvard University, 1967), 61.

varieties coming out of the breeding programs" in Mexico, the United States, and later, Latin America. The "formative" experiment by Hernández and company, which resulted in the publication *Races of Maize in Mexico* (1950), as Wilkes shares, "preceded the wide recognition of the issue of genetic conservation of maize on a firm scientific basis" and the future conservation of agricultural genetic material.[196] Only owning a Bachelor's degree while his partners were distinguished researchers in maize studies (Mangelsdorf was a respected geneticist at Harvard and Wellhausen was a known maize breeder and future director of the Office of Special Studies), Hernández was a member of the team that established the basis for future global efforts of seed conservation. The conservation of agricultural genetic diversity in seed banks around the world represented one of the most heralded (and ironic) outcomes of the Green Revolution.[197]

Hernández's work with the Office of Special Studies eventually earned him, like many other young Mexican *agrónomos*, a scholarship from the Rockefeller Foundation. He attended Harvard and completed his Master's degree program in one year. His thesis, "Maize Granaries in Mexico," is a study concerning the evolution of maize granaries and their importance to social cohesion among indigenous civilizations. To

[196] Garrison Wilkes, "Paul C. Mangelsdorf, 1899 – 1989," September 25, 1989, Archivo EHX, COLPOS. *Races of Maize in Mexico* remains a foundational text for anyone who studies maize in Mexico, as well as outside the country.

[197] Ironic because the conservation of genetic material in the seed banks and the research concerning the material has become a discussion over who retains ownership of germplasm – the private biotechnology sector or the public sector – and to what uses is the material being put by scientists and to whose benefit. For a larger discussion concerning this topic, see Nazreen Kadir, "Factors that Govern Ownership, Access, and Use of Public Trust Crop Germplasm and their Impact on Public Welfare: Illustrated by the Policies and Practices of the Maize and Wheat Improvement Center (CIMMYT), Mexico"(PhD. diss., Golden Gate University, 2004).

anyone who knew him, it was no surprise when they saw that some of the sources Hernández consulted in his thesis likely included members of his own family.[198]

Hernández was also known among the MAP staff for his inclination to approach research projects with an eye towards seeing the characteristics of traditional, or what some of his colleagues probably called, "primitive" agriculture. In December of 1945, Hernández typed a report addressed to Dr. J. G. Harrar, the Mexican Agricultural Project's first director. The assignment had three objectives: 1) collection of seeds of major crops for research at MAP research stations, especially corn, beans, wheat, and potatoes; 2) collection of non-cultivated plants to assess their value as manure, forage, or cover crops; and 3) "location of the agricultural and floristic areas of Chiapas for orientation in future work of collection."[199] Hernández and his partner (and later life-long friend), Jack Sharp, thus, explored one of Mexico's most diverse states for genetic material and charted the area for future collections. It was an enormous task and the report likely remains one of the earliest thorough explorations of southern Mexico by western-trained botanists.

Beginning on mules and foot in Mapastepec, at 300 feet of elevation, both men traveled much of the state's diverse terrain. They went through the Chiapan High Plateau and through the cloud forest in the Sierra de Soconusco mountains. The research trip finally ended in the state's capital, San Cristóbal de las Casas, which rested at an elevation of more than 7,000 feet. They described the coffee area in the Soconusco mountains as "highly specialized agricultural areas" that involved plantation growers simulating "as closely as possible the original ecological conditions of the

[198] Hernández, "Maize Granaries in Mexico." *Botanical Museum Leaflets* 18, no. 7 (1949), 171.
[199] ----, "Initial Survey of Chiapas in Connection with the Acquisition of Genetic Material for Experimentation," December 20, 1945, Archivo EHX, COLPOS.

area" and the "maintenance of the existing forest conditions" of surrounding areas. Below the coffee area, in central Chiapas, the vegetation changed from pine-oak forest to shrub and to grassland. The burning of trees by local farmers in the forests "permits a rapid infiltration of grass" for cattle.[200]

Surveying the escarpment area of the Chiapan High Plateau, Hernández and Sharp found a "prosperous and extensive agricultural region populated by Maya-Quiche Indians." They also observed the "'milpa'" cultivation system, which "seems to have been brought to its maximum efficiency in this area." A Mesoamerican household crop-growing system, a *milpa* is a field (*mil-li* is the Nahuatl "root" for field and *pa* translates into "field") – varying in size from a household plot to larger plots intended for larger groups – characterized by, but not limited to, the cultivation of maize, squash, and beans. *Milperos* typically cleared land for cultivation and employed a method of field rotation in which they allowed plots to lie fallow after allowing the most recent plot to recover while they farmed in nearby or adjacent plots. According to Hernández and Sharp's report, three factors explained the efficiency of the *milpa* system: 1) "the natural fertility of the soil and the abundance of atmosphere and underground moisture"; 2) "the care displayed in the burning of the fields to be planted"; and 3) "a favorable equilibrium between density of population and amount of available agricultural land." The second factor allowed the undisturbed growth of the *acaguales* (fallow fields) until they were ready for planting. The last factor enabled farmers to practice a specific rotation on the land:

> one year -- corn and beans
> five to ten years -- fallow
> one year -- corn and beans.

[200] Ibid.

The report includes other observations, "The disadvantage of this system of agriculture is that even under the best conditions only ten percent of the agricultural land can be planted during the year." Deviation from this cultivation method, "in an effort to increase the area planted during the year, would results in a rapid erosion and destruction of the soils."[201]

Hernández and Sharp spent most of their time in Chiapas collecting over 500 seed samples and other material, as their objectives of their assignment called for, but they also took note of the intricate and ecologically complex *milpa* system. The humid conditions in the tropical areas where the farmers employed the system provided atmospheric moisture that growers complemented with underground moisture of the soil that the local farmers generated because of their clearings and burnings and the time fields were allowed to lie fallow while the soil replenished minerals and other depleted resources. Furthermore, as Hernández and Sharp highlighted in their report, the system worked because *campesinos* did not grow more than their land could yield before doing long-term damage to the natural environment's capacity to sustain their populations. Any divergence from this system of cultivation risked erosion and damage to the soils. Hernández and Sharp's discussion of a *milpa*, put another way, detailed – not in explicit terms (Hernández would say so explicitly in later years) – how *campesinos* conducted agriculture in a sustainable manner that involved farmers realizing the edaphic and ecological limits of their environment. The "Ecological Indian," as Shepard Krech III termed the phrase existed for the "Native North American as ecologist and

[201] Ibid.

conservationist," seemed to exist in the mountains of Chiapas, according to the 1945 report.[202]

We do not know how Harrar and other MAP officers responded to the inclusion of a discussion of the *milpa* system. Hernández's archive does not have a response. The irony contained in the report of Chiapas cannot be overlooked, however. Hernández and Sharp were botanists trained at U.S. universities; Sharp was an expert in floristic relations between east Asia and Mexico, and a professor at the University of Tennessee. They both were working under the assignment to survey Chiapas with an eye towards collecting genetic material. What is more, they were both working for the Office of Special Studies, which operated under the mandate of improving Mexican agriculture, primarily via modern technology like hybrid seeds, synthetic fertilizers, and irrigation. Results, as champions of the Green Revolution would argue, were derived in measures like yields per acre and tons per harvests. Production and efficiency were quantifiable and visible. Yet, Hernández and Sharp saw a *milpa*'s efficiency in different terms – the ability of its practitioners to continue its use over a long period of time and cultivation that promoted an ecological equilibrium between anthropomorphic processes and natural conditions. Furthermore, Hernández and Sharp found the *milpa* system worthy of careful inquiry among local growers.

The next year, Hernández continued the germplasm collection for the Office of Special Studies. His field journals - although inconsistent and sometimes incoherent – show that his habit of probing *campesinos* continued. One of his entries from November of 1946 again shows him prodding peasants for information. In Buena Vista

[202] Shepard Krech III, *The Ecological Indian: Myth and History* (New York: W.W. Norton & Company, 1999), 16. I should mention that Krech's study is dedicated towards dispelling the myth of the ecological Indian, arguing that such labels are stereotypes and deny indigenous groups historical agency.

del Aire, Guerrero, a small town "hidden in the hills" above the Iguala-Altamirano Highway, he jotted down terms like "tlacolol" to indicate the "steep moist slopes which can not be plowed." On the tops of these hills, some farmers had managed to cultivate with the help of plows. He also learned of "huascalot" maize, designated as such because of how much roadrunners (*huascalot*) enjoyed the maize. On the same page, he mentions the grass *Tripsacum dactyloides* (eastern gamagrass), which "all the local farmers mentioned how the seed when planted will become maize in about three to six years and some people actually collect the seed and plant it like corn."[203] Not indicated in the notes, the *campesinos* proved to be correct. *Tripsacum dactyloides*, indeed, is maize's wild weed ancestor.

In Huetano, Michoacán, Hernández talked with other farmers. "It is said," his notes say, "that maize with thick cobs resist droughts better, that is why '*costeño*' [indicative of the eastern coast of Mexico] type is predominating now." When he asked *campesinos* about purple maize brought from the state of Morelos. "'Very early,'" they replied." The purple-colored maize was "said to be very early, plants low up to 1.5 m., ears borne (*sic*) very low."[204] Via experience over the years, the growers explained how they knew the major characteristics of local versus maize that had found its way there via breeding programs, state distribution, natural processes, or farmer-to-farmer contact. Far from inexperienced farmers, *campesinos* had generated their own body of agronomic knowledge. Hernández later said that his time exploring in the field in the 1940s, as obvious with the instances in Guerrero and Michoacán indicate, were educational experiences. Peasant communities taught him about soil composition, plant

[203] Hernández, Libreta #3, Colecta: 2891 – 3796, November 1946 to October 1948, Archivo EHX, COLPOS.
[204] Ibid.

morphology, and natural history. He later remembered his debt to "the members of the peasant communities" in Mexico and all of Latin America.[205]

Early on, then, Hernández made a habit of being an unconventional researcher. His observation skills helped him see phenomena that many trained plant scientists of his time would overlook or neglect to question. His linguistic skills helped him to probe *campesinos* about the rationale they exercised in their farming practices and understand the cultural contexts in which they operated. His lack of timidity and humility to talk with farmers also allowed him to understand (or, at least, grasp) other factors that went into indigenous agriculture, like religious and ornamental uses for plants. More than one of his students and colleagues used terms like eclectic and original when they described Hernández's way of looking at botany, agricultural experiments, and plants.

Salidas de campo (field and collection trips) were not always entirely about collecting plants samples or amateur ethnobotanical research. Hernández enjoyed seeing Mexico's countryside and the country's rich biodiversity, and he had memorable experiences that he later shared with his students. The anecdotes demonstrate Hernández's lesson to students that field trips were for science, but work should not overshadow enjoying the people one met, or the aesthetics of the places one visited, or the experiences one had during *salidas*. During one trip in the 1940s, Hernández and two foreign partners (Sharp and another from Spain) had collected samples past the evening hour and found themselves in a remote village with no chance of securing a hotel for the night. After asking permission, they stayed at the house of a local peasant who shared his meal of tortillas and peppers with his visitors. Hernández and the house's owner enjoyed their meal. But because they came from places where meals

[205] Hernández, Letter to Dr. Garrison Wilkes, January 28, 1986, Archivo EHX, COLPOS.

with such spicy peppers were uncommon, Sharp and the Spaniard did not know how to nibble and take small bites at the pepper. They swallowed their peppers whole. Hernández chuckled at his partners' faces, as they sweated and grimaced because of the hot peppers.[206]

Years later, in another instance, Hernández was on a winter collection trip for *Tripsacum* with students that began in Oblatos Canyon in the state of Jalisco. The group then traveled north to Chihuahua, Chihuahua, at which point the students thought they would drive southeast directly to their campus in Mexico City. Instead, Hernández instructed his student, Rafael Ortega, to cross over mountains and drive to Los Mochis, Sinaloa. This was a long detour. After arriving to Los Mochis close enough to see the Pacific Ocean, Hernández promptly told Ortega to begin the haul back to campus. When Ortega later asked why the long detour and short stay to the coast, Hernández replied nonchalantly, "*a conocer*" (to know; to experience). The highway to the coast was one of the few that Hernández had not traveled on at the time, and he simply wanted to see the route and see the coast. It had been a trip solely with the purpose of visiting a place that he had not yet seen. As Ortega shared, Hernández had a "longing to *know*, to experience" Mexico.[207]

The curiosity and the eclecticism did not always sit well with bosses in the 1950s. One RF researcher from the United States, R.E. Larson who was leaving Mexico politely reminded Xolo about his eccentricities. Larson had enjoyed academic

[206] José Sarukhán Kermes, interview with the author, Mexico City, Mexico, November 11, 2013.
[207] Rafael Ortega Paczka, interview with the author, Chapingo, Mexico, December 2, 2013. During another trip with Sharp in Chiapas, Hernández appeared to have made friends with a Japanese immigrant, Eizi Matuda, who oversaw an extensive collection of the state's flora. It appears that Hernández may have later helped Matuda find a job as a biologist; see Efraím Hernández Xolocotzi, "Eizi Matuda y la flora de Chiapas, México." *Sociedad Botánica de México*, Boletín no. 5 (1947): 1-3.

discussions with him at the Office of Special Studies, and he appreciated how Hernández presented ideas and the reasoning behind them, but he was "not always in complete agreement" with such different "concepts and philosophies."[208] By the mid-1950s, Hernández had made a reputation for being willing to go against the grain. The Office of Special Studies, in one instance, hired him to study alternative crops in Tlahualilo, Durango. At the time, low international prices were hurting local cotton growers. Having studied the agrostology of the state for some time for the Office, Hernández knew the Russian thistle grew well in the state. He also knew that the low-maintenance grass was resistant to salts and that the species did not require much irrigation – important facts in an arid region of Mexico. After consulting with local peasants, Hernández submitted a report to supervisors, which suggested the idea of introducing goats to the area for breeding to help peasants' income. Supervisors terminated Hernández from work on the project after the report.[209]

He challenged OEE officials in other ways. On June 27, 1956, Hernández wrote a short note to his supervisor, Dr. E.J. Wellhausen, at the time in charge of the Office of Special Studies. Wellhausen was soon to meet with officers from the Rockefeller Foundation and MAP officials. Hernández hoped that his boss would bring up a topic for discussion at the upcoming meeting. The letter begins: "In connection with the forthcoming meeting of the Advisors of the Mexican Agricultural Program of the Rockefeller Foundation, it seems advisable, without implying by this that the suggestion to be presented here would escape the keen eyes and minds of said Advisers (*sic*), to emphasize the need to supplement the agricultural program with sociological studies

[208] R.E. Larson, Letter from R.E. Larson, November 18, 1960, Archivo EHX, COLPOS.
[209] Esteva, "Hosting the Otherness of the Other," 260-261.

which have as their main objective the clarification and presentation of the social tendencies and repercussions resultant of the technological advances achieved during the period in which the program has been in effect."

The letter continues: the Mexican Agricultural Program "was undertaken [in 1943] on the postulate that new methods and techniques would help Mexico, as a fragment of mankind, be modified." Until 1956, there were no reasons to modify MAP's mission. But "betterment is a function of several factors," Hernández wrote, "among them education in the broader sense, social heredity, and social organization." Thus, "there is the possibility that disequilibrium in the rapidity of development in these various factors might occurr (*sic*) and lead to the nullification, for all practical purposes, of the gains obtained in the application of modern technology." This nullification, the letter followed, had occurred in Mexico. By certain measurements (i.e., tons of products, yields per acre, etc.), agricultural production had increased. But population had also increased. Yet, there was no "indication of a similar strong trend in studies of population." The partnership, in short, between the Mexican government and the Rockefeller Foundation had achieved its mission, but neglected a concomitant factor of increased food supplies. Hernández concluded the letter, "I am cognizant of the truth in the half-truth that 'the shoemaker should stick to his shoes,'" and that the program should stick to its established mission and not undertake the suggested sociological study. The program, though, had the responsibility to suggest or consider studying the

"non-agricultural effects of its wonderful achievement in agricultural technology in Mexico." Minus a formal sign-off, Hernández ended his note.[210]

Written in 1956, Xolo's letter represents an early critique of the Green Revolution that scholars have until now have not discussed. Before historians ascribe Hernández an unjustified degree of foresight, however, the letter deserves scrutiny. The harangue was undeveloped. He suggested that the human element - and as Liberty Hyde Bailey would have agreed – must matter in agriculture, and it should matter in the calculus of the Foundation's agricultural program. But Hernández neglected to elaborate *how* and *why* people matter. Instead, he vaguely suggests that technology could lead to "disequilibrium." Sounding like a technological determinist, he implies that technology was not harmless. Yet, he did not touch on the more substantive issues surrounding the rapid introduction of the agricultural technology and rapid development: who has access to the technology?; whether the technology is sustainable?; and who benefits most from the technology? Hernández by the mid-1950s, then, was frustrated with what he saw in Mexican agricultural development, but he failed to articulate his grievances more coherently.[211]

The complaints and critiques changed substantially in the decade after the letter to Wellhausen. Hernández honed his criticisms against the Mexican Secretariat of Agriculture and their disregard towards *campesino* agricultural knowledge, by simply sending *extensionistas* to "teach" agriculture to peasants. He also generated a

[210] Hernández, "Need to Supplement the Agricultural Program with Sociological Studies, Which Would Define the Repercussions of the Technological Advances," folder Correspondencia del año 1955, June 26, 1956, Archivo EHX, COLPOS.
[211] In 1957, a year after the letter to Wellhausen, RF officers hired an agricultural economist to lead a study concerning distribution issues associated with their work; see Stakman et al., *Campaigns Against Hunger*, 213-215.

schematic, with a diagram, of the process of agriculture and how technology must account for social, cultural, political, and environmental contexts. His critiques of what he thought was Mexicans' attempt to transplant "La agricultura de Iowa" to the Mexican countryside and the shortcomings of the attempt became more substantial, saying that the developing world sought "to achieve agricultural development in a population whose social, historical and philosophical antecedents are different from those of the society whose agricultural development we would like to use as a norm."[212] But in the 1950s, Hernández's arguments were embryonic and they lacked precision.

Correspondence between the Rockefeller Foundation and Hernández was inconsistent after the letter to Wellhausen. It is difficult to determine how supervisors reacted to his badgering and eccentricity. Hernández, we know, sent a letter to Kenneth Wernimont, an RF representative in New York, on November 21, 1956. We do not know the substance of this letter. In his response two days after receiving the letter, Wernimont commented "concerning the additional points mentioned" in Hernández's note. Among these four items, Wernimont instructed Hernández to ship some packages to the Rockefeller Foundation's storeroom. Also, the foundation authorized funding for an eight-day stay for Hernández in New York. Finally, the termination of a fellowship from the Foundation that he had received would expire in mid-December and the foundation was "glad to help" with arrangements "for returning to Mexico."[213] Research commissions from the Rockefeller Foundation slowed for Hernández after 1956. He received funding for a trip to study grasses at Harvard the next year, but his

[212] Hernández, "Traditional Agriculture and Development," folder Agricultura tradicional y desarollo, August 25, 1980, Archivo EHX, COLPOS.
[213] Kenneth Wernimont, Letter from Kenneth Wernimont, folder Correspondencia de 1955, November 21, 1956, Archivo EHX, COLPOS.

frequent work with the office in Mexico City, which closed formally after 1960, ended. That is, the commissions ended until former OEE officers at the International Center for Maize and Wheat Improvement hired him to do more maize collections in South America in 1967 – after government officials advised Hernández to leave Mexico because of insubordination he had displayed to a government official (see Chapter Five).

CONCLUSION

As Tore Olsson's dissertation mentions, scholars of the Green Revolution almost universally make mention of Carl Sauer's famous quote to underscore the early substantive forewarnings of the "revolution."[214] In 1941, he famously warned that

> Mexican agriculture cannot be pointed toward standardization on a few commercial types without upsetting native economy and culture hopelessly. The example of Iowa is about the most danderious of all for Mexico. Unless the Americans understand that, they'd better keep out of this country entirely…This thing must be approached from an appreciation of the native economics as being basically sound.[215]

The quote has been by scholars as fodder to criticize the Rockefeller Foundation's future efforts in Mexico, designating Sauer as a prophet for expressing concerns about the lack of understanding local conditions. For some time now, Sauer represented one of the few professionals worried about the concomitant effects that came along with RF involvement in Mexican agriculture. Olsson has thoroughly explained the context of Sauer's note to RF officials.

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[214] For some examples, see Angus Wright, *The Death of Ramón González*; Jonathan Harwood, "Peasant Friendly Plant Breeding and the Early Years of the Green Revolution in Mexico," *Agricultural History* 83, no. 3 (2009): 384-410; and Wright, "Innocents Abroad: American Agricultural Research in Mexico," in *Meeting the Expectations of the Land: Essays in Sustainable Agriculture and Stewardship*, ed. Wes Jackson et al. (San Francisco: North Point Press, 1984): 135-151.

[215] Quoted in Olsson, "Agrarian Crossings: The American South, Mexico, and the Twentieth-Century Remaking of the Rural World," 215.

Historians can add Efraím Hernández to the early critics of the Green Revolution. The irony of a "footsoldier" in the Green Revolution becoming a cynic was a long process. After seeing privations in Mexico's countryside and deciding to apply what he learned from one of the flagship agricultural colleges in the United States, he decided to return to help. When he finally found a consistent job with the Office of Foreign Economic Administration, he traveled the Mexican countryside and gained an intimacy with peasant agriculture. His rudimentary observations and unsystematic ethnobotany work began to convince him that peasants were sources of agronomic knowledge. Finally, after joining the Office of Special Studies, which had an emphasis on quick, quantifiable results, Hernández saw the direction of agricultural development that Mexican leaders had chosen and he became disenchanted. As his students shared with me during interviews, he grew frustrated during the 1950s with what he called the sterile and technocratic approach under which OEE researchers operated.

After he became a botany professor at the Escuela Nacional de Agricultura, Hernández sharpened his harangues and he found a receptive audience among many of his students. They grew to admire his eccentric personality and his pedagogy - similar to the way Liberty Hyde Bailey's students venerated him in Michigan and at Cornell. And his influence on them aroused some of them, like Hernández in his field as a researcher, to reject the prevailing paradigm in their occupation. The substance of his developed critiques against the Green Revolution and details of the results of his influence on students are the topics of the next chapter.

CHAPTER THREE
LOOKING INWARD AT THE ESQUELA NACIONAL: THE GREEN REVOLUTION'S HOME AND THE REVOLUTION'S NEGATION

We imitate what we believe to be superior or prestigious. And this is why the vision of an America de-Latinized of its own will, without threat of conquest, and reconstituted in the image and likeness of the North, now looms in the nightmares of many who are genuinely concerned about our future…We have *USA-mania*. It must be limited by the boundaries of our reason and sentiment jointly dictate.[216] – José Enrique Rodó, "Ariel" (1900)

In July of 1961, Leobardo Jiménez Sánchez wrote a letter to Efraím Hernández. One of dozens of young Mexicans who earned scholarships from the Rockefeller Foundation during the 1950s and 1960s to study agronomy at flagship U.S. colleges, Jiménez was a graduate student at the University of Wisconsin. Having found time away from summer classes, he updated his *maestro* about his goings-on. The culture shock and language barrier involved with being from tropical Veracruz and living in the upper Midwest proved surmountable. Classes exhausted him, but they proved manageable. Jiménez also thanked Hernández for encouraging him to read so many authors that he would have otherwise not read as an undergraduate in Mexico. The remainder of the letter likely provoked a smile on Hernández's face, which, considering his often acerbic personality towards even his closest students, would have been grounds for celebration.[217]

[216] José Enrique Rodó, "Ariel," trans. by Margaret Sayers Peden (Austin: University of Texas Press, 1988), 71.
[217] Leobardo Jiménez Sánchez, Letter to Efraím Hernández, July 12, 1961, folder 1961, Archivo Efraím Hernández Xolocotzi (Archivo EHX hereafter), Colegio de Postgraduados, Centro de Botánica, Montecillo, Estado de México, Mexico (COLPOS hereafter).

The substance of the note concerned Jiménez's frustrations, his "more advanced, mature ideas." "Beyond a shadow of a doubt, the truth is," he wrote, "that I have felt and have had to recognize my ignorance about my own country, of its people and its goals. In this sea of doubt, I must calmly and hopefully, objectively, examine the realities [in Mexico] and study them." The National Agricultural College, he continued, "our school, proceeds and grows, but I do not think it does so at the rhythm and pace that our country's development needs." Jiménez followed with nearly a dozen questions: Should not Mexican agricultural development have a more "domestic" emphasis?; Should not Mexico's agricultural institutions correspond to the country's needs?; Should not we [Mexicans] study before we proclaim to know "the truth?"; Should not our agricultural education be harmonious with the sum of the values of our own people? Jiménez assured Hernández that the caustic questions were not derived in *malinchismo*.[218] He worried about how "Mexico is evolving, and about the basic human factors that distance us from seeing things clearly." Agricultural researchers, *técnicos* (assistants, agents) had a "grand difference" from our farmers, our peasants.

Before finishing his letter Jiménez, mentioned other items. He thanked Hernández for being among those leaders who trained students to work not solely to earn a living, but who "know their importance" and who would "not sacrifice the *ejido*" to make a living as a researcher. Among other items, Jiménez assured his mentor that he was not depressed or sad. He simply shared his ruminations while studying abroad in a country where the word "hunger disappears even in dictionaries," where people (falsely, Jiménez wrote) boasted of living better than any other place in the world. "How could

[218] Ibid. *Malinchismo* is a colloquial and partially derogatory term used in Mexico that connotes betrayal or owning a fetish and unearned respect for cultural mores derived outside the country.

people who have never had stomach pangs understand hunger? How can these people understand that in Latin America there are so many illiterate and under clothed people? And they ask why there are so many revolutions?" The student who later became a respected researcher concluded his letter by asking "why?" to many of his frustrations and promised to write again.[219]

Jiménez embodied the students who flocked to Hernández after he arrived at Mexico's Escuela Nacional de Agricultura (ENA; National Agricultural College) in 1954. He demanded answers to the most fundamental phenomena, as his mentor had trained him to do during his undergraduate years. Simple answers never worked to deal with complex questions. His career needed meaning and he (and Hernández) agreed that their vocation involved nothing short of helping peasants. More importantly, Jiménez doubted the *zeitgeist* in 1950s Mexican agricultural development. He realized the contradictions involved in trying to imitate a model of agronomic education and development with antecedents north of the Rio Grande rather than the highlands, tropics, jungles, and deserts of Mexico. Furthermore, Jiménez arrived at doubts about the efficacy of such precepts at the place where this model was first adopted and embraced, the Escuela Nacional.

Most scholarship concerning the "Green Revolution" includes mention of the Escuela, known simply as Chapingo since the 1920s.[220] Typically, we know the school as the grounds from where the "revolution" found its beginnings. It was to the school's campus, we know, where Rockefeller Foundation (RF) officers and interns from the

[219] Ibid. The *ejido* is communal land.
[220] I use Escuela Nacional and Chapingo interchangeably throughout this chapter to indicate any relations or pertinence to the Nacional College of Agriculture. Additionally, *chapingueros* denotes an ENA student.

United States began a cooperative effort to improve Mexican agriculture in 1943. At the campus' San Martín experiment station occurred some of the earliest experiments with agricultural technology and techniques that received praise for helping avert world hunger during the 1960s. This same technology and the same techniques first developed and implemented at Chapingo also received criticism by scholars. As detailed in Chapter One, leaders of the Mexican Agricultural Program (MAP) also utilized the campus and surrounding lands to display model farms and draw visible attention to modern agricultural technology. These are all details that most scholars of the topic have mentioned.

Unexamined by scholars in the narrative of Chapingo and the "Green Revolution" is the process and significance of how the former was the epicenter of the latter. Put another way, historians have yet to examine the history of how the "Revolution's" first home, its ground zero, was the Escuela Nacional de Agricultura. The college, I describe in this chapter, opened in 1854 with the mandate of training managers for Mexico's feudal rural economy. In 1924, school alumni imbued the school with an *esprit de corps* and a duty to train students how to help emancipate *campesinos* from their lot in life and moved the campus to a new location and a promise towards fulfilling revolutionary ideals. After Mexican leaders invited the Rockefeller Foundation to help improve the agriculture in 1943, Chapingo became the site where RF researchers and interns began the work and technology that we associate with the "Green Revolution." More substantively, this chapter describes how in fewer than twenty years after the arrival of RF resources and know-how, the college transformed from a place known for hollow revolutionary rhetoric, inadequate facilities, and a dearth

of research into an international vanguard. It became the epicenter for modern technology to improve agriculture and the training ground for the experts discussed in Chapter One and researchers who would facilitate *campesino* redemption. By 1960, school administrators, local and foreign politicians, students, and researchers regarded the college as a source of pride and promise.

The story of Chapingo during the 1950s and 1960s, however, is not one solely one of being the "Green Revolution's" first home. Utilizing the Hernández archive, along with sources from the National College of Agriculture archives and other material, this chapter argues that Mexicans began having suspicions related to the changes taking place in their country's agricultural development, which collectively emanated from the Escuela Nacional. As Jiménez's letter shows and the discussion of Hernández in this chapter describes, people in Chapingo began to discern the complexities involved in the attempted transplantation of "La agricultura de Iowa." They also began formulating ideas to negate the characteristics associated with the "Green Revolution." Taking this line of argument further, this chapter suggests that the origins of the death of the "Revolution" took shape at the site of its birth.

FROM "*HIJA BASTARDA*" TO AN INSTITUTION WITH A MOTTO

The history of the Escuela Nacional de Agricultura and that of the modern Mexican state were close since both of their inceptions. After gaining independence from the Spanish Empire (1821), the country's Liberal leaders urged the establishment of an institution of agricultural education to on-again, off-again President Antonio López de Santa Anna in 1843. A decade later, under the purview of the newly

established Ministry of Development, Industry, and Commerce, Joaquín Velázquez de León authored a federal Law of Agricultural Education and purchased land in Mexico City. Within months, on 22 February 1854, a national school of agriculture opened in a former convent, San Jacinto. Two years later, President Ignacio Comonfort decreed the school's training towards two careers: "*administradores instruídos*" ("trained administrators") and "*mayordomos inteligentes*" ("trained overseers"). Both careers trained students how to administer and oversee peon labor on Mexican *haciendas*.[221] The next year, according to a reproduction of an 1857 school brochure, the curriculum of the "sole school [of agriculture] in the entire Republic" expanded. Students entered into eight professional fields after graduation: rural estate manager, field supervisor, veterinarian, topographic engineer, civil engineer, mechanical engineer, agricultural administrator, or professor of agriculture. Students most often chose the first career path.[222]

Over the next five decades, the school's existence remained unstable and its performance was subpar. The French invasion of Mexico in 1861 prompted its closing. Three years later Napoleon, in cahoots with Mexico's Conservatives, installed Maximilian I as the emperor of the country. During the short-lived empire and for the two years afterwards, the Escuela Nacional remained closed. After its re-opening, the school counted only a couple hundred students. In large part, this was because of small appropriations. According to Marte R. Gómez's history of the school, funding remained low through the 1890s. The college in between 1892 and 1893, for example,

[221] Marte R. Gómez, *Episodios de la vida de la Escuela Nacional de Agricultura* (Chapingo: Colegio de Postgraduados, Escuela Nacional de Agricultura, 1976), 26, 31, 40, and 87.
[222] "Por juzgarlo de alto interés reproducimos este folleto editado en el año de 1857," *México Agrícola* (February 1954), 9-10.

retained no well-defined, respected role in the national fold. In terms of funding, a Ministry of Justice bureaucrat who oversaw the school treated it "like a bastard daughter." If statistics indicate the school's lackluster performance during its first five decades of existence, between the year it was founded and 1908, the Escuela counted only 323 graduates – an average of fewer than seven per year.[223] Poor curriculum added to the woes. Part-time professors trained students using foreign textbooks (largely in French) and agronomic science from abroad (primarily France). According to a later ENA graduate and researcher, Gilberto Mendoza, teachers primarily trained students how to administer farm labor and promoted a "rudimentary" pedagogy, "aimed only towards practical training," not original research.[224]

Two decades later, while much of rural Mexico witnessed civil war, Escuela students became intimately involved with the affairs of the national government. As historian Michael Ervin discussed, what became the Mexican Revolution arrived, front and center, to ENA youngsters in 1913. Between February 9 and 19, 1913, Mexico City experienced a small-scale civil war known as the Decena Trágica, which resulted in leaders of the government, particularly the newly-elected president Francisco Madero and some advisors, being assassinated by General Victoriano Huerta. During the Decena Trágica, the president's brother had been housed at San Jacinto. The lodging of these people brought students in contact with the country's political upheaval. Months after the incident, U.S. Marines invaded the state of Veracruz. Several students left school to demonstrate their patriotic fervor against the incursion. Weeks later, in May

[223] Ramón Fernández y Fernández, *Chapingo hace 50 años* (Chapingo, Mexico: Colegio de Postgraduados, Escuela Nacional de Agricultura, 1976), 50.
[224] Gilberto Mendoza Vargas, "La enseñanza y extensión agrícola" *Problemas agrícolas actuales* (Mexico: Ediciones Atenagro, 1955), 106.

of 1914, students at the school were present when members of Victoriano Huerta's military cornered a rebel inside the school's gates and executed him on the Escuela's baseball field. The murder deeply offended several of the youngsters who were present. Gómez later wrote that the incident gave students "nausea against the [Huerta] government" for "mocking" the campus. When the Huerta regime fell in 1914, the school's doors closed, and they remained so until 1919.[225]

During the interim, several of the older students at school joined the revolutionary factions. In 1915, Manuel Palafox, one of Emiliano Zapata's advisers, became the Minister of Agriculture in Mexico City during one of the several seizures of the government during a decade-long civil war (1910-1920). While serving as Minister, he visited the Escuela Nacional for recruits to deliver the agrarian reform component of the *zapatista* Plan de Ayala (1911). Palafox assigned students the job of carrying out the technical components of reform: conducting land surveys, delineating land parcels, configuring land title rights, assessing land appraisals, and other related tasks. Gómez and classmates left for Morelos where they worked with the *zapatistas*.[226]

Other students participated in battle. Jesús "Chucho" Garza, for example, became part of Álvaro Obregón's private circle, particularly for his role in helping the latter after a grenade from Francisco "Pancho" Villa's forces severed Obregón's arm during a battle in Trinidad in 1915.[227] While working with the different revolutionary factions, Gómez wrote years later, ENA students "found the moral direction of our future. [We found] a responsibility and calling that demanded that we fight…towards

[225] Gómez, *Episodios*, 195-196 and 206.
[226] Samuel Brunk, *Emiliano Zapata: Revolution & Betrayal in Mexico* (Albuquerque: University of New Mexico Press, 1995), 152-153.
[227] Michael A. Ervin, "The Art of the Possible: Agronomists, Agrarian Reform, and the Middle Politics of the Mexican Revolution, 1908-1934" (PhD diss., University of Pittsburgh, 2002), 132.

the salvation of peasants." When the students returned to school in 1919, Gómez and company arrived with a sense of purpose. They had become "political agronomists."[228] They fused their rudimentary training in agronomy with the ideals of the Mexican Revolution, particularly what they considered the "salvation" of *campesinos* and modernization of the countryside. Per Gómez, they "found the moral norms that grounded our futures. [We found] a responsibility and dignity that would lead us to struggle, frequently under adverse conditions, towards peasants' rescue."[229]

After the Mexican Revolution, many of the young men landed jobs as influential state functionaries. During the 1920s, several of them became surveyors and administrators in agrarian reform around the country. In 1922, they founded the Department of Regional Agronomists, which, as discussed in Chapter One, made up the feeble beginnings of agricultural extension in the country. By 1924, during President Plutarco Elías Calles's administration (1924-1928), as Ervin described, "young ENA graduates came to dominate not only on-the-ground policy implementation [of agrarian reform], but policy formation and direction" in the government's highest levels.[230] ENA graduates designed the policies intended to dismantle the *hacienda* system in Mexico's countryside. Their influence increased to the point that in 1924 some convinced the country's leaders to support an overhaul of their *alma mater*. Marte Gómez headed the project.

[228] Gómez, *Episodios*, 228, 231.
[229] Ibid., 228.
[230] Ervin, "The Art of the Possible," 148.

As he approached every project, Gómez plunged headlong towards improving his former school.[231] He instituted military discipline. Students awoke to a bugle every morning and they studied until, according to one 1920s student, the last call after ten o'clock at night.[232] Admissions into the college became tougher. To determine which students deserved to keep their government-derived scholarships, administrators and the faculty dangled the funding carrot to impel students to maintain certain marks. Gómez also tried to address what ENA graduate Ramón Fernández y Fernández called the school's "gravest problem": a shortage of full-time teachers. Typically, professors served as laborers in one job in held a main job in Mexico City, and incidentally professors. Research, hence, remained a scarcity among the college's faculty.[233] Another scarcity Gómez dealt with – and an indication of how poorly the school was supported – concerned something as fundamental as books. For years, teachers handwrote their own texts.[234]

These inadequacies and areas for improvement notwithstanding, Gómez spared no money or thought when it came to the new location and symbolism of the school. He saw no logical reason for his country's flagship agricultural college having its campus near downtown Mexico City, where it lacked an adequate number of fields for testing, laboratories, and other necessary requirements. Gómez and others arranged to

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[231] To get a sense of Gómez's many positions in Mexican politics, his many projects, and his self-promoted zeal, see Marte R. Gómez, *Vida política contemporánea: Cartas de Marte R. Gómez*, Vols. I and II (Mexico: Fondo de Cultura Económica, 1978); Gómez, *Escritos agrarios* (Chapingo, Mexico: Colegio de Postgraduados-Escuela Nacional de Agricultura, 1976); and Michael A. Ervin, "Marte R. Gómez of Tamaulipas: Governing Agrarian Revolution," in *State Governors in the Mexican Revolution, 1940-1952: Portraits in Conflict, Courage, and Corruption*, Jürgen Buchenau and William Beezely, eds. (Lanham, MD.: Rowman & Littlefield, 2009): 123-138.
[232] Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas, Volumen I* (Chapingo, Mexico: Colegio de Postgraduados), 36.
[233] Fernández, *Chapingo hace 50 años*, 75.
[234] Colegio de Postgraduados, *Las ciencias agrícolas*, 117.

move the college to Chapingo, a small town nearly twenty-five miles northeast of the Federal District, in the State of Mexico. The history of the school's new home exemplified what Gómez sought in a college that he wanted to infuse with fervor and the ideology of the Mexican Revolution. It was (is) located outside of Texcoco, site of a pre-Colombian Nahua city-state, home to the famous fifteenth century ruler and poet-philosopher Nezahualcóyotl. Centuries later, after belonging to a Jesuit mission and passing through other owners' hands, the land became an *hacienda* belonging to President Manuel González. He was a member of the Porfirian elite, who entertained Mexico's late-twentieth century aristocracy on the grounds. In 1900, he sold the property to Enrique Creel, another member of the country's privileged bunch, whose abuse, along with others, inspired "Pancho" Villa's rebellion in northern Mexico.[235] Two decades later the school became owned by Mexico's new government, one with leaders who espoused social justice for peasants', and death to *latifundismo* and *haciendas*.

On 1 May 1924, with President Álvaro Obregón, Ramón De Negri, the Minister of Agriculture, and several members of the national government's diplomatic corps in the audience, Marte Gómez inaugurated the new Escuela Nacional de Agricultura. It thereafter became known as Chapingo. "In this school," Gómez said at the opening of his homily, "there will be no professors, as so many exist today, who teach their classes simply to earn an extra income aside from their daily job." Instructors would live on campus. Admission would be rigorous and maintaining a scholarship would be difficult. Teachers would train those rural students to take what they learn to their

[235] Fernández, *Chapingo hace 50 años*, 24. The Creels' power in northern Mexico was exhaustively detailed by Friedrich Katz; see Katz, *The Life and Times of Pancho Villa* (Stanford: Stanford University Press, 1998).

hometowns. The pedagogy would be theoretical and practical, students would know "how to grow wheat on the blackboard," but they would not be "ignorant practitioners" who lacked routine farming skills.[236] Students would grow food in the school's fields so that the campus could possibly become economically self-sustaining. Outside of the campus would be an *ejido* cooperative that reminded students for whom they studied. Local farmers could, thus, visit students or faculty members with questions. Castigating the *latifundio* system and reaffirming the college's utopic enterprise, Gómez ended the inauguration,

> Near this spot is a commemorative plaque marking the place where Hernán Cortés after disembarking his ships…started across [Lake] Tezcoco's waters to overthrow the last of the Aztecs. Today, we throw our ships. We are preparing to fight, not for the conquest of a throne or of a people, but for an ideal. We secure our paddle and line our bow with an eye on the past, certain that our banner will float in this coveted citadel. In exchange for prisoners [i.e., peasants], we do not offer vessels laden with the spoils of victory. We offer men [i.e., students] of healthy body and spirit, whose motto in life's struggle, as it is for us and as you saw engraved [at the school's entrance]: "Teach exploitation of the soil, not man."[237]

Thus, Chapingo opened in 1924 with the grandiose mission of "rescuing" peasants and with the support the country's new government.

Gómez blanketed the school in revolutionary imagery and spirit. De Negri encouraged the formation of Mexico's first *ejido* cooperative made up of 250 local *campesino* families. Students thus attended school with a tangible reminder of who

[236] Ibid., 84.
[237] Ibid., 85. Hernán Cortés was the Spanish *conquistador* who helped secure Mexico for the Spanish crown in 1519. A note on the spelling of Texcoco: Some sources spell the name "Tezcoco," as did Gómez in his speech; other sources speech the city's name as "Texcoco." Both forms of spelling refer to the same city in the State of Mexico, just outside of Chapingo. The school's *lema* (motto) remains displayed throughout the campus.

they worked to help.[238] Felipe Carrillo, the Revolution-era hero and socialist governor of Yucatán, had a monument located on campus. School administrators hosted some of the country's highest *intelligentsia*. Jesús Silva, the preeminent national economist, lectured on campus during the latter half of the 1920s and years later. Daniel Cosío Villegas, arguably the country's most famous modern historian, also delivered talks during the same period. A Chapingo student in the 1920s, Ramón Fernández y Fernández said that the most high profile intellectuals helped students "feel the cultural burst" of the period inaugurated by José Vasconcelos, Mexico's most influential educator.[239] The latter invited Diego Rivera to spend several months of 1924 and 1925 in Chapingo. Over the two years, Rivera painted some of his best murals in the campus' former *hacienda*-chapel-turned-Revolutionary-template. In the same space where Mexico's aristocracy had previously entertained Porfirian elites, Rivera covered walls with depictions of Mexico's indigenous past, and images that bespoke revolutionary rhetoric. The Capilla Riveriana symbolized, according to art historian Jennifer Younger, a "visual text" that participated in "contemporary political discussions regarding the face of the new Mexican nation."[240] For his part, Gómez transformed Chapingo into an ideologically-charged space intended to serve as the nest egg for the agronomic foot soldiers assigned with delivering the Mexican Revolution to the countryside.

The new college received material support, too. In the decade after the move, the Escuela's, federal appropriations, with the exception of one year (1927), continually

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[238] José M. de la Puente E., "La visita del Primer Magistrado de la Nación," *Chapingo*, no. 6 (November 1945), 4-5, 16.
[239] Ibid., 103; Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas*, 39.
[240] Jennifer Krzyminski Younger, "Utopía Mexicana: Diego Rivera's Program for Chapingo Chapel" (PhD diss., University of Maryland, 1999), 6-7.

increased. Funding between 1924 and 1934 nearly doubled annually. During the same decade, the drop-out rate decreased from 84 percent in 1924 to 29 percent.[241] Also after the move to Chapingo, the school's fields of study expanded from solely training administrators, referred under the catch-all title of *ingeniero agrónomo*, to other specialized fields such as irrigation, parasitology, plant-breeding, agricultural economy, livestock, and industrial agriculture. Additionally, Mexico's only school of forestry, founded by the country's most famous conservationist, Miguel Ángel de Quevedo, moved to Chapingo in 1933.[242]

Within three years, students also began to demand the proper equipment and training for their missions as revolutionary agronomists. By 1936, Chapingo's directorship position became a revolving door, a moonlighting position that men gained via social or political connections rather than merits; and after a period in which the school's facilities deteriorated, students staged a strike. In 1937, students shut down the school for nearly four days. They demanded changes from Mexico's former revolutionary hero and then-Minister of Agriculture, Saturnino Cedillo. Among their demands to then-president Lázaro Cárdenas were a "purification of the faculty" of unqualified, part-time teachers, new laboratory equipment, more books, tougher admission standards, and expulsion of undedicated students. After Cárdenas refused to

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[241] Fernández, *Chapingo hace 50 años*, 119-121.

[242] Forest history remains an understudied topic in Mexican environmental history. The best coverage has been by Andrew S. Mathews, *Instituting Nature: Authority, Expertise, and Power in Mexican Forests* (Cambridge, MA.: The MIT Press, 2011), and by Christopher R. Boyer and Emily Wakild, "Social Landscaping in the Forests of Mexico: An Environmental Interpretation of Cardenismo, 1934-1940," *Hispanic-American Review* 92, no. 1 (February 2012): 73-106. Although immensely important in modern Mexican environmental history, Miguel Ángel de Quevedo, known as the "Apostle of the Tree," remains understudied. The longest treatment about him is in Chapter Four of Lane Simonian's *Defending the Land of the Jaguar: A History of Conservation in Mexico* (Austin: University of Texas Press, 1995). Also see Emily Wakild, *Revolutionary Parks: Conservation, Social Justice, and Mexico's National Parks* (Tucson, AZ.: University of Arizona Press, 2011).

cave in against Cedillo's request to send in the army to quell the rambunctious students, the latter resigned (and later died amid a rebellion he led from San Luis Potosí against what he thought radical policies put forth under the Cárdenas's administration).

Officials eventually heard students' grievances. In 1938, to prevent and resolve future problems at Chapingo, students and faculty members formed the Faculty and Student Directive Council. According to a publication in the Mexican federal government's daily newsletter, the council's formation redefined Chapingo's dedication towards its mission: "The National School of Agriculture will be an institution with a firm consciousness. Those workers who learn there are prepared to participate in the social struggle with certainty and decisiveness." Graduates shall "respond to the needs of the national economy with a profound familiarity with the country's problems, contributing to the liberation of the rural masses."[243] Three years after the strike, an overhaul of the college's classes, faculty, and administration followed. *Chapingueros*, to be sure, took seriously their mission in 1937.

When the Mexican Agricultural Program (MAP), the partnership between Mexico and the Rockefeller Foundation, and the institutional forerunner of the "Green Revolution," formally began in 1943, Chapingo was a college that had changed dramatically over its recent past. It had a faculty and a student body vocally dedicated towards improving its science, pedagogy, and commitment towards Mexican peasants. Its students displayed a propensity to agitate when they thought the school deviated from its mission. This revolutionary-grounded sense of fraternity in the student body, moreover, had a history of getting the attention of the highest rungs of power in the

[243] Fernández, *Chapingo hace 50 años*, 140-141. Quote in Ibid., 143.

country. Students, it seemed, refused to easily forsake the school's motto. They demanded the skills and tools to fulfill their vocational *raison d'être*.

FROM INADEQUATE TO INTERNATIONAL SHOWCASE

Over the course of the 1940s and 1950s Chapingo became a showcase for agricultural modernization in the "developing" world, a success story in international philanthropy, and within Mexico, the wellspring from which the technicians for peasant liberation received their training. The partnership between the Rockefeller Foundation and the Mexican government provided, millions of dollars in financial support and modern training in the agricultural sciences. Students, newspapers, agricultural magazines, politicians, and foreign dignitaries subscribed to an idea that by 1960 Chapingo represented an international vanguard where radical ideas of peasant deliverance became fused and substantiated with modern science. Words like "progress" and "innovation" loomed large on campus.

Before this transformation, Chapingo, despite efforts and investments over the previous two decades, still resembled its ineffectual past rather than a college equipped to handle its mission. In 1941, San Martín, measuring a total of five hectares, encompassed the total of the college's testing facilities. The school owned a single tractor and funding for San Martín was, per one 1940s student, "summarily erratic."[244] According to a newspaper article in February of 1937, admissions into the school were being based on nepotism and a "carnival disguise of entrance examinations."[245] The team of three researchers sponsored by the Rockefeller Foundation to assess the

[244] Colegio de Postgraduados, *Las ciencias agrícolas*, 382.
[245] Cited in Eyler N. Simpson, *The Ejido: Mexico's Way Out* (Chapel Hill, NC.: The University of North Carolina Press, 1937), 290.

prospects of a partnership between the Foundation and the Mexican government in 1941 confirmed the poor state of affairs at the college. The school lacked provisions for graduate work, with "relatively little experimental work" on campus. Survey team members admitted that some of the "most capable young men seen in agricultural work" attended Chapingo, but training there remained "neither deep enough nor broad enough." The quality of teaching on campus left much to be desired. Administration and faculty members changed so often that "the character of the school also changes frequently." Another critique concerned the general opinion that the school's graduates found their way into "political or semi-political jobs," rather than research. It was, they added, "little short of tragic" that the college's farm "on which plants can be grown throughout the year and animals are easily kept, is not used for experimental and demonstrational work." Coupled with these assessments, the surveyors said that faculty and administrators considered students "trouble makers" because "they ask for the privilege of making experiments." The surveyors recommended an effort to insert science, a "spirit of inquiry," on campus to repair the shortcomings.[246]

Later the face of the Green Revolution and always known as a straight shooter, Norman Borlaug also described Chapingo's woeful facilities after he arrived to Mexico in 1944. Preparing to join the Office of Special Studies (OSS), over the phone he told his phone, "It looks like it's going to be an uphill struggle to get this project off the ground. There are no modern experimental field stations and there are only a few

[246] Elvin Stakman, Paul Mangelsdorf, and Richard Bradfield, "Agricultural Conditions and Problems in Mexico: Report of the Survey Commission of the Rockefeller Foundation," August/September 1941, p. 55, Archivo del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Biblioteca Nacional Forestal "Ing. Roberto Villaseñor Ángeles," Mexico City; Anneliese Markus de Kennedy, "The Office of Special Studies: A Study of the Joint Mexican Secretariat of Agriculture – Rockefeller Foundation Program in Agriculture, 1943-1963" (Ph.D. diss., University of North Carolina, 1973), 60-62.

trained Mexican agronomists." Chapingo's lands for field work remained "mostly unused and choked with weeds." Locating basic modern equipment to conduct large tests, such as a functioning tractor, amounted to a fruitless undertaking. Gasoline and spare tires were "impossible to obtain." Sharing more about the site with his wife, he added "The only building is an adobe shed with a tar-paper roof" that had been constructed recently. OSS staffers nicknamed this shack-turned-experimentation-lab the "Tarpaper Shack" because of its makeshift flimsy rook and the absence of flooring and a foundation. About the OSS enterprise and its base for field testing, Borlaug summarized to his wife: "All in all, it's not a very encouraging situation."[247]

Students confirmed such harsh assessments. An editorial in the school's student newspaper from April of 1946 said "The situation in 1940 was miserable." Budgets barely accommodated pay for professors and other personnel. Students lived in "inadequate, abysmal" dorms. Study rooms resembled "pigsties, almost entirely full of dirt, humidity numbed our muscles, and the sun never reached our books." Meals at the mess hall were "scarce and nasty."[248] In the early 1940s, according to another student, the school library amounted to "a warehouse of books that completely lacked any order," with a librarian who spent most of his time playing basketball rather than tending to his duties.[249] Finding a specialized book on a given task proved difficult for many years.

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[247] Leon Hesser, *The Man Who Fed the World: Nobel Peace Prize Laureate Norman Borlaug and His Battle to End World Hunger* (Dallas: Durban House Publishing, 2006) 36-37; Noel Vietmeyer, *Borlaug, Volume 2, Wheat Whisperer, 1944-1959* (Lorton, VA.: Bracing Books, 2009), 27. Borlaug was known for being blunt and for being an extremely hard worker. His work ethic, according to MAP interns that I interviewed, was unquestioned. See Ibid.; Vietmeyer, *Borlaug, Volume 2*; and Vietmeyer, *Norman Borlaug, Volume 3, Bread Winner, 1960-1969* (Lorton, VA.: Bracing Books, 2010).
[248] "Editorial," *Chapingo*, no. 7[8] (April 1946), 2.
[249] Ton-Tín, "Crítica constructiva," *Chapinguito* (July 1951), 3-4.

The teaching situation on campus was also unsatisfactory. The college functioned more like a community college, with adjuncts and transitory teachers, rather than a full-time faculty. In an oral history conducted years later, student José Luis de la Loma y de Oteyza said that teachers in the 1940s were labeled "nomadic" because of their part-time work at the school.[250] In a 1945 interview with the student newspaper, when asked about the quality of teaching in 1940, the director of the school expressed concern and added that he considered the practical side of education – that was, outside of books and theories in the classrooms - "very deficient."[251]

The inadequacies in research and facilities improved quickly after 1943, with an infusion of money from Mexico's federal government. Experiments with plant breeding, one student proudly mentioned in the student newspaper, began in 1943. Students began developing studies with local maize to design seeds resistant to disease and adaptable to the different ecological conditions near Chapingo.[252] During the same period, government funds paid for new dormitories, which were "beauties, solid and sizeable," according to one editorial in the school's newspaper in 1946. Testing facilities, the same editorial boasted, transformed into "complete laboratories, modernized, and equipped" better than any agricultural school in Latin America.[253] If federal funding for the school indicated a commitment towards improving the school, then the President Manuel Ávila Camacho put his money where his mouth was: funding for the school was $2 million dollars in 1941, the next year the allocation increased to

[250] Colegio de Postgraduados, *Las ciencias agrícolas*, 146, 181.
[251] José María de la Puente E., "Entrevista con el Nuevo Director de la 'E.N.A.,'" *Chapingo*, no. 3 (July 1945), 12, 20.
[252] O. Malenich, "Hace falta experimentación," *Chapingo*, no. 9 (May 1946), 6 and10.
[253] "Editorial," *Chapingo*, no. 7[8] (April 1946), 2.

$2.7 million, and in 1943, the school received $3 million.[254] By 1949, the campus owned facilities for teaching in modern areas of study: microbiology, mineralogy, and chemistry. The school also invested in purchasing several tractors and in construction of laboratories with some of the microscopes in the country.[255] Students, indeed, enjoyed the windfalls of the "Mexican Miracle," when the country's sustained economic growth between 1940 and 1970, the average annual rate of economic growth stood around 6.5 percent.[256]

The Rockefeller Foundation shared its largesse and resources with its Mexican partners at Chapingo. Before the Office of Special Studies, the jointly-shared office that became the home of the "Green Revolution" after 1943, found space in the Ministry of Agriculture in Mexico City, Chapingo was the office's home. In 1946, according to a Rockefeller Foundation Annual Report, officials helped purchase state-of-the-art greenhouse facilities for $25,000.[257] A year later, the Foundation paid to expand the school's experimental fields; the fields increased in size from five hectares in the early years of the decade to nearly 100 hectares within a couple years. These same fields produced improved maize seeds, which, per an RF annual report, served as the genetic base for seeds that went out to the rest of the country's regions for cultivation. Studies on campus also included work on soil fertility, irrigation, insect control, and plant disease. Chapingo also became the new home to a "commodious

[254] Gómez, *Episodios*, 88.
[255] Valderrama, "Casos y casos," *Chapinguito* (April 1948), 17 (based on my research, *Chapingo* changed *Chapinguito* in the summer of 1946); José M. de la Puente E., "25 años de vida en Chapingo," *Tierra* IV, no. 3 (March 1949), 160-164.
[256] Judith Adler Hellman, *Mexico in Crisis* (New York: Holmes & Meier Publishers, 1983), 59.
[257] The Rockefeller Foundation, *Annual Report 1946* (New York: The Rockefeller Foundation Archives, 1946), 162, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1946.pdf.

building of brick and concrete" to house MAP staffers and researchers.[258] By 1949, this experiment station represented the center of "pioneering research" of the Mexican Agricultural Program's research program, with "its well-equipped laboratories and acres of experimental plantings." In the same year, RF officials donated $14,500 towards opening a plant pathology department and another department dedicated towards entomology. The RF endowment also helped to purchase more land for field tests; the college soon owned more than 120 hectares.[259] One year later, RF officials donated $12,000 to expand the school's library and pay for visiting professors.[260]

Professors were not the only people who came and went from the campus during the 1940s. In the Mexican Agricultural Program's first year in 1943, OSS chiefs began hiring *chapingueros* as interns. Not long after being hired as an intern, ENA graduate José Rodríguez was the first of what quickly became a stream of students who attended U.S. universities to study agronomy and returned to join Chapingo's faculty, take jobs in Mexico's new research stations, or work as extension agents. Between 1941 and 1943, the number of young men sent to study at land-grant colleges in the United States was nineteen.[261] Several others followed. Throughout MAP's lifetime (1943-1959), according to sociologist Gustavo Esteva, approximately 750 Mexicans participated in field work and laboratory training primarily under the tutelage of the Rockefeller Foundation's representatives in Mexico, and the Escuela Nacional was where at least

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[258] ----, *Annual Report 1947* (New York: The Rockefeller Foundation Archives, 1947), 164, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1947.pdf.
[259] ----, *Annual Report 1949* (New York: The Rockefeller Foundation Archives, 1949), 27, 219-220, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1949.pdf.
[260] ----, *Annual Report 1950* (New York: The Rockefeller Foundation Archives, 1950), 343, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1950.pdf.
[261] Joseph Cotter, *Troubled Harvest: Agronomy and Revolution in Mexico, 1880-2002* (Westport, CT.: Praeger, 2003), 149; Olea-Franco, "One Century of Higher Agricultural Education and Research in Mexico," 344.

eighty percent of them began their training.[262] They also began work as apprentices outside of Mexico's new research apparatus. According to a letter from Richard Bradfield in 1946, interns supplied Mexico with "a nucleus of agricultural leaders with a good grasp of practical agricultural problems of the type they would find very difficult to get in any other way."[263]

Students from other Latin American countries began study at Chapingo. By 1945, students from Colombia enrolled at the college. Two years later RF officials noted that the Mexican Agricultural Program "attracted a growing number of agriculturalists" from countries outside of Colombia, some from Central America. Many if not all of them passed through Chapingo's halls. By the end of the 1940s, at least twenty-four students from outside of Mexico received their training at the college.[264]

Growth and progress saturated the college's *ámbito* in other ways. On a daily basis, students could walk by the tests conducted at the "El Horno" experimental field that the Office of Special Studies utilized. In October of 1946, for instance, people on campus would have seen tractors spraying, for the first time, high-tech "D-D" fumigants at Chapingo.[265] One year later, the Office of Special Studies began what became known

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[262] Gustavo Esteva et al., *The Struggle for Rural Mexico* (South Hadley, MA.: Bergin & Garvey Publishers, Inc., 1983), 65; Olea-Franco, "One Century of Higher Agricultural Education and Research in Mexico," 558. I must note that some people regard the Mexican Agricultural Project lasted until 1966-1967.

[263] Richard Bradfield, Letter from Richard Bradfield to W. I. Myers at Cornell University, May 25, 1946, Record Group (hereafter RG) 1.1, series 323, box 2, folder 11, Rockefeller Foundation Archives, Tarrytown, NY. (RFA hereafter).

[264] The Rockefeller Foundation, *Annual Report 1947* (New York: The Rockefeller Foundation, 1947), 163. Anneliese Markus de Kennedy, "The Office of Special Studies: A Study of the Joint Mexican Secretariat of Agriculture-Rockefeller Foundation Program in Agriculture" (PhD diss., University of North Carolina, 1973), 119.

[265] "On Land of the National School of Agriculture Tests are Made of the New Fumigant 'D-D'," *Excélsior,* RG 1.1, series 323, box 2, folder 12, RFA. Fumigants, pesticides, and other synthetic agricultural products and their effects have been exhaustively studied. In Mexico, see Angus Wright, *The*

as annual Demonstration Days at Chapingo (see Figure 3.3) and afterwards at other OSS experiment stations around Mexico. Akin to the methods of extension in Chapter One, interns and extension agents invited local farmers to tour the school's fields to see yields from hybrid maize, improved wheat strains, and the many projects taking place on and near the campus.[266] Only a handful of years after Chapingo had been a poor excuse for a modern college, the public visited campus for advice and demonstrations of tractors spraying agricultural fumigants took place on campus.

The changes on campus enthused students, and they vocalized their zeal and sense of camaraderie about their role in helping Mexican agriculture. *Así*, a weekly publication, ran a piece during the spring of 1946 implying that a problem plaguing the improvement of agriculture centered on a lack of capable agronomists. ENA student R. Merino took the *Así* article to mean that the Escuela Nacional failed to impart the needed skills to deliver "scientific advances" to peasants. Consequently, he thought the article insinuated that *chapingueros* were incapable of fulfilling their mission. Such an implication was a crime to Merino. "The people equipped best to resolve a problem with critical judgment and sapience are, without a doubt, the best trained. They know best." "Solving rural problems," he continued, "requires huge investments put forth with sound judgment that is best conducted via technical direction…Give agronomists a chance and we shall see if their work is worthy." He challenged critics to see if he and his classmates could not fulfill their mission of "taking progress to the countryside." Furthermore, he trusted that the government would continue to give Chapingo graduates

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Death of Ramón González: The Modern Agricultural Dilemma (Austin: University of Texas Press, 1990). For a Latin America study, see Douglass L. Murray, *Cultivating Crisis: The Human Cost of Pesticides in Latin America* (Austin: University of Texas Press, 1994).

[266] Deborah Fitzgerald discusses these early extension efforts in "Exporting American Agriculture: The Rockefeller Foundation in Mexico, 1943-53," *Social Studies of Science* 16, no. 3 (1986), 471-475.

the opportunity to "disseminate and demonstrate to the unbelievers" that the future lay in "scientific agriculture, with its advances in genetics, ecology, crop rotation, etc., [and] not an intensification of quackery devoid of [empirical] foundations based on theory supported by experiment."[267] Students' tasks and future, Merino thought, were moving science from an abstract world in classrooms and laboratories to reality.

The next month Guadalupe Escamilla echoed students' faith in science and their role in facilitating *campesino* redemption. "We are living in an era in which the world is changing," he began, "science has changed everything. The human mind has conceived ideas that astonish and take humanity down an uncertain path because we don't know if we should believe it [scientific advances] or not." Agriculture and industry, Escamilla continued, evolved together. Always present in this evolution were technicians/engineers, who have been a major importance of those who have contributed to the world's evolution. "The minds of these men work tirelessly. The ability to think and the clarity with which they see science help to derive new formulas, new secrets to better humanity. It is grandiose." Bringing his piece back to his classmates, he continued:

> The students that today pass through Chapingo's halls and those that educate themselves and model their behaviors in the correct manner and strengthen their spirits under the tutelage of researchers and scientists, have been called to resolve Mexico's agriculture problem. We believe that we deserve to deliver this duty because we have studied towards this end, not politicians who pry into our business…Our agriculture will never advance in the hands of these people [politicians].

Why, he asked, do not politicians put agriculture into the hands of *técnicos* (students/interns)? Only this group could "take advantage of genetics, the knowledge about chemical changes in soil, physiology, and biometry – all of which have yielded

[267] R. Merino Sanders, "Un comentario," *Chapingo*, no. 8 (April 1946), 5 and 10.

magnificent results." The Ministry of Agriculture, Escamilla finished, had installed experiment stations around the country, which was wonderful. The government's role now lay in taking "advantage of the knowledge gained" at these stations by those "found at the forefront of these projects," the *ingenieros agrónomos*. "When this happens, the contingent of those at Chapingo will be ready to serve Mexico and put it in the civilized world."[268]

Chapingueros in the 1940s, as Merino and Escamilla's words indicated, adopted an *esprit de corps*, a faith in several ideas in relations to the happenings at the campus. They took offense to the insinuation that they left school unprepared to honor their social compact with the Mexican Revolution. As Merino's editorial in the student newspaper demonstrated, ENA students adopted an us-against-the-world attitude towards those Mexicans championed the work of *técnicos*. Those "unbelievers" and their "quackery," he implied, would be proven wrong by ENA students and their diffusion of science. Escamilla shared such thoughts. If politicians were to get out of students' way, he implied, then agronomists, those trained at Mexico's pioneer college, would help transcend Mexico into the world of civilized nations. Such displays of fraternity towards helping peasants and militant faith in modern science were common in the remaining student newsletters of the late 1940s and the early years of the 1950s.

Four months after Escamilla's 1946 editorial, Henry Wallace lent credence to Chapingo's status. Years before being one of Franklin Roosevelt's three vice presidents, and years before a sad exit from national politics, Wallace had been a farmer from Iowa. His family had made their fortune with the Hi-Bred Corn Company, one of

[268] Guadalupe Escamilla S., "Técnicos para la agricultura," *Chapingo*, no. 9 (May 1946), 5.

the first hybrid seed corporations in the world.[269] And having been one of the godfathers of the Mexican Agricultural Program, with his encouragement to the Rockefeller Foundation to become involved with helping Mexican agriculture in 1940, Wallace took an interest in visiting the Escuela Nacional to see the advances there since the arrival of RF-sponsored researchers and RF philanthropy. In the eyes of ENA students, faculty members, and Mexican leaders, praise from one of the world's most influential farmers served as legitimacy for the changes taking place in Chapingo. Escorted by Marte Gómez, other dignitaries, and former president Lázaro Cárdenas, Wallace arrived to Chapingo in the morning on 7 September 1946. Local and international press members accompanied the group.

Wallace spent much of the day at the school. On his way to the campus, he stopped to visit the *ejido* cooperative outside the school's campus, which, according to a student reporter, the guests "admired" ENA students' discipline. By 10 a.m., after greetings from students in their military-style uniforms, Gómez led tours of Diego Rivera's famous frescoes that paid reverence to Chapingo's mission. The contingent proceeded to visit a museum being built dedicated towards hydrology. They visited the school's soon-to-be finished, new library. They passed through other recently-completed projects: animal stables, swine pens, poultry houses, and a chemistry lab. The highlight of the visit, however, took place at Chapingo's experimental fields. As they toured, according to a student reporter, Wallace said he "felt thoroughly satisfied with the success that the Rockefeller Foundation, in partnership with the Mexican

[269] For more on Wallace's contributions to modern agricultural science and his fall from politics, see John C. Culver and John Hyde, *American Dreamer: The Life and Times of Henry Wallace* (New York: W.W. Norton, 2000).

government," had made, the advances were "obviously visible," at Chapingo where work with maize, beans, sorghum, and other crops represented "magnificent results."[270]

Before sitting for a meal of *barbacoa*, Wallace gave strong endorsements about Chapingo, the Mexican Agricultural Program, and Mexico's agricultural progress. According to a local newspaper, the work being conducted was of "grand importance towards Mexican agricultural self-sufficiency." Moreover, the day dawned when Mexico could produce its own agricultural foods, no longer having to import products. About ENA students, he was effusive. Their duty was "to elevate the minds of peasants and this would surely be accomplished if they were determined." In agriculture, he added, Mexico had "grand possibilities, incredible possibilities."[271] If Wallace's praise in the local press came out of courtesy rather than sincerity, then one should know what he remarked a week after the trip south of the border. In a letter to Albert Mann, Deputy Director for Agriculture for the Natural Sciences Division with the Rockefeller Foundation in New York, Wallace said "My impression of the work is of the best."[272] During the same year, Mexico's *Diario Oficial*, the federal government's daily newsletter, announced that the Escuela Nacional received support to open a graduate school.[273] By all accounts in 1946, the school had transcended its past.

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[270] Jatz y Za Za, "Distinguidos visitantes en Chapingo," *Chapinguito* 1, no. 2 (September 1946), 8 and 23.
[271] "La Industrialización No Vale, Sin Mayor Producción Agrícola," September 1946, RG 1.1, series 323, box 2, folder 12, RFA. Other Mexican press coverage existed singing the praise of Chapingo's role in the program; see Sater, "Una Visita a Chapingo," *El Rancho Mexicano*, November 1946, RG 1.1, Series 323, Box 2, Folder 13, RFA.
[272] Henry Wallace, Letter from Henry A. Wallace to Dr. A. R. Mann, September 11, 1946, RG 1.1, series 323, box 2, folder 12, RFA.
[273] The school did not open until more than a decade later. See Hernández, "Origen de la Rama de Botánica del Colegio de Postgraduados, Chapingo, México," undated, folder 1988, Archivo EHX, COLPOS.

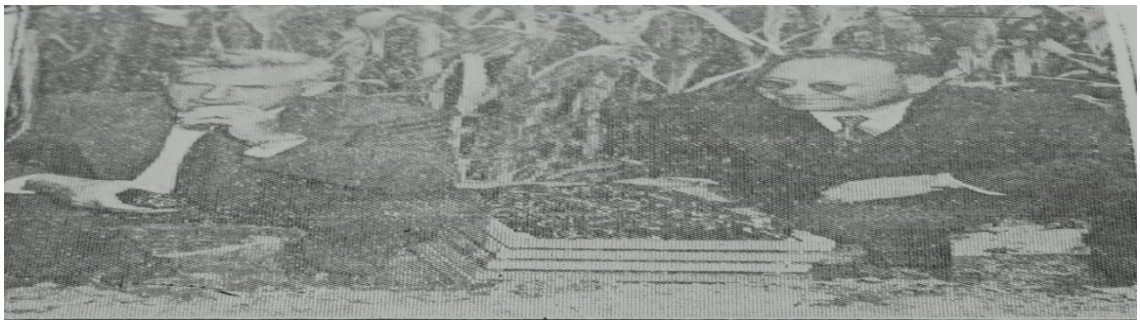

Image 3.1 Henry Wallace at Chapingo with Mexican Secretary of Agriculture, Marte R. Gómez. Wallace bites into a *chile* grown on ENA experimental fields (from Rockefeller Foundation Archives, September 10, 1946).

The accolades related to Chapingo continued after the Wallace visit. In 1948, ENA alumni designed and led a new college of agriculture at the Monterrey Institute of Technology and Teaching.[274] In 1949, celebrations took place for the twenty-fifth anniversary of the inauguration of Chapingo as the home of the Escuela Nacional de Agricultura. In attendance to the four-day commemoration was President Miguel Alemán. Other attendees included the Minister of Education, the chief of the National Agrarian Commission, scores of other functionaries, and former students. Nazario Ortiz, the Minister of Agriculture, used his speech at the ceremony to catalog Chapingo's achievements. He boasted about the school's enrollment, which stood at four hundred students and counted students from all over Latin America. These young men, he said, "come to drink" from Chapingo's "fountain of teaching." Ortiz proceeded to itemize the projects, state agencies, and institutions where *chapingueros* had contributed or led over the years: the National Irrigation Committee; combatting garbanzo bean infestations in the 1920s; helping with an outbreak in the banana industry in Tabasco in the 1920s; founding of the National Agrarian Commission;

[274] Hernández, "La biología agrícola en México," *Revista de la Sociedad Mexicano de Historia Natural* 22 (1961), 163.

helping Mexico's "titanic" forest management projects; staffing the Nacional Maize Commission; helping fight aftosa fever and locust outbreaks during the 1940s; and a variety of other institutions and activities. In each of these arenas, Ortiz said, *agrónomos* worked with little recognition. They toiled towards "the possible, in the duty of honoring our *patria*." Distinguished guests spent the remainder of the day visiting the school's other displays that testified to the college's progress, such as demonstrations of livestock artificial insemination and tractor demonstrations. Never one to turn away an opportunity to praise himself, President Alemán highlighted projects that had begun at Chapingo under his administration: a new, fully-equipped two-story chemistry lab; a new medical building to "dutifully" attend to the *agrónomos* to-be; a physics laboratory with the strongest electron microscope in all of Mexico; a new facility for studying irrigation; and a new cafeteria. Alemán also broke ground for a new biology lab.[275]

President Alemán (1946-1952) seemed to have inaugurated what became a tradition at Chapingo – that of Mexican presidents visiting the campus. They came throughout the 1940s through the late 1960s to open classes every February, celebrate school anniversaries, dedicate new facilities, accompany visiting dignitaries, and visit students. Presidents of four administrations visited the school at least once a year between the mid-1940s and through the end of the 1960s.[276] Alemán visited campus

[275] José M. de la Puente, "25 años de vida en Chapingo," *Tierra* IV, no. 3 (March 1949), 160-164. I am attributing these words to Ortiz because the source had quotes from what appears to have been a speech by Ortiz. The Minister of Agriculture was also the master of ceremony at the celebration.
[276] Examples of presidents' (names in brackets) presence on campus: "Inauguración de cursos en la Escuela Nacional de Agricultura," *Tierra* VI, no. 3 (March 1951), 160 [Miguel Alemán Valdéz]; "Inauguración de cursos en Chapingo," *Tierra* VII, no. 3 (March 1952), 178 [Adolfo Ruiz Cortines]; "Inauguración oficial de los cursos en la Escuela Nacional de Agricultura, Chapingo, Mex.," *Tierra* XII, no. 4 (April 1957) [Adolfo Ruiz Cortines], 316; "El señor Presidente de la República inauguró los cursos de la Escuela Nacional de Agricultura," *El Campo* XXIV, no. 804 (February 1959), 104 [Adolfo López

again in 1950. Nazario Ortiz, the Minister of Agriculture, one state governor, the Director of the National Agronomic Society, Mexico's representative to the United Nations, the mayor of the Federal District, the leader of the National Peasant Confederation, and Mexico's ambassador to Honduras accompanied the president. All arrived for the spectacle that Chapingo represented. Over the previous year, Mexico had an agricultural surplus worth about one billion dollars, thanks in large part to investments by the Alemán administration (these were years in which the government invested heavily in large dam and irrigation projects). Underscoring Mexico's need for the college's students, Ortiz said that *agrónomos* helped with the "nondeferrable" problem of soil erosion in different parts of the country and with other issues. The country approached self-sufficiency in wheat, in part because of advances at Chapingo, "a dignified institution." After Ortiz's speech, some of the important visitors enjoyed a meal. Being a socialite, President Alemán ate his meal with students.[277]

Months after Ortiz's words *El Nacional*, a national media outlet, confirmed the success led by the staff members of the Office of Special Studies (OSS) on campus. They had developed wheat that improved yields in the mountainous region surrounding Chapingo, and genetically-improved seeds for other regions were forthcoming. In relations to maize research, twenty-four of the highest yielding maize seeds in the country were generated by OSS researchers and their workers and assistants at the

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Mateos]; "En Chapingo de abrieron los cursos de la Escuela Nacional de Agricultura," *Tierra* XVII, no. 3 (March 1962), 186 [López Mateos]; "Se conmemoró el 111 aniversario de la Escuela Nacional de Agricultura," *El Campo* XXX, no. 876 (February 1965), 36 [Gustavo Díaz Ordaz].

[277] "Inauguración de cursos en la Escuela de Chapingo," *Tierra* II, nol. 10 (February-March 1950), 115-116. For more on Alemán's showman personality, see Chapters Four and Five in Stephen R. Niblo, *Mexico in the 1940s: Modernity, Politics, and Corruption* (Wilmington, DE.: Scholarly Resources, Inc., 1999).

National College of Agriculture. Additionally, some legumes and sorghum varieties neared distribution.[278]

The praise for the happenings at Chapingo continued in 1951 and 1952. Over the course of the former year, the federal government had appropriated seven million pesos to improve the school's facilities. Ortiz thanked the teachers, many of whom had likely recently returned from graduate study at US land-grant colleges. These teachers, Ortiz said, collectively facilitated development and improvement in national agriculture. He thanked students, too, reminding them of their mission: "meeting the goals of progress and wellbeing that they, as did the government, should desperately desire."[279] Students reciprocated this praise. In a 1951 editorial in *Chapinguito*, the campus student newsletter, one young man with the penname Ton-Tín said students now owned a library "worthy of our school."[280] The next year E.J. Wellhausen, the leader of the maize breeding program of the Mexican Agricultural Program, complimented the College. During an interview discussing the State of Mexico extension program begun by Governor Salvador Sánchez (see Chapter One), he matter-of-factly said the benefits that farmers received from the program "of course" had their origins at Chapingo's experiment station. In the same interview, Wellhausen answered questions about his assessment of the Mexican Agricultural Program's effect at agricultural schools. The program, he responded, began having "a very definite effect" by 1952. "The indications are beginning to come to the front at Chapingo. We have…ever since we have set up the [experimental] station there, used the students as labor." Students worked alongside

[278] "El Programa Agrícola Mexicano y la Fundación Rockefeller," *El Nacional*, September 21,1950, Hemeroteca Nacional, Universidad Autónoma de México, Mexico City, Revistas Nacionales.
[279] José E. de la Cruz, "Inauguración de cursos en la Escuela Nacional de Agricultura," *Tierra* VI, no. 3 (March 1951), 161-162.
[280] Ton-Tín, "Crítica constructiva," *Chapinguito* (July 1951), 3-4.

the MAP experts. The leaders of the program had "built up a certain amount of interest in research on the part of the students," Wellhausen said before adding more on discussions at Chapingo related to locating more funding for ENA professors to carry out research programs.[281]

Image 3.2 With press members present, President Miguel Alemán congratulated and welcomed a Chapingo student in 1951 (from Universidad Autónoma Chapingo, Biblioteca Central, *Tierra*, March 1951).

By 1954, the centennial year of the opening of the Escuela Nacional de Agricultura, the celebration of progress taking place on campus increased. Its library, according to one magazine, owned more than ten thousand books and its staff was fully trained. Administrators were busy devising ways to ensure that professors no longer moonlighted at other jobs in Mexico City.[282] Hence, professors had more time available for research and teaching. Another magazine specifically listed each of the college's facilities, almost to indicate to readers the size and improvement on campus. The school also had fifty-one professors and a high enrollment rate, which included students

[281] Interviews: GWG [with] Dr. E. J. Wellhausen, Mexico City, August 15, 1952, RG 1.1, series 323, box 4, folder 25, RFA.
[282] "Reseña histórica," *México Agrícola* (February 1954), 12-16.

coming from Central America and recently some from South America.[283] Also in 1954, seeds, particularly maize and wheat, from projects that began at Chapingo, were shipped abroad. According to a *New York Times* article praising the work of MAP staffers, the seeds flourished in India and Japan.[284]

At the hundredth anniversary celebration on February 22, the Minister of Agriculture spoke to an audience that included President Adolfo Ruiz. After praising the president for his presence and "interest in agricultural education and sympathy towards agronomists," Gilberto Flores explained how historians and agronomists would later appreciate the "remarkable" leaders who had the idea of building such a "brilliant school." Two-thirds of the country's populace, he said, earned their living in agricultural activities, yet these people received only one-fifth of the national income. Such a state of affairs for peasants remained "improper." However, *agrónomos* from Chapingo rectified the conditions that allowed such a state of affairs to persist. They personified the "vanguard of national agriculture" who delivered the technical aspects needed to carry out social justice: finding credit for farmers; formulating guaranteed prices for farmers' products; elimination of agricultural middlemen; construction of product storage houses; research at experiment stations; development of improved seeds, fertilizers, pesticides, irrigation schemes, soil improvement plans; and extension activities. Finishing his speech, Flores reminded students of the importance of the training they received, suggesting that they were some of the foot soldiers on whom

[283] "La Escuela Nacional de Agricultura," *Tierra* IX, no. 2 (February 1954), 100-101.
[284] Sydney Gruson, "Rockefeller Unit Widens Mexico Aid," *New York Times*, October 10, 1952, RG 1.1, series 323, box 4, folder 25, RFA.

people relied to help *campesinos*. Finally, he suggested that students to retain a "latent spirit" related to the fulfillment of the Mexican Revolution.[285]

If such endorsements ringed of exaggeration on the part of a local figurehead whose job title involved praising the school, in 1955 they were lent credibility by an influential person from outside of Mexico. A little more than one year after Flores's speech, after a swing tour through the Caribbean, the U.S. Secretary of Agriculture, Ezra Taft Benson, paid a visit to the college. The stop was to "inform himself about the different aspects in Mexican agriculture and livestock" and attend other meetings. He arrived with reporters, Francis White, the U.S. Ambassador to Mexico, and Paul Minneman, agricultural delegate of the U.S. Embassy. With a handful of bureaucrats in tow, Humberto Ortega, Chapingo's director, guided the visitors around. They toured new facilities and heard presentations about ongoing and new programs at the school. Before heading to Mexico City for other meetings, Benson shared his thoughts: "This school honors Mexico. At this school, the most modern techniques are put into action, and students are provided with the necessary facilities to efficiently and thoroughly learn."[286]

Years later, one ENA student's response to complaints from classmates underscore the expansion and progress taking place on campus. The school had a new greenhouse, a new building for agricultural industry studies, and a student lounge. With some serious exceptions, teachers were "more than competent, [they were] brilliant." While many items on campus remained imperfect, Chapingo "without a doubt"

[285] "Inauguración de cursos en la Escuela Nacional de Agricultura," *Tierra* IX, no. 3 (March 1954), 206-207.
[286] "El Secretario de Agricultura de los Estados Unidos visitó México," *Tierra* X, no. 3 (March 1955), 247.

advanced. As an establishment for training, it "yielded to no other school" in the country. Furthermore, the student said, school officials had recently announced that Mexico would finally open its first graduate school for agricultural studies, which would adjoin Chapingo.[287] Mexicans would not have to travel abroad for advanced studies in agriculture. They would soon have an institution of their own to generate and conduct research.

The Colegio de Postgraduados opened in the spring of 1959. As chiefs of the Rockefeller Foundation and their Mexican partners prepared formally to close the Office of Special Studies, Mexicans opened its first graduate school. Chapingo had the resources, particularly with a $50,000 grant from the Rockefeller Foundation towards operations of the country's first graduate agriculture course during the previous year.[288] And according to an RF Annual Report, a number of the Colegio's faculty members were RF fellows who had studied abroad or OSS trainees who had studied with RF researchers. "The school's importance," the report added, "is not limited to Mexico, for agronomists from other Latin American countries can go there for graduate work without the added burden of learning a new language or of adapting to a greatly different educational and social scene." So confident were RF officials in their New York headquarters in the Colegio de Postgraduados that they doubled their donation to the school to $100,000, with a matching grant for the following year. They were proud of the school, which began with twelve students and six professors, and increased

[287] Editorial, "Va en decadencia la Escuela Nacional de Agricultura," *Chapinguito*, no. 2 (Month unlisted 1958), 1-3. This issue is from either 1958 or 1959. Based on my research, it comes from 1958.
[288] The Rockefeller Foundation, *Annual Report 1958* (New York: The Rockefeller Foundation Archives, 1958), 357, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1958.pdf.

within a year to thirteen professors and a student body of twenty-nine.[289] With a corps of agronomists who owned graduate degrees from the best schools in the United States, Mexico had the professionals and the facilities needed at a graduate college. Reasons to be proud and to celebrate abounded in 1960.

Image 3.3 A 1956 Demonstration Day at Chapingo. The speaker is located at far right. By 1958, the school and the Office of Special Studies experimentation station on campus together comprised "the main center for agricultural instruction and research in Mexico" (from Universidad Autónoma Chapingo, Biblioteca Central, *Tierra*, November 1956).[290]

By the end of the 1950s, then, Mexico's Escuela Nacional de Agricultura embodied a success story. After nearly a century of being a lackluster institution and a poor excuse for an agricultural college assigned with studying and disseminating modern agronomy to farmers, after the efforts of Marte Gómez, more than one president, OEE staffers and researchers, RF money and manpower, Chapingo symbolized a vanguard institution. It was Mexico's hotbed of science, technology, and peasant redemption. It was a testament to what could be achieved with money and determination in a short amount of time. Hundreds of young men (until 1974, ENA did

[289] ----, *Annual Report 1959* (New York: The Rockefeller Foundation Archives, 1959), 30-31, 222-223, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1959.pdf.
[290] Quoted in The Rockefeller Foundation, *Annual Report 1958* (New York: The Rockefeller Foundation Archives, 1958), 102, https://www.rockefellerfoundation.org/app/uploads/Annual-Report-1958.pdf.

not have female graduates) considered themselves the legion of scientists endowed with the skills and know-how to train farmers. School administrators and government officials proudly visited the school and boasted of its achievements and progress towards helping the country achieve industrialization. Mexico's presidents paid visits to campus and even congregated with students. Figures like Henry Wallace and Ezra Taft Benson visited campus, and both extolled the school's work. Foreign students flocked to study at the school. New, modern buildings and equipment decorated the campus. Local farmers congregated to the campus to see modern agricultural science and hear about its advances. Seeds from Chapingo received credit for helping local farmers' yields, as well as yields in Israel and Japan. After being trained at the best land-grant colleges north of the Rio Grande, a young corps of expert agronomists made up much of the school's faculty. Chapingo showed itself equipped to handle its revolutionary mission and, consequently, Mexico benefited from what had happened over the previous decade and a half.

More important to historians today is what Chapingo represented by 1960. The college represented the seedbed of the "Green Revolution." If one attaches certain markers with the "Revolution" – genetically improved seeds, promotion of synthetic petrochemical-based fertilizers and pesticides, U.S.-style demonstration lot extension methodologies, an emphasis on quantitative volume to signify progress, a fealty towards "hard" science over social science, technology representing a "magic-bullet" recipe for complex social and ecological issues – then it is obvious that each of these trademarks had privileged spaces at the Escuela Nacional de Agricultura by the end of the 1950s. Chapingo, we must recognize, was ground-zero.

CHAPINGO'S DOUBTING THOMAS

If presidents, politicians, school administrators, students, and foreign visitors were faithful adherents to the religion of progress taking place in Chapingo, then Hernández's was the school's Saint Thomas. He had his doubts. After gaining his Master's degree in botany at Harvard, he taught at the Monterrey Institute of Technology and Higher Education, which proved to be, he said later, an opportunity that he appreciated, but the two years there "were not to my liking" because of the school's focus on the private sector. Its utilitarian atmosphere, he shared, trained students who worked "towards their own, personal interests" and not those of the greater public. Chapingo, with its "exploit-the-soil-not-man" motto, resonated more with his philosophy towards education. The school was "more open, more linked to producers themselves."[291] But Chapingo severely disappointed him. As we shall see, he spent his first years at the school trying to curb the over joyousness many people had towards the "progress" at Mexico's pioneering agricultural institution.

By the time Hernández moved to the Escuela Nacional he was arguably Mexico's most accomplished and traveled botanist.[292] When he spoke, colleagues and students had reason to listen. His explorations in southern Mexico and Guatemala between 1945 and 1949 arguably formed the genetic specimens for theories concerning

[291] Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas*, 226. Known as the "Tech de Monterrey," the college in Monterrey was opened by industrialists who modeled the school after the Massachusetts Institute of Technology. The "Tech's" success in Mexico mirrors MIT's success in the United States. See Olea-Franco, "One Century of Higher Agricultural Education and Research in Mexico," 439-444.

[292] Two possible exceptions were Hernández's close friends, Faustino Miranda and Maximino Martínez.

the weed from which maize had its biological origins.[293] He had completed his Master's under the tutelage of Paul Mangelsdorf, one of the world's foremost experts on maize. He was one of the authors of a go-to text concerning the racial origins of Mexico's most important grain, maize (see Chapter Two). USDA officials, OSS chiefs, and the government, in 1950, had hired him to research how to combat a citrus blackfly attack on Mexico's large citrus industry.[294] Over the course of the same decade, when he found a few moments away from teaching heavy loads or research, he spent time responding to questions and requests of all sorts from all over the world: Texas A&M University inquired about a possible plant specimens exchange program (1950); Cornell's Bailey Hortorium asked about palms that he had collected (1951); a thank-you note from the Smithsonian Institute for sending *Tripsacum* samples to add to a collection in the United States (1951); a request, after a recommendation from a U.S. botanist, for mesquite in New Delhi, India (1951); a USDA researcher inquired about plant collection procedures in Mexico (1953); Washington University asked about a possible collaboration on fossil flora (1956); Yale University had questions related to his grass collections (1956); the Fairchild Tropical Garden in Florida sought to know more about his collection of palms from the state of Tabasco (1957); the Academy of Natural Sciences for Philadelphia queried about collaborating on a plant collection trip (1957); Rogers McVaugh, later considered the expert on western Mexico's flora, sent a request to initiate a plant specimens exchange program between Chapingo and the University of Michigan (1957); the University of California, Riverside, requested help

[293] L.F. Randolph and E. Hernández-Xolocotzi, "Cytotaxonomic Diversity of *Tripsacum* in Mexico," *Genetics* 35 (1950), 686.
[294] Efraím Hernández X., "Host Plant Relationships of the Citrus Blackfly (*Aleurocanthus woglumi* Ashby) in Northeastern Mexico," 1951, folder Mosca prieta, Inédita, 1951, Archivo EHX, COLPOS.

with their avocado collection (1958); the director at Harvard's Atkins Garden & Research Laboratory asked for assistance finding a collection assistant for pines, because "no one could help him better" than Hernández (1958); a letter from Kagoshima, Japan, asked about a possible palm exchange program (1958); North Carolina State College wanted a sample of pipe vine (1959).[295] He counted the experts in world botany among his correspondents. As detailed in Chapter Two, Liberty Hyde Bailey, by 1947, a world leader in systematic botany, was among Hernández's contacts. Edgar Anderson, a curator at the famous Missouri Botanical Garden and eventually one of the world's greatest ethnobotanists, told him to "call on me," if he could provide help with some of Hernández's research. Anderson also considered Hernández an authority on palms and said he was "wildly enthusiastic" about work he had written on a *Tripsacum*.[296] By 1960, Hernández was "The Man" in Mexican botany.

Hernández earned respect in Mexican scientific circles, too. By 1949, he was a member of the Directing Council of Mexico's Botanical Society, the country's first body dedicated to systematic study of botany.[297] He was a friend of Enrique Beltrán, the leader of the Institute of Renewable Natural Resources, likely Mexico's first public conservation agency. In 1953, Beltrán published Hernández's work for his mastery of the vegetation of the country, particularly those along the Pan-American Highway. Beltrán asked him to assist in an extensive study about agriculture in the Yucatán

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[295] See Appendix A.

[296] Edgar Anderson, Letter to Efraím Hernández, November 24, 1947, folder Granaries in Mexico, Notas, Archivo EHX, COLPOS; Anderson, Letter to Efraím Hernández, October 21, 1949, folder Correspondencia de 1946, Archivo EHX, COLPOS. Some people consider Anderson one of the founders of modern Western ethnobotany. *Man, Plants and Life* (Berkeley, CA.: University of California Press, 1971) remains a classic in the field.

[297] Hernández, "Fundación y primera década de la Sociedad Botánica de México (1941-1951)," *Boletín de la Sociedad Botánica de México*, no. 40 (October 1981), 21, 23.

Peninsula.[298] In relations to his familiarity with Mexican vegetation areas, Hernández told one colleague that there were few areas in the country that he had not visited or studied by the 1980s and he had conducted many of the trips to the far reaches of the country during the 1930s, 1940s, and 1950s.[299] By 1955, he was Vice President of the Mexican Society of Natural History, one of the country's oldest professional scientific organizations. By 1957, Gabriel Itié, considered one of the country's most accomplished agronomists, called Hernández the country's best agrostologist.[300] Should his services be limited to professional circles, groups outside of academia, including industry, sought Hernández's services. Alfonso Reina, a representative of the Group of Meatpackers of Northern Mexico, sought services concerning pasture studies in 1957 and the request found its way into Hernández's mailbox.[301] Months after this request Guillermo Rossell sent Hernández a letter on behalf of President Adolfo López Mateos concerning a "valuable study" Hernández presented to the national Assembly of the Social and Economic Planning Committee. "I am convinced," Rossell wrote, "of the conscious and disinterested study of the major problems facing the Mexican community reigns in our Assembly, and we urge you to continue with the same spirit of

[298] ----, "La vegetación y la agricultura," in *Vida Silvestre y recursos naturales a lo largo de la Carrera Panamericana*. Enrique Beltrán, ed. (México, DF.: Instituto Mexicano de Recursos Naturales Renovables, 1953): 47-78; Enrique Beltrán, Letter to Efraím Hernández, April 17, 1957, folder Correspondencia del año de 1956, Archivo EHX, COLPOS. Beltrán's influence in Mexican conservation history remains underexplored. For an introduction of his theories on conservation, see Simonian, *Defending the Land of the Jaguar: A History of Conservation in Mexico*.

[299] Edmundo García Moya, interview with author, Montecillo, Estado de México, Mexico, October 9, 2013.

[300] Gabriel Itié C., "Los pastizales mexicanos, Comentarios del Ing. Gabriel Itié C.," folder Pastizales de México, 1957, Archivo EHX, COLPOS. Agrostology refers to what could be called the ecological study of rangelands, with an emphasis on pastures and grasses.

[301] Alfonso Reina Celaya, Letter to José Terrazas, November 19, 1957, Archivo EHX, COLPOS.

work [you have shown], assuring you of its service to the country."[302] Being an avowed nationalist, Hernández likely appreciated these words from such an authority.

Recognition abroad and praise at home, however, failed to assuage frustration. Little about Chapingo or national academic circles impressed Hernández in 1953. He understood that if one was knowledgeable of Chapingo's status before the 1950s or if one was a researcher prior to the same decade, as were Hernández's colleagues and students, then being around the campus or within certain circles may have been impressive. But he looked askance at the sense of arrival of Mexican agricultural development that many people espoused. Whereas many people saw progress and advance, Hernández saw room for improvement and years of catching up that had to be done.

When he began working as a botanist, Mexico lacked a well-funded and professional research apparatus in biological sciences. In large part, this was because of how young professional studies were in the country and because of a number of other reasons. The results of the first national agricultural census were not released until the early 1930s.[303] One of the only other bodies connected with research was the National Agronomic Society, which was dedicated, Michael Ervin proved, more towards agrarian reform (read, politics) rather than science.[304] Mexico's National School of Forestry opened in 1916 and disappeared in 1923. Other centers for forestry studies also failed to last - the most significant school closing, for all intents and purposes, in 1940. The country's Institute for Bacteriological Study did not open until 1936. Before

[302] Guillermo Rossell, "Relativo al estudio presentado en la Asemblea Plenaria de los Consejos de Planeación Económica y Social," November 1, 1958, Archivo EHX, COLPOS.
[303] Colegio de Postgraduados, *Ciencias agrícolas y sus protagonistas*, 356.
[304] See Ervin, "The Art of the Possible."

1938, one of the country's most well-known colleges did not offer a certificate of study with a specialty in biological science. It was not until 1958 that Mexico's National University (UNAM) offered degrees specifically in biology.[305]

Other institutions and circles of research related more specifically to agronomy and biological sciences fell short both in quantitative and qualitative terms. With the exception of the Office of Special Studies and its production, which was noteworthy, only one other outfit could have been said to carry out intense agricultural research. In eight years since it was opened in 1947, the Institute of Agricultural Research, counted a handful of interns and despite valiant efforts on the part of its leaders, had one "second-rate" publication to its name. This was a suggestion that Hernández made in a speech, without directly naming the institute, in 1955.[306] Edmundo Taboada, the Institute's chief, held an advanced degree from Cornell, but his assistants were, according to one Mexican researcher, "trained solely as research aides."[307] They were not independent, original creators of research. Moreover, the institute took years to

[305] Hernández, "La biología agrícola en México" (paper presented at the meeting for the Mexican Society of Natural History, location not indicated, Mexico, June 6, 1961).
[306] ----, "El desarollo de las investigaciones biológicas y la preparación de biólogos en México" (paper presented for the Mexican Society of Natural History, location not indicated, date not indicated 1955). Hernández's speech makes reference to what he called a Research Institute that was eight years old in 1955, which by all indications was a reference to Taboada's operation. Hernández referenced the slow production – because of the magnitude of work that the operation took on – of the Institute in an interview; see Colegio de Postgraduados, *Ciencias agrícolas y sus protagonistas*, 210-211.
[307] Colegio de Postgraduados, *Ciencias agrícolas y sus protagonistas*, 384. Karin Matchett offers a more nuanced reading of the Institute. See Matchett, "At Odds Over Inbreeding: An Abandoned Attempt at Mexico/United States Collaboration in 'Improve' Mexican Corn, 1940-1950," *Journal of the History of Biology* 39, no. 2 (2006): 345-372; and Matchett, "Untold Innovation: Scientific Practice and Corn Improvement in Mexico, 1935 – 1965" (PhD diss., University of Minnesota, 2002). For another view of the Institute, see Gilberto Aboites Manrique, *Una mirada diferente de la Revolución Verde: ciencia, nación y compromiso social*. (Mexico City, Mexico: Editorial Plaza y Valdés, 2002).

complete research projects because of how of the technical nature of Taboada's research methods.[308]

By the 1950s Hernández's colleagues in botany showed advances, but the field remained undeveloped in areas. Founded in September of 1941, the first years of meetings for the modern Botanical Society of Mexico, the country's most important organization in the field, consisted of what Hernández called a "reduced number of biologists and foresters" who met in a home belonging to Miguel Ángel de Quevedo's widow for meetings.[309] Maximino Martínez, the Society's president for years, dedicated most of his days towards his work as a professor. When time allowed, his research in botany was largely "conducted on his own," and his work remained unappreciated, "with little support from the public and funding" for huge projects like taking an inventory of Mexico's forests and classifying the country's flora.[310] For years, Martínez likely funded the Society with his own money.[311] Other leaders in the field of agronomy, such as Gabriel Itié, worked in an atmosphere in which their studies on rangelands went nowhere because they were not supported by the livestock industry. This was unfortunate, Hernández said in 1966, because Itié's work "formed the scientific basis that could have transformed" Mexico's meat industry.[312]

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[308] This inference comes from an interview with Hernández; see Colegio de Postgraduados, *Ciencias agrícolas y sus protagonistas*, 210-211.
[309] Hernández, "Discurso de clausura del XI Congreso Mexicano de Botánica" (paper presented at the Eleventh Congress of Mexican Botany, Oaxtepec, Morelos, Mexico, October 1-5,1990).
[310] ----, "Contribución de la botánica al desarollo de México, Discurso inaugural del Presidente Honorario al III Congreso Mexicano de Botánica," October 1966, folder Congreso Mexicano de Botánica - 1966, Archivo EHX, COLPOS.
[311] ----, "Perspectiva de la etnobotánica en México, 1990," October 1-5,1990, folder Seminario de Etnobotánica: XI Congreso Mexicano de Botánica, Oaxtepec, Morelos, Archivo EHX, COLPOS.
[312] ----, "Contribución de la botánica al desarollo de México, Discurso inaugural del Presidente Honorario al III Congreso Mexicano de Botánica," October 1966, folder Congreso Mexicano de Botánica, Archivo EHX, COLPOS. For more about Mexican botanic studies and research, see Faustino Miranda, "La botánica en México en el último cuarto de siglo," *Revista de la Sociedad de Historia Natural* XXII (December 1961): 85-111.

Other markers underscored the scarcity of research and education after Hernández began his career at Chapingo. In 1954, according to the College of Agronomic Engineers, Mexico only counted 3,000 trained agronomists, which signified possession of the equivalent of a Bachelor's degree. The same census calculated that forty-six of these individuals held a Master's degree. A total of seven Mexicans owned a doctoral degree related to agronomy. In 1954, the year that Hernández began teaching classes at the college, Chapingo claimed a total of 1,249 graduates over the course of its first century of existence.[313]

Hernández vocalized what he thought were shortcomings. In his 1955 speech as Vice President of the Mexican Society of Natural History, he surveyed the recent history and current status of biological studies, and he mentioned solutions. Government agencies, educational institutions, and organizations outside of Mexico, he began, had over the last two decades lent an impulse to improve biological research in the country. Consequently, these groups "established new demands and paths for our biological education." He then delineated the progress and breakthroughs made in agricultural biology. Botanists made notable advances, particularly in plant pathology and genetics. Systematic studies had been made in relations to classification and flora studies for the state of Chiapas, and parts of other states like Veracruz, San Luis Potosí, Puebla, and Guerrero. Ecological studies advanced, particularly in eastern regions of the central part of the country. In mycology, researchers made headway in studies concerning rust disease in wheat and viruses in maize, tomatoes, potatoes, and sugarcane. Moreover, Mexico owned its first agricultural germplasm bank (at

[313] Hernández, "La biología agrícola en México." It must be noted that the survey only surveyed a small percentage of the number of agronomists in the country.

Chapingo), which housed four thousand samples of maize seeds, three thousand bean samples, wheat samples, seven hundred potato samples, three sorghum species, about five hundred chili samples, and a number of other horticultural specimens. Of such accomplishments, Hernández said, Mexicans could be proud. There were better prepared people for "serious research" in biology than ever before. Schools and government support had yielded notable results. Help and partnerships from abroad, he particularly mentioned the Office of Special Studies, "represented an important factor in the results attained." Halfway through his speech, he said that the times ahead spelled out "favorable conditions" for future researchers.[314]

Problems persisted, nonetheless. Mexico had a shortage of teachers. Many professors stuck around longer than they should, which forbid the entry of new blood and, consequently, a possible sense of dynamism in research. Additionally, because most professors made so little money, many teachers often "run around from one school to another to teach a number of classes to earn a minimum living." Professors' and students' time in the lab was also limited, Hernández added. More than one school was not equipped for the classes it offered. "We are," he said, "still in the period when a zoology professor is given only a board, chalk, and an eraser to teach a class." Other schools functioned haphazardly, minus a mission to guide their areas of study. Most study programs exercised a rigid structure that forbid flexibility and made future students despondent. Agronomists lacked breadth and creativity towards research. An austere adherence to only knowing their narrow field of study circumscribed students from thinking in larger terms. "In concerns to our colleges of agriculture, it is my opinion," Hernández shared, "that the country's needs for agronomists to be

[314] ----, "El desarollo de las investigaciones biológicas y la preparación de biólogos en México."

fundamentally a biologist with agricultural studies, discarding the old concept of agronomists trained to be captives in a rigid category."[315]

Having no doubt offended his colleagues and students who listened to his speech for his devil-may-care attitude towards what many of them thought were advances in education and research, Hernández spelled out five recommendations. First, schools should adopt "elasticity." Programs of study should have more range and interdisciplinary exposure. Teachers, secondly, deserved more financial security. Third, colleges needed more stringent demands on teachers, with the goal being that eventually all professors have a doctoral degree. Fourth, graduate study, when it did eventually begin, should be led by many of the young men who studied abroad, and their research should have value to Mexico.[316]

He expanded on this last point. "Science had no geographic or political borders," he began. "Despite this, however, some people were shy to tear themselves away from the Ivory Tower, in part because of a lack of confidence in our social and philosophical values." Twenty students had returned from abroad and they were capable researchers who could absolutely help the country's agriculture with their new skills and know-how. It was time, Hernández argued, that Mexicans apply science, as a construct, a methodology for studying phenomena, with an eye towards Mexico.[317]

Within two years of arriving at Chapingo and in his first presentation as an officer in one of the country's most respected research organizations, Hernández made overt efforts to tame the decade-long academic celebration in the 1950s academic and educational circles. He congratulated the achievements that researchers had made, and

[315] Ibid.
[316] Ibid.
[317] Ibid.

proudly detailed how far the country had come in a short period. Yet, he pointed out what he found to be flaws. To counter the issues of low pay and unqualified faculty members, he prescribed the straightforward solutions of more adequate pay and more demanding standards. But the more fundamental problems, in his estimation, could not be solved with money, time, or pedagogy. He appealed for Mexicans to take the skills they gained from abroad and apply them to their national reality. The young men returning from land-grant colleges, according to Hernández, neglected their duties to Mexican schools. Many remained in their offices or research labs because of what he called "a lack of confidence in our social and philosophical values." Put another way, the images of young Mexican men going abroad and returning to help Mexican agriculture that RF officials, Mexican politicians, Henry Wallace, and Marte Gómez foresaw remained trapped and sacred in experimental labs or Ivory Towers. The trickle-down effect that many people expected to take place appeared to be more of an idea, a vision, rather than a reality.

In the end, Hernández's speech in 1955 constituted shouting into the wind. His supervisors at Chapingo apparently did not catch the essence of his words. In December of 1957, Jesús Muñoz, director of the Escuela Nacional, asked for feedback from faculty members about the proposed Plan of Study for the soon-to-open Colegio de Postgraduados. After saying thanks for inviting feedback, Hernández told his supervisor that he found "various anomalies and deficiencies," which drew objections and suggestions. Principal among the immediate objections was a lack of purpose in the school, a lack of meaning. The school's mission, suffered from a dearth of precision and purpose. According to the letter sent to Muñoz, the Fruit Improvement and Weed

and Pest Control courses to be taught were poorly conceived and the school was unprepared to offer such courses. The courses failed, he suggested, to be part of a larger construct corpus of knowledge. The study plan also failed to certain basic courses to supplement Agricultural Botany. Finally, the school's proposed courses listed no studies outside of experimental sciences, with no link to a guiding rationale. Hence, he suggested obligatory Logic and Scientific Philosophy classes.[318] Such basic requirements seemed logical to Hernández, but his colleagues and supervisors apparently overlooked them while preparing to open the country's first agricultural graduate college.

When graduate study began at Chapingo, Hernández's own department, botany, had severe deficiencies. In letters to students and colleagues years after the Colegio opened, he discussed these issues in detail. In its early years, the college hired outside help from other institutions to aid in courses because of a lack of qualified botany instructors. At the beginning of the department's existence, the College hired an ENA student, Pedro Mosiño, with a degree in agricultural mechanics to teach plant sciences. Hernández constituted the total of the full-time faculty members in his department for nearly a decade (the one other full-time teacher was hired in 1968). Support for students was shoddy. In nearly a decade after offering classes, the Department of Botany counted a total of three students who completed Master's theses. This trio finished after "huge personal sacrifices" and outside funding sources.[319]

[318] ----, "Proyecto Colegio de Post-Graduados, E.N.A.," December 9, 1957, folder Correspondencia – 1962 – Colegio de Postgraduados, Archivo EHX, COLPOS.
[319] ----, Letter to Dr. Leobardo Jiménez Sánchez, August 23, 1978, folder Correspondencia, Efraím Hernández Xolocotzi – II, Archivo EHX, COLPOS.

Other problems existed at the Colegio. Among the talks that school officials had in the institution's first years were serious discussions about the format of all graduate research. According to Hernández some of his colleagues suggested that all research require statistical analysis (eventually, the college's president abstained from adopting this primacy towards numbers). Additionally, certain departments that involved quantitative studies or extension (e.g., Statistics, Agricultural Economics, and Extension), Hernández implied in a correspondence, received priority. Some of these same departments also had the collaborative efforts in their initial phases and academic exchange programs with universities outside of Mexico.[320] When Hernández mentioned the shepherding of resources, the Colegio director replied, "Look, Xolo [Hernández's nickname], you go find your own 'donation' and you can manage it any way you want."[321] According to notes, Hernández later suggested that the strategically aimed money (from outside sources like the Rockefeller and Ford Foundations, he inferred over the years) and collaborative efforts towards certain departments, "gave impulse" to a "U.S.-style focus on learning, research, and extension without an appreciation for the socio-economic context" of Mexican farmers during the Colegio's inception.[322]

Pedagogical problems abounded at the Colegio and, by extension, at Chapingo. Faculty and administration disagreed about what a doctoral degree from the school would ultimately mean. According to meeting minutes Hernández recounted to a

[320] ----, Letter to Dr. Eduardo Casas Díaz, April 7, 1978, folder Directoria – 1977, Archivo EHX, COLPOS.
[321] ----, Letter to Dr. Leobardo Jiménez Sánchez, August 23, 1978, folder Correspondencia, Efraím Hernández Xolocotzi – II, Archivo EHX, COLPOS.
[322] ----, "Origen de la Rama de Botánica del Colegio de Postgraduados, Chapingo, México," 1979, Archivo EHX, COLPOS.

student, one professor commented that "a PhD. holder is someone who knows *everything* of a very specific topic" (emphasis mine). In response, another professor argued that such a person would represent "an encyclopedia and we have plenty of those in libraries." This same meeting participant said that "classes insisted on utilizing rote memorization and duplication techniques as modes of teaching, with a focus on the demands of [strict] reasoning."[323]

As he had suggested to the Society of Natural History in 1955, Mexican researchers lacked intellectual freedom to think of creative problems and research. Chapingo and its graduate college adopted what amounted to intellectual or creative turpitude, devoid of imagination and inquiry. Teaching left much to be desired when it came to inspiring alternative or dynamic ways for looking at phenomena. Classes had a vertical format, in which students received gospel from professors, only for them to recycle what they had read or been told by instructors. Students, he suggested, had no inspiration for asking questions and they remained pious to axioms in books or spoken from teachers. Books, Hernández said later, reigned supreme and "cramming and learning material by heart, with absolute detachment from the phenomena [being studied]" was common.[324] Researchers showed inclinations to classes with statistics and measurements. This all added up, in Hernández's estimation, to a mechanistic approach to education.

He expanded on these frustrations in his presidential address to the Mexican Society of Natural History in June of 1960. Titled "The Natural Sciences and Social Development in Mexico," he discussed what he called "disequilibrium." "For modern

[323] ----, Letter to Dr. Leobardo Jiménez Sánchez, August 23, 1978, Archivo EHX, COLPOS.
[324] Colegio de Postgraduados, *Las ciencias agrícolas*, 226-227.

man," he said, "it is important to penetrate more profoundly knowledge, the mechanisms and functions of the living things around him." But "on occasions, the values, the orientation, and the context of the socio-economic world around him have no relation with the attention it deserves from natural sciences, or they demonstrate a strong disequilibrium between applied technologies and basic science." Speaking for himself and other officers in the Society, he argued that national intellectual circles "display a strong disjuncture in concerns to both of these problems." The style of education, the pace of research, and the applied sciences failed to align with Mexico's reality. Researchers still had not "explored the potential of its [Mexico's] agricultural roots."[325]

Biological research and education, Hernández added, remained "aggravated" by a slow and disproportionate development. In botany, Mexicans previously used the old phrase to signal the number of trained researchers: "'we are an odd number [of researchers], but we are fewer than three.'" In a country of thirty million people, Hernández said, the number of botanists reached no more than thirty. This shortage of researchers manifested itself in other fields like genetics, physiology, cytology, and ecology. Given this shortage of trained researchers, some people who simply participated in the act of collecting plants labeled themselves botanists. At meetings, congresses, or conferences, many Mexicans asked one another how many official titles they owned. "How many titles does one need?" asked Hernández to his audience, which included his colleagues, ENA alumni and, likely, students.[326]

[325] Hernández, "Las ciencias naturales y el desarollo social de México" (paper presented for the Mexican Society of Natural History, Mexico, June 1960).
[326] Ibid.

He shared reasons for Mexico's lag and its consequences. With a history that included at least two invasions, a revolution, and an ethnically and linguistically diverse population, national leaders necessarily dealt with priorities outside the sciences. They were compelled to deal with land reform, the restoration of sovereignty over natural resources, building infrastructure, opening schools, and the establishment of public order. We must admit, he said, that while Mexicans rested and dealt with other tasks the experts in local geography, flora, and fauna became foreigners, "strangers, not our own." Yet, over the last three decades, national leaders "consciously and unconsciously" chose to take on the task of adopting the "technical advance of other countries," to Mexico's benefit and detriment. This happened via the importation of foreign researchers, the increasing availability and use of foreign literature, and sending students to learn technological systems from other countries. As a collective, this process yielded favorable results. New institutions had opened. Administrators at the older schools renewed their old structures and changed their "'encyclopedism' via dynamic knowledge supported by experimentation and research." The last three decades amounted to an "Agricultural Revolution," Hernández suggested.[327]

There were several anomalies attached with this process, however. Hernández commenced to describe the academic circles and problems that he saw in these spaces. It all made him "laugh because I cannot cry," he said. On one hand, many foreigners arrived with techniques and science to solve Mexico's problems. On the other hand, like many of his young ENA colleagues, many young men returned from study abroad demanding posts and privileges others had earned, without thinking that Mexicans know that titles "ornament the capable and the incompetent." Other "pseudo-

[327] Ibid.

researchers" arrived with new advice or instruments, but had yet to acquire the most elemental skills. Finally, many older local researchers in measured their stature as a researcher by their "eccentric behavior, infrequent contributions to scholarship, or the few times they open their mouths."

After probably insulting many officemates, former OSS workers, administrators, and former RF fellows in the audience, Hernández told audience members what he thought should be the bedrock of development in the agricultural research: awareness of the process and the environment in which development occurred. Quoting one of Mexico's most famous philosophers, Leopoldo Zea, advancement needed to occur according to the country's "social horizon" and "collective consciousness." Hernández challenged his audience to deal with such abstractions, "What is our social horizon? What is our collective consciousness?"[328]

He answered the questions and opined about what he considered the mistake that Mexicans committed in the pursuit of agricultural improvement with its lack of a primacy for all that was local. "Technology in Mexico," he said,

> has been cast on a void represented by an almost total ignorance of our reality, horizons and aspirations. As a nation, we have failed to coordinate the human elements necessary for taking a basic inventory of our natural and human resources, which constitute the knowledge that make up and define our horizon and consciousness. I said earlier that foreigners know our mining, our flora, our fauna, our indigenous groups. So be it. We have neglected the schools dedicated to the taxing tasks of taking [our] inventory.
>
> In the social fields, we find that our mistakes, derived in imprecise methods and techniques, compound because of our failure to see objectively that analysis from one place produces opposite results [here]. The strangers who address our social problems do so based on foreign assumptions and social values, and consciously or unconsciously, distort our social landscape. In doing so, they turn us into crude imitations of other places. Many of us suffer from this trauma. Our research displays this trauma. And according to certain

[328] Ibid.

> idiosyncrasies, some of us pursue certain political aspirations or, even still, we want to physically look like a researcher. Today, our task is self-analysis, to study our own social roots until this point in time.

He finished by saying that it was necessary to pay close attention to the preparation of researchers and programs "devoted to the study of specific problems of the *Mexican* environment" (emphasis mine). He added that a conscious effort to cultivate researchers had arrived and it was time to send the country's promising youth abroad for advanced study, but cognizant of Mexico's needs and context.[329]

Contrary to the self-congratulatory tone in agricultural education and research that many people celebrated in Mexico by 1960, Hernández underscored fundamental flaws. The technology introduced for a productive system failed to align with Mexico, thus "disequilibrium." Teachers and researchers operated in intellectual vacuums. They designed and promoted seeds and fertilizers that proved awesome in terms of production, but the transfer of such technology between places with different histories and people – one based on a model of yeoman farmers and a powerful, well-funded state to subsidize farmers and pay for USDA extension workers, and the other with a state only a couple decades old, a miniscule Ministry of Agriculture and vestiges of a feudal model of farming – had proven difficult. Researchers and educators, furthermore, sought to imitate (even in terms of dress) and transplant what they had learned in a gross manner that failed to account for and or minimized reality. To the unspoken project that amounted to social engineering, Hernández suggested that new technology and techniques were welcome, but its promoters should deliver these items in accordance with Mexico's totality - its land, its cultural mosaic, its "social horizons," and its "collective consciousness."

[329] Ibid.

Image 3.4 Efraím Hernández. This image is from the program for the first congress of the Mexican Society of Natural History, where he delivered his provocative speech to Mexico's influential educators and colleagues in June of 1960 (from Biblioteca Central, Universidad Autónoma Chapingo).[330]

Four months later, in October of 1960, in his address to the congress of the Mexican Botanical Society, Hernández again failed to mince words about the celebration at Chapingo and Mexican circles of agricultural research discussed earlier in this chapter. His speech was the culmination of the congress. If people had not heard of the ENA professor who admired peasant modes of agriculture and who complained about agricultural education, he ensured that they would not forget him.[331] The audience included officials from the Minister of Education, presidents of every major college in Mexico, those in the upper echelons of agronomic and botanic research, as well as likely colleagues, Chapingo graduates and students, and faculty and students from the other colleges in the country. "The Mexican Botany Society," Hernández began, "has conferred upon me the honor of presenting to each of you some ideas about the interesting and passionate topic of problems in botanic education and extension in

[330] Marcelino Ramírez Castro, gracias por encontrar y escanear ésta foto, y varios otros, del Dr. Hernández. (Thank you, Marcelino Ramírez, for locating and scanning this photograph and others of Dr. Hernández.)

[331] Outside of his closest colleagues and his classes after the late 1950s, Hernández's body of publications in regards to peasant as capable agriculturalists, were limited to only a few publications.

Mexico." He followed with a warning to audience members that he planned to "paint a panorama in primary colors, dark and clear, not softer-toned colors."[332] Audience members listened to what turned into a radical proposal for a new approach to agricultural, specifically botany, education in Mexico.

The talk began with Hernández's outline of Mexico's state of affairs in 1960. He sketched out the "somber" conclusion that the country suffered from setbacks, despite admirable efforts over the last fifty years. "Over this period, our schools have grown. But many remain anachronisms, decorated 'Ivory Towers,'" that introduced problems in the pursuit of trying "to implement exotic methods and to achieve foreign lessons" to Mexico. In this context of lag were ideals stemming from the Mexican Revolution that were incorporated into classrooms. Counteracting these collective ideals was a liberal model of work, which undermined educators' service to the whole of society, planting "problems that we have yet to study." Furthermore, despite the conservation work done over the last decade, in the pursuit of industrialization, citizens destroyed their natural resources before scientists could study them, and researchers still had no knowledge of twenty to thirty percent of the country's flora. All this happened while the population grew immensely, he mentioned (over the two decades before 1960, population increased from 19.7 million to 34.6 million people).[333] Before transitioning to his prescription for improving botanic education, he said that it remained imperative

[332] Hernández, "Problemas de la enseñanza y la divulgación de la Botánica en México" (paper presented at the First Congress of the Mexican Botanical Society, Mexico City, Mexico, October 24-26, 1960).
[333] Ibid. The population statistic comes from "¿Es effectivo el progreso agrícola de México?" *México Agrícola* VIII, no. 95 (January 1962), 27.

for education to maintain a "tight compact, in its content and its orientation" to a local context.[334]

To anyone who studied the topic "with a degree of objectivity," he continued, it was obvious that Mexico's indigenous groups, its peasants, had a "profound degree of familiarity" with their environment. As a rule, a peasant depended on the utilization of natural resources immediately around him. His existence was contingent on a familiarity with his environment. Peasants' botanic repertoire existed because of the rule they either "know their resources or perish." For most humans, Hernández added, hunger and survival had become afterthoughts, and hence, they never gave pause as to their surroundings or how they would survive. "But for the Indian who resides at the margins of jungles in our tropics, an error in judgment or a lack of appreciation for the world around him could mean an introduction into the afterlife."[335]

Hernández elaborated on how *campesinos* learned botany and agriculture. "Oral transmission, elders, and adults among indigenous groups constitute the mechanisms for conservation, and the accumulation and transmission of knowledge." This process occurred over generations. Peasants gained knowledge via an empirical method that had to stand the test of time and experience. While people loved to tell peasants "a thousand and one times" that maize could not grow on mountainsides, they "had to try and fail in order" to not believe. The objects of their education surrounded them, not books or pictures. If one spoke about wood, peasants had it at their disposal to observe its morphology, bark, wood, resin, leaves, and fruits. They could test the acidity or caustic effects of resin. "In such a setting," Hernández said, learning was "objective

[334] Hernández, "Problemas de la enseñanza y la divulgación de la Botánica en México."
[335] Ibid.

and continuous." Education was "grounded in time that lasted from the earliest days of consciousness until death" for peasants.[336]

In front of an audience with people armed with advanced degrees, Hernández's speech likely represented anathema. *Campesinos*, he posited, owned an acute brand of botany. They constituted sources of agronomic knowledge. What was more, Hernández suggested that the leaders at the centers of Mexican education design curriculum, a didactic enterprise that involved interaction and learning, based on peasants' botanical wisdom. To a group that likely included *extensionistas* discussed in Chapter One and the champions of the progress taking place at Chapingo discussed earlier in this chapter, Hernández's speech probably drew laughs and smirks. He was an idealist, a "tenured radical" spouting nonsense.[337]

The shock treatment to their sensibilities was far from over. "My experience and observations at a variety of colleges and organizations," he said, "have drawn me to the conclusion" that teaching botany happened most effectively via coordinated effort. A department should represent an organic body, leaving time for individual pursuits, such as publications or research. Professors should also maintain familiarity with the latest scholarship in their fields. But "to round out the possibilities of achievement and to maintain a panoramic vision [of botany] that teachers seek to impart to students, it is necessary for professors" leave their Ivory Towers to "experience and see first-hand the country's settings and social needs." Extension, Hernández argued, should be the

[336] Ibid.
[337] Thank you, Ben Keppel, for sharing the "tenured radical" term with me years ago when I asked a stupid question. David Horowitz also deserves credit for the term.

process of researchers becoming listeners and observers of peasant agriculture, not the top-down process discussed in Chapter One.[338]

In discussing the state of pedagogy in schools, Hernández told his audience that teachers and schools needed repair. Professors must begin "understanding and appreciating" self-criticism. Speaking about his ENA colleagues, he said, "It is all too common that today, teachers make jest of students who speak an indigenous language" and asked questions related to the agriculture of their homes. In contrast, teachers must adopt a style in accordance with our "ethnological characteristics and our large social mores, build on these huge foundations, utilizing these as paths towards adopting new teaching styles." Piggybacking this idea, teachers were obligated to put students into "personal contact with the phenomena they study and with the problems in which these phenomena play an important role." Schools, he summed, needed to design lessons with "an eye towards our environment and context to teach with clarity, to enthuse students, and form schools of thought that promoted Mexico's intellectual development."[339]

Hernández's suggestions for implementing the overhaul he encouraged was simple. Classroom and textbook study should be done at school. The study of microscopic material should be conducted via a microscope. Ecology should be a study conducted in the presence of the "conjunction" of nature. Study of the functions and practices of agriculture, should be done in laboratories and in the countryside. "We," he said, "are fine with using additional teaching aids, but the sooner we get away from teaching exclusively with a chalkboard, eraser, and chalk, and textbook experiments,

[338] Hernández, "Problemas de la enseñanza y la divulgación de la Botánica en México."
[339] Ibid.

the sooner we shall give vitality and meaning to the elements of life." Hernández saw experience – taking students to learn from farmers, and forcing them to drench themselves in the settings and material that they studied on campus – as an antidote to the pedagogical lethargy found in Mexican agricultural education, particularly Chapingo.[340]

Hernández saved his conclusion for discussing what represented the ultimate form of arrogance and intellectual torpor among researchers and agronomists: Demonstration Days and the attempted carbon-copying of a US-style country extension agent system. To the botanist who spent the 1940s canvassing Mexico and gaining an appreciation of peasant agriculture, nothing frustrated Hernández more than witnessing *extensionistas* (extension agents) or colleagues stand in front of farmers instructing them how to farm. What was more, since he lived on Chapingo's campus for years, he heard and saw Demonstration Days more than once over the 1950s. "The human factor," he told the audience, "the object of extension, includes a social totality, any number of types of culture." The main objectives added up to a deeper comprehension than understanding the natural resources, with the goal being to "support and conserve" the pre-existing methods. Consequently, the goal of extension lay not in eliminating or revolutionizing how Mexicans farmed. The objective was to help. In the mind of the botanist inspired by Liberty Hyde Bailey, extension's goal involved "an aesthetic appreciation, scientific and social, of the natural settings with the goal of enjoying a more satisfactory life." To achieve these ends, he said,

> we begin with the firmly rooted stimulants that had until now gone unused or unappreciated: Mexicans' love towards nature, and his old tradition of going to nature to rest and breathe clean air. [We begin our new form of extension] with

[340] Ibid.

> a humility for all people, of all levels of education and culture. We learn by observing.

If he had not already offended his audience, Hernández concluded his speech by going off the deep end. He finished by saying that extension and the sharing of peasant agricultural knowledge could take place in theaters, national parks, social clubs, and schools. The media for sharing this knowledge could be carried out via pamphlets, small books, articles in newspapers, word of mouth, radios, conferences, photos, and other public settings.[341]

CONCLUSION

In his speech, before delving into a naïve proposal of *campesinos* teaching Mexicans about farming at national parks or over the radio in the 1960s, Hernández had loaded both barrels and took aim at the sense of arrival in agricultural research circles in Mexico by 1960. While he understood the pride that colleagues, politicians, students, and foreigners may have taken in relations to the changes at Chapingo and in agricultural education, he saw fundamental flaws. The new laboratories, libraries, study halls, hybrid seed developments were necessary and helpful, but he questioned if the vanguard of agricultural development was leading the promotion of a model of agriculture that was incongruent with Mexico's reality. In a place with millions of peasant farmers who remained in different stages of human/socioeconomic evolution, he had suspicions about the diffusion of a body of agricultural knowledge and technology from a place so different from Mexico's. Hernández spent the 1950s (and later) complaining about these premonitions.

[341] Ibid.

Historians have yet to discuss perhaps the biggest irony of the "Green Revolution." Narratives on the topic mention Chapingo as having been the site where the Rockefeller Foundation arrived and where the Mexican Agricultural Program first began in 1943. Scholars, however, have not explored what it meant that working at Chapingo was someone who foresaw the attributes and markers that we associate with the "Revolution." What is more, Hernández worked for and with the Rockefeller Foundation for years. It is ironic, then, that someone intimately related to the "Green Revolution" also represented its earliest vocal critic. And the antidote Hernández casted as the negation for his worries was for Mexicans to look inward for inspiration about the development of agriculture.

But was anyone listening to Hernández's criticisms and ideas in 1960? The letter at the beginning of this chapter demonstrates that people did pay him mind. Those students who flocked to his classes listened. It was in his classes where Hernández began laying the material, the pedagogical material that was a counter discourse, an intellectual death knell, to the "Green Revolution." The methodology and some of the outcomes of "La Xolocotzia," Hernández's style of teaching and school of thought, are the topics of the next chapter.

CHAPTER FOUR
SOMETHING ROTTEN AT THE ENA: *CHAPINGUEROS* AND THE STRUGGLE FOR MEXICO'S AGRICULTURAL FUTURE[342]

Franco Gerón's admittance into the Escuela Nacional de Agricultura (ENA) in 1960 represented – to him, at least – a dream come true. "Long before" he could read as a child in central Veracruz, he knew about Chapingo's prestige. In his formative years, while working as a school teacher, he sat for the school's entrance exam and failed, and he failed another time after his first attempt. A year later, he visited the campus, began intensive study, sat for a third admissions exam, and finally passed. He arrived with ideas: "I came with the plan that I would study. Then I would return [to Veracruz] to work with the peasants."[343] The plan seemed straightforward. Gerón would work hard, and then he would return home equipped to help peasants and fulfill one of the ideals of the Mexican Revolution.

In 1966, about a year before graduation, Gerón wrote a poem concerning an ontological itch that would not go away. Titled "Traitor" and framed as a conversation between himself and destiny, the poem dealt with his anxieties, specifically the worries that his soon-to-be job as an agronomist would betray his motivations for attending college. "I now know why," the poem began, "my young flesh feels nauseous, Because my mind won't let up from calling me, Traitor! Coward! Thief from a foreign place!" While millions of countrymen "live off of dust, one taco, and a swig of water," Gerón

[342] I adopted this reference to William Shakespeare from faculty meeting notes by Efraím Hernández; "Junta Profesores C-P, ENA," September 3, 1966, 2, Archivo Efraím Hernández Xolocotzi (hereafter Archivo EHX), Rama de Etnobotánica, Colegio de Postgraduados, Montecillo, Estado de México, Mexico (hereafter COLPOS).
[343] Franco Xavier Gerón, *1967: La Huelga Nacional de las Escuelas de Agricultura en 1967*, Hiram Ricardo Núñez Gutiérrez, Rosaura Reyes Canchola, and Jorge Gustavo Ocampo Ledesma, eds. (Chapingo: Universidad Autónoma Chapingo, 2013), 44, 45.

lived in a different world at Chapingo. A "grisly destiny" waited for him after graduation. He would leave school to "devour the inners of my countryman, to bleed him. Like a bat, suck dry the anemic arteries of my country." He would live "like the rest of them," other *chapingueros* who left school "to get fat, own a checking account, live in a nice house with a beautiful wife, and own a nice car, and have children with blushed faces and own not a care in the world" while people died of malnutrition and others were killed, and many of those "didn't even own enough land on which they could fall dead." Gerón then promised destiny that he would defy the empty future. He preferred to be a ravenous dog and spit on, "rather than what you, Destiny, have selected for me." The poem's last line circled back to the thought that had been in Gerón's head for some time in 1966: "How goes it, traitor?"[344] Things had gone astray for Gerón from when he arrived at Mexico's famous agricultural college in 1960 and 1966. The subjective imagination that he had of Chapingo over six years had left him bitter and unsatisfied; Chapingo had left him disillusioned and anxious.

This chapter explores the reasons and the consequences of Gerón's frustrations. Scholarship about Mexican agriculture during the 1960s is dominated by certain themes. After the formal partnership between the Rockefeller Foundation and the Mexican government began to end in 1960, a decade followed during which a formidable agribusiness sector came into being in Mexico and peasant farmers found themselves marginalized and neglected. The 1960s were also when the environmental decay commonly associated with the "Green Revolution" truly took root in the Mexican countryside. Big business, a stratification of the countryside between winners and losers, and the genetic erosion of agricultural seeds dominate the narrative.

[344] Ibid., 53-56.

Such a reading of the 1960s, however, glosses over more important themes. During much of the decade, many leaders in the "developing" world regarded Mexico as an exemplar of agricultural advancement. The first half of this chapter details the history of how Mexico, with much help, became a Mecca for the countries in the Second and Third Worlds of the Cold War era for building an agriculture sector that could sustain a modern, industrializing economy. In other words, the first half argues that the partnership that was the "Green Revolution" - for some time, at least - appeared to have truly worked.

The chapter's second half describes how Mexican leaders' plans to continue and improve the policies that made it an international vanguard also led to the beginnings of a crisis. A plan involving international philanthropy and Cold War overtones designed as a schematic for planning and executing Mexico's agricultural future failed to account for the fact that many Mexicans were going to approve of the plan so easily. Consequently, this chapter returns to Mexico's Escuela Nacional de Agricultura (ENA) to show how a plan that encompassed the technology, productivist ideology, and technocratism associated with the "Green Revolution" became a conflict about the future of Mexican agriculture. The "Revolution," I argue again, saw its birth, as well the beginnings of its death, in Chapingo.

MEXICO AS THE DEVELOPING WORLD'S STANDARDBEARER

As the Rockefeller Foundation (RF) and the Mexican government began moves to eventually end the Mexican Agricultural Program, it appeared that the marriage

begun in 1943 had been a worthwhile project.[345] And by 1960, Mexican agricultural research and output had defied the past. Yields for wheat and maize, noted one MAP study had increased: maize yields increased dramatically from 626 kilograms per hectare in 1940 to 839 in 1960, and wheat yields increased from 763 kilograms per hectare to about 1,361 kilograms per hectare in 1960s.[346] Acreage dedicated to wheat had spread, the number of extension workers had increased, research in several crops was cutting-edge, and the country trained more agronomists than ever before. In fewer than two decades, MAP partners had built a model for agricultural modernization that included advanced research and diffusion. They had built a prototype that countries could emulate in the pursuit of economic industrialization, and people from all over the 1960s developing world visited Mexico to learn.

If President Adolfo López Mateos's (1958-1964) annual address about agriculture between 1959 and much of 1960 was an indication of how the decade to come would look, then Mexicans would have had few concerns. Published in September of 1960, a tone of optimism and improvement dominated the president's speech. Crop and livestock revenues totaled more than 26 billion pesos. Overall agricultural production saw a 6.7 percent production increase and prices grew by 3.4 percent. Maize production was the highest ever recorded in national history, with yields at record averages. Parts of Mexico no longer imported maize; in fact, farmers exported 443,000 tons, a level "without precedent," said the president. With the National Ejido Bank having loaned more than a billion pesos to *ejidatarios* and the National

[345] I consider the closure of the Office of Special Studies, which began by 1959, to have been the beginning of the end of substantive MAP work.
[346] Delbert T. Myren, "Case Study – The Rockefeller Foundation Program in Corn and Wheat in Mexico," in *Subsistence Agriculture and Economic Development*, Clifton R. Wharton, Jr., ed. (New Brunswick, NJ.: Aldine Publishing Company, 2008), 438.

Agricultural Bank having lent nearly half a billion pesos, farmers' access to credit had improved. Two agricultural research stations had opened in 1959, adding to the six already in existence. The country's irrigation projects had increased in size during the year. Over the same 1959-1960 period, every secretary of agriculture in Latin America attended meetings in Mexico that had been sponsored by the international sponsors. About the meetings, López Mateos said, "Our country restated its eagerness to cooperate in the name of science, sharing in continental interexchange."[347]

Cutting-edge agricultural research was one of Mexico's contributions to the "continental interchange," and by the early 1960s, local research proved both helpful and profitable to farmers. In January of 1961, the National Institute of Agricultural Research (INIA) took over research after the closure of the Office of Special Studies and the Institute of Agricultural Research (IIA). By the time of its opening, INIA investigators continued to develop improved seeds, fertilizers, pesticides, and technology that helped farmers. Researchers developed seeds that increased volume levels of more than one crop, so much that Mexico exported some items outside of traditional products. Sugar cane sold abroad, for example, was at its highest levels in history, and yields were up ten percent from the previous year. Rice and bean production levels approached export levels, too. Researchers had also begun working on improved sorghum and safflower seeds by the early 1961.[348]

To deliver the new technology to farmers, Mexico had a well-funded government agency. After the closure of the National Seed Commission, the National Seed Producer (PRONASE) took charge of a national seed distribution system,

[347] "Aspecto agrícola del II Informe Presidencial," *Tierra* XV, no. 9 (September 1960), 819-822.
[348] "Panorama de la agricultura nacional," *México Agrícola* VIII, no. 91 (September 1961), 48-49.

fertilizers, and other products in 1961. Writers praised PRONASE's work within a year of its founding, as it quickly fulfilled domestic demands and established "important operations" for selling seeds on international markets.[349] The same year that PRONASE opened, the National Seed Inspection and Certification Service began its service of ensuring seed quality, offering farmers confidence in the seeds that their government supplied. Already in 1959, Ministry of Agriculture and Livestock (SAG) officials boasted about the opening of a new seed distribution center in the Bajío (the central-western region of Mexico), with plans for opening six more centers to fulfill the government's goal of having installations in every state.[350]

Other areas underscored Mexico's impressive agricultural progress. The University of Guadalajara, one of the country's largest universities, opened an agricultural college in 1960, adding to the three other schools with national prestige in Monterrey, Chapingo, and Saltillo. The University of Sinaloa opened a college one year later.[351] Also in 1961, private banks found the confidence to begin lending money (about 212 million pesos) to help farmers. The same report suggested that a rising number of farmers purchased agricultural insurance, demonstrating a degree of modern farming.[352] Concurrent to these happenings, SAG representatives in late 1961 began a campaign to distribute more than 31,000 tons of newly-developed wheat seeds for major farming regions.[353]

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[349] "Quince años de producción de semillas de alta calidad," *Tierra* XVI, no. 12 (December 1961), 919-920.
[350] "El Secretario de Agricultura puso en marcha dos nuevas instalaciones," *El Campo* XXIV, no. 814 (December 1959), 47.
[351] Jesús Patiño Navarette, "Pasado, presente y futuro de la educación superior agrícola en México," *México Agrícola* X, no. 111 (May 1963), 19.
[352] "Panorama de la agricultura nacional," *México Agrícola* VIII, no. 91 (September 1961), 48-49.
[353] "Distribución se semillas certificadas para las siembras de trigo en la República," *México Agrícola* VIII, no. 93 (November 1961), 66.

A small army of extension agents delivered these seeds, and technology, and advice, to farmers. In 1961 the number of Rural Youth Clubs (see Chapter One) increased because of extensionists' work. The number of clubs stood at more than three hundred in nearly a third of the states where clubs had begun and the number, which "facilitate[d] the teaching of practical skills that will…allow children to live better [and] elevate the standard of living," looked to double.[354] At research centers around the country, agents and researchers held Demonstration Days for all comers. One writer who attended a Day at the Center for Agricultural Research in Roque, Guanajuato, said attendees to the gatherings could affirm, "with their own eyes," the results of research during visits to kiosks and field lots for discussions on new seeds, cultivation methods, pest control, and fertilization methods.[355] Extension agents also continued to comb rural areas. According to one SAG report from 1961, agents held over 260,000 consultations throughout the country and distributed 230,000 bulletins about topics ranging from household gardening tips, to tick repellant, to increasing maize yields. That same year, agents used multi-media, RV-like extension units, "the most modern audiovisual media," said one SAG report, for coverage all over the country and for visits to regional fairs.[356] For those farmers who lived far from a research station or who could not be reached via the mobile units, SAG workers purchased space in newspapers to publicize advice. In 1962, for example, one agent wrote an article for a

[354] "Aumenta el número de Clubes Juveniles Rurales," *México Agrícola* VIII, no. 88 (June 1961), 61.
[355] Gabriel Itié Cantelué, "Entrevista de *Tierra*: En el primer Día de Demostración efectuado en Roque, Gto.[,] los técnicos del Centro del Centro de Investigaciones Agrícolas del Bajío dan a los visitantes explicaciones de gran interés," *Tierra* XVII, no. 5 (May 1962), 335.
[356] "Informe anual de labores del 1º de septiembre de 1960 al 31 de agosto de 1961," México, DF., June 14, 1964, Secretaría de Agricultura y Recursos Hidráulicos (hereafter SARH), box 195, Archivo General de la Nación, Mexico City, Mexico (hereafter AGN), p. 46-47 and 50.

Culiacán newspaper about how to select, store, and cultivate improved seeds.[357] Agents employed the same diffusion method in Chiapas, Yucatán, and Veracruz.[358] SAG officials also expanded the Voces del Campo radio show. Programs aired daily in some places, inviting "farmers and livestock handlers to describe problems…over the air and have questions immediately answered," and promoting the show's goal of keeping farmers "well-informed."[359]

During this same 1962-1963 period, Mexican leaders intensified efforts to organize agricultural progress. The National Ejido Bank in October of 1962 began sponsoring an herbicide distribution campaign to help farmers, specifically *ejidatarios*.[360] Months later, SAG officials announced a national fertilizer campaign. Working with the heads of fertilizer companies all over Mexico, the Ministry of Agriculture and Livestock formed a Consultation Committee to oversee the distribution and finance needed to distribute fertilizer for more than 2.8 million hectares for maize, cotton, tomatoes, wheat, chili, alfalfa, rice, coffee, potatoes, sorghum, tobacco, watermelons, cantaloupes, and other crops.[361] In the same year, PRONASE's chief told the press that because of his agency's work, maize yields in certain regions were on par

[357] Sergio García Martínez, "Adjuntendo (*sic*) artículo de periódico 'El Diario de Culiacán' de esta ciudad," Culiacán, Sinaloa, September 24, 1962, SARH, box 235, AGN.
[358] Jorge Ochoa T., "Se envía publicación que se indica," Tapachula, Chiapas, March 6, 1962, SARH, box 235, AGN; M. Francisco Martínez J., "Se envían páginas agrícolas 'Diario del Sureste' esta Entidad," Mérida, Yucatán, February 22, 1962, SARH, box 235, AGN; Eleazar Santiago Cruz, "Se adjunta periodico (*sic*) se indica," Jalapa, Veracruz, March 1, 1962, SARH, box 235, AGN.
[359] "La SAG Hace Llegar la Técnica al Campo," *El Nacional*, México, DF., October 31, 1962, Hemeroteca Nacional, Media Collection, AGN.
[360] "Los ejidatarios tendrán más asistencia técnica," *Tierra* XVII, no. 10 (October 1962), page number cut off in photograph.
[361] "Alcances del Programa Nacional de Fertilización para el presente año," *México Agrícola* X, no. 111 (May 1963), 23-24.

with developed countries. His agency had also recently received support for improved barley seed distribution.[362]

Such distribution schemes and research advances earned Mexico the world's attention. In 1963, SAG representatives and FAO partners celebrated the completion of a second international training program hosted by INIA staff. Students from sixteen Latin American countries, Romania, Indonesia, Libya, Pakistan, Iran, Afghanistan, Egypt, Syria, Jordan, Turkey, Kenya, Australia, and Iraq took part in educational training courses. At the program's closing ceremony, INIA sub-director, José Guevara, said his country had achieved "notable advances" in research, and "simultaneously generated quality technical work and contributions to science on a global scale." Mexico, he added, "awakened the interest of researchers around the world to receive training in our country," and program participants received guidance in several areas, "all of which contribute to world-wide agricultural progress." An Iraqi trainee thanked the host country for its hospitality, adding that what he and others learned "will serve towards agricultural progress in participants' respective countries."[363]

Mexico affirmed its stature as a global agricultural leader a month later. In October of 1963, after visiting the International Rice Research Institute in the Philippines, President López Mateos entered Mexico into a partnership with the Rockefeller Foundation to open an international research center, the International Maize and Wheat Improvement Center (CIMMYT). SAG chief, Julián Rodríguez, summarized his country's status as a leader in the world of agricultural science and the

[362] "Altos niveles de rendimiento de semillas mejoradas de maíz," *México Agrícola* X, no. 113 (July 1963), 20.
[363] "Aportación de México al avance de las ciencias agrícolas," *México Agrícola* IX, no. 103 (September 1962), 38-39.

implications of CIMMYT's existence. "The rapid growth of the world's population," he told those present at the signing of contract agreements to open the Center, "continually exerts pressure on agricultural production…and, to be sure, agricultural science has made huge progress over the last years." Mexico, Rodríguez added, "had [in the 1940s and 1950s] ventured out to encounter agricultural science. Local students studied and trained abroad, to improve and expand research, training, and agricultural extension.

Now we open the doors of our colleges and training centers so researchers from other places can share our experience, our programs, and get to know our problems." Rodríguez mentioned Mexico's work related to genetic maize material and its relationships with nearly two dozen Latin American universities, almost every African country, Germany, Canada, France, Great Britain, Switzerland, Holland, Israel, Japan, and Thailand. He also proudly remarked that prior to CIMMYT's opening Mexico had already trained more than 300 interns from 29 countries.[364] The next month at a UN-sponsored conference in Rome, Oscar Valdés, Mexico's delegate, spoke to FAO members about CIMMYT's opening and his country's agricultural improvement. After mentioning Mexico's self-sufficiency in several crops, Valdés emphasized that the Center was opened, "with the goal of beginning a new chapter in modern technical agriculture with the today's world," to share "seeds that have allowed Mexico to improve production and make the country – after fulfilling domestic needs – a net exporter of basic nutritional products." The goal, as Valdés told leaders in Rome, was "to share the opportunity of other countries sending their researchers here to gain

[364] "Cooperación Científica: Mejores Métodos para Producir Maíz y Trigo," *El Nacional*, México, DF., October 26, 1963, Hemeroteca Nacional, Media Collection, AGN.

training to work with improved seeds, which, without a doubt, shall improve basic agricultural production."[365]

The costs of so many programs, extension agents, distribution schemes, and research center openings were huge, but the world helped defray the outlays. In September of 1963, Mexico became one of the first countries to begin distributing money via the Alliance for Progress program to agricultural improvement. According to an editorial in the most widely circulated agricultural magazine, *Tierra*, "There had been plenty of efforts towards improving rural conditions. It was thought that this problem could be solved via improving farmers' cultivation methods." Hence, SAG leaders magnified extension services, "guiding farmers along the rough path towards progress." When these efforts seemed to have failed, *Tierra* writers asserted that farmers' problem was their lack of access to credit.[366] And the Alliance for Progress would help growers, particularly small growers, with capital.

A project motivated by the Cold War during the John F. Kennedy administration to aid economic development in Latin America, the Alliance for Progress' novelty lay in its micro-lending approach. International sources lent funds to Mexican banks, which dispatched representatives to visit farmers to inspect borrowers' potential for repayment. Low interest rates and terms of repayment attracted farmers to the program. Instead of borrowing funds with a typical interest rate of 9 to 18 percent over a short period, a farmer could borrow small amounts for items on a smaller-than-industrial level – for example, heads of cattle, equipment for installing irrigation or drainage, machinery – at a 6 percent rate over a period of five to ten years. Banks asked that

[365] "Realidad actual de México en agricultura, ganadería y silvicultura," *México Agrícola* X, no. 118 (December 1963), 32-33.
[366] Y Gai Liberté, "Editorial, Progreso en el campo," *Tierra* IXX, no. 2 (February 1964), 107.

borrowers have insurance, so as to ensure a sense of security to lenders. The first installment of an eventual $250-million pesos loan to farmers began in 1963. Farmers in Michoacán and Guanajuato received the first funds in September of 1963.[367] By the summer of the next year, private banks began lending via the program, and, according to a *Tierra* article, "small-scale farmers feel optimistic about their futures."[368]

Other parties shared the same positive opinion. At a 1964 summer meeting with Alliance for Program partners, Mexico's Secretary of Finance implied that the program aligned well with social justice and the Mexican Revolution.[369] A writer for one farming magazine suggested that the Alliance for Progress was "not a promise towards the future, but a tangible reality for today." The credit that farmers received "signified the joint work of a country and its government…towards a better Mexico."[370]

Thus, when Gustavo Díaz Ordaz began his presidency in late 1964, the Mexican government found itself flush with cash and no reasons to alter the course of its agricultural development. Under López Mateos (1958-1964), irrigation for farmers expanded by 3.1 million cubic meters and lands on which farmers used fertilizers nearly doubled. Volume levels over the same period increased for several crops: maize 5.3 percent, beans 9.5 percent, wheat 5.3 percent, potatoes 13.5 percent, coffee 10 percent, sugar cane 4 percent, tomatoes 6.2 percent, sorghum 34.8 percent, and livestock 6 percent. Production levels for maize and wheat increased, too: maize increased from 5

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[367] "Nuevo impulso y ayudan el Gobierno de la República y la ALPRO al campesino mexicano," ibid., 109-111.
[368] "Entrevista de *Tierra*: El señor Tyrus Gerard Fain, representante del AID[,] nos explica lo que es la Alianza para el Progreso, sus finalidades y las realizaciones logradas hasta ahora en México," *Tierra* IXX, no. 5 (May 1964), 369.
[369] "La filosofía que norma a la Alianza para el Progreso es similar a la de la Revolución de 1910," *México Agrícola* XI, no. 125 (July 1964), 22.
[370] "La Alianza para el Progreso rinde sus frutos en el campo mexicano," *El Campo* XXIX, no. 869 (July 1964), 29.

million tons produced in 1958 to 7 million in 1964; and wheat increased in 1.3 million tons to 2 million tons over the same period. According to an editorial praising López Mateos's tenure, "It appears that the formula that will usher in the most agricultural progress - the connection between farmers and the men of science - will translate into the improvement of our national agriculture."[371]

Díaz Ordaz made rural areas a focus of his presidency. During his campaign for the president, Díaz Ordaz said that "The countryside's problems are the gravest issue in Mexico's political, social, and economic future." Agrarian reform, he added, remained incomplete if it failed to execute certain tasks like modernizing agriculture, changing methods of production, offering adequate extension services and training for *campesinos*, determining profitable crops in regions, protecting against soil erosion, combatting diseases, opening irrigation projects, settling land distribution, and other jobs.[372] Díaz Ordaz put his plans into action after taking office. To protect farmers from rural moneylender who were known for their usury and for offering low crop prices to growers, he instituted programs in states that ensured that SAG officials regulated and guaranteed prices to *ejidatarios* and small farmers via more supervision of the crop warehouse network with the National Basic Foods Company (CONASUPO).[373]

Within months, CONASUPO's director announced plans for an expansion of his agency's responsibilities, which would soon oversee a network of 258 maize storage

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[371] "Editorial, Un sexenio venturoso," *Tierra* IXX, no. 9 (September 1964), 705.
[372] Quoted in "Se inauguran en la Escuela Nacional de Agricultura los cursos del año de 1965," *Tierra* XX, no. 2 (February 1965), 103 and 133.
[373] "Noticias agropecuarias," *El Campo* XXX, no. 876 (February 1965), 54. The most thorough work on CONASUPO and its political uses is Enrique Ochoa's *Feeding Mexico: The Political Uses of Food* (Wilmington, DE.: Scholarly Resources, 2000).

warehouses for farmers and 222 railroad stops for shipping maize to and from markets.[374] That same month, to help illiterate rural farmers, Mexico hosted an international seminar focused on locating effective ways for extension via radio, which was important to the host country where over half the rural population could not read or write.[375]

Díaz Ordaz's plans included large investments in extension. Early in 1965, Juan Gil Preciado, Minister of Agriculture and Livestock, had a meeting on behalf of the president to overhaul extension policies. "The technical assistance [to farmers] failed to reach a majority of peasants," he said, and farmers were not "sufficiently receiving the appropriate instructions for protecting their crops," nor were they informed about crop prices, methods for fighting plagues, and ways of maximizing production. Gil Preciado and company, therefore, reviewed and redesigned policies in an attempt to ensure that extension services arrived to all farmers. Thereafter extension agents began partnerships with local agricultural bank officials in their zones to provide direct assistance to loan recipients. Agents also began giving more consultations on more topics than before - from efficient irrigation, to soil conservation, to furrow construction, to erosion control, to seed selection, to fertilization methods, to plague control, and to weather and price updates. As Gil Preciado said in March of 1965, SAG workers had to dispense services that benefitted all farmers, "regardless of their status as *ejidatarios*, communal farmers, or rank-and-file landowners."[376]

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[374] "El agricultor mexicano por primera vez entra directamente al mercado del maíz," *El Campo* XXX, no. 884 (October 1965), 4.
[375] Gai Liberté, "Editorial, Radiofusión rural," *Tierra* XX, no. 10 (October 1965), 779; Eduardo L. Venezian and William K. Gamble, *The Agricultural Development of Mexico: Its Structure and Growth since 1950* (New York: Frederick A. Prager Publishers, 1969), 186.
[376] "Nueva política de trabajo en la Secretaría de Agricultura y Ganadería," *México Agrícola* XI, no. 133 (March 1965), 12-13.

A gargantuan effort followed. Agents, teamed with social workers, continued visiting farmers to give advice on improving hygiene, gardening, food preparation and preservation, and sewing. They also continued to double their efforts to recruit members to Rural Youth Clubs.[377] The government purchased mobile audiovisual units, and by the fall of 1965, extensionists were hard at work. According to a report months after Gil Preciado's extension overhaul, agents worked with 450 Rural Youth clubs. In the same report, agents had attended to 70,000 farmers during one season. They had also made about 7,600 household visits, with services that included vaccination adminisration to more than two hundred children. Agents aired more than two-hundred hours of radio programs in two dozen states, wrote dozens of newspaper articles, produced 145 "agricultural-themed" television spots on satellites, and took audiovisual units to more than 20 fairs to hand out hundreds of bulletins and flyers.[378] In a report from earlier in 1964 and into 1965, agents reported to have aired more than 22,000 showings at 124 theaters around the country – all in the endeavor to spread the word about modern agriculture.[379]

By 1966, Mexican agricultural looked to have transcended its past. The country's main government research operation had a small contingent of 245 researchers, 24 with doctoral degrees and 50 with master's degrees, who led world-class studies in several important agricultural fields.[380] Small agricultural training schools for rural children who could not attend school after the elementary level had recently been

[377] "Noticias agropecuarias," *El Campo* XXX, no. 875 (January 1965), 54.
[378] Informe Trimestral de Labores, "C. Ing. Ricardo Acosta V.," México, DF., December 4, 1965, SARH, box 184, AGN, 5-9.
[379] No title, "C. Subsecretario de Agricultura," location not indicated, August 1965, SARH, box 184, AGN, 14.
[380] Nicolás Sánchez Durón, "Investigación agrícola," *Tierra* XXI, no. 11 (November 1966), 857.

opened. A small brigade of three dozen mobile extension units traveled with a social worker, a schoolteacher, and an agronomist, all of whom assisted peasants with the traditional services, and by 1966, "general home economics," and even advised peasants about how to spend their free time in artistic and sporting activities.[381]

Mexico's status as an international leader received tacit approval from George Harrar, the president of the Rockefeller Foundation in September of 1966. During his visit to Mexico, Harrar said "Mexico is the most advanced nation in the fight against hunger." "The first efforts towards alleviating hunger that humanity suffers," he added, "shall emanate from Mexico." Saying that the world's population would increase substantially in the next fifteen years, Harrar asserted that the countries who had conquered hunger were obligated "to help those that suffer," and one of the Center's job was helping defeating world hunger.[382] Ground zero, in no uncertain terms, for vanquishing one of the world's biggest problems in 1966 could be found in Mexico.

PLAN CHAPINGO

If Demonstration Days, mobile audiovisual units, better access to credit, improved seeds, fertilizer distribution campaigns, television and radio spots, price regulation, financial loans from abroad, and an organizational overhaul in the Ministry of Agriculture amounted to everything it took to help Mexican peasants, President Díaz Ordaz would have accomplished his task by the end of 1965. However, his plan for improving Mexican agriculture also included transforming the crown jewel of Mexican agricultural education: Chapingo. Juan Gil Preciado, the Minister of Agriculture, along

[381] "El sistema de educación agrícola," *México Agrícola* XIII, no. 161 (September 1966), 12-14.
[382] "De México Surgirán los Primeros Esfuerzos para Aliviar el Hambre," *El Informador*, September 18, 1966, Hemeroteca Nacional, Revistas Nacionales, Universidad Nacional Autónoma de México.

with Díaz Ordaz and others in Chapingo's auditorium, opened classes on campus in February of 1965 to outline the president's project.

The project's sponsors named it "Plan Chapingo." Its designers began plans for it during the López Mateos *sexenio*, and when Gil Preciado spoke on campus in early 1965, it should have been further along, but delays postponed completion until 1968.[383] After highlighting the Escuela Nacional's history and its mission of helping peasants, Gil Preciado suggested to the gathered *chapingueros* that they made up an army of agronomic soldiers that, "via science and training, transform farmers' work into something prosperous and make rural areas a determining factor in Mexico's magnificence." He went on to emphasize "the transcendental national" duty of erasing the history of ignorance and poverty, and how President Díaz Ordaz began, "in a vehement and immovable manner," plans to improve the college. Seeing agricultural education as an area for improvement, the president's plan would "project Chapingo's beneficence" all over the country.[384]

Plan Chapingo's origins likely began in 1960 and moved slowly thereafter. In October of that year the heads of agriculture in every state began discussions on how to deliver agricultural research in a more coordinated fashion.[385] Nearly two years later President López Mateos announced the founding of a new National Agricultural Council, which would be a governing body made up of representatives from each state to oversee, he said in 1962, that "rural groups protect and care for natural resources in

[383] *Sexenio* refers the Mexican six-year presidential term.
[384] "Se conmemoro (*sic*) el 111 aniversario de la Escuela Nacional de Agricultura," *El Campo* XXX, no. 876 (February 1965), 36, 38, and 40.
[385] C. Secretario de Agricultura y Ganadería, "Primera reunión de Directores o Jefes de Departamento de Agricultura y Ganadería de los Gobiernos Estatales y de los Territorios Federales," México, DF., October 1, 1960, SARH, box 212, AGN.

the country…and increase, diversify, and improve agriculture." The Council appeared to be the Mexican government's strategy for coordinating the delivery of research that the country had made over the last two-plus decades and streamlining future advances to farmers. Credit delivery, technical assistance, and extension agents would be, per one magazine article, "more direct and more efficient towards the benefit of the rural sector." Crop insurance, extension, guaranteed government prices, access to crop silos would fall under the national council's purview.[386] For all intents and purposes, the Council would be the institution that designed and governed Mexico's agricultural future.

Chapingo would become the council's home. Agricultural education, research, and extension were to be centralized at the Escuela Nacional. The National Council and the many projects that López Mateos and Díaz Ordaz began would emanate from the college and, according to a media article, would prepare "new generations of agronomists, and at the same time, accelerate the results of research and experimentation, and make these results available to *campesinos*," keeping in mind that national development "needs an increase in production and the economic and social improvement of rural groups."[387] The plan had a projected cost of over one hundred million pesos that would be covered by the Mexican government, and donations or loans from the United Nations, the Ford Foundation, the Rockefeller Foundation, the

[386] "Constitución del Consejo Nacional de Agricultura," *México Agrícola* IX, no. 97 (March 1962), 54.
[387] "Qué es en realidad el 'Plan Chapingo?,'" *El Campo* XLII, no. 888 (February 1966), 4; Adrián Lozano Toledano and Marco Antonio Anaya Pérez provide the most detailed breakdown of Plan Chapingo funding; see Lozano and Anaya, "El Plan Chapingo y su importancia para el campo mexicano," in *La educación superior en el proceso histórico de México, Tomo III*, David Piñera Ramírez, ed. (Mexicali, Baja California, Mexico: Universidad Autónoma de Baja California, 2002), 473-482.

US Agency for International Development, and the Inter-American Development Bank.[388]

A new headquarters for the National Institute for Agricultural Research (INIA) would be built on campus, and the center would have facilities for 500 students to learn from the 150 full-time researchers at the college.[389] The national Department of Agricultural Extension building at the college would be state of the art, with photography, and audio and video studios for producing media. A new Student Center would be built, with study rooms, student lounges, and a restaurant. Professors, administrators, and students would all enjoy new housing facilities. Chapingo's new library would be Latin America's largest, bragged one writer, with more than 250,000 books and journals of "the accumulated knowledge by man in agricultural sciences."[390] Finally, a newly-established national Agricultural Statistics Center would be headquartered on ENA grounds. In abstract terms, Plan Chapingo represented the Escuela Nacional's transformation into a panoptic nerve center where Mexican agriculture would be planned, researched, taught, and executed.

ANGST IN CHAPINGO

A survey of Chapingo students' sentiments and attitudes in 1965 may have given the plan's backers, particularly the international lenders and donors, cause for concern, however. Years before Plan Chapingo's organizers conceived of the project, anxieties bedeviled many students. *Chapinguito*, the school's student newspaper,

[388] "Noticias Agropecuarias," *El Campo* XXX, no. 875 (January 1965), 57.
[389] "El señor Presidente visitó las instalaciones para la realización del 'Plan Chapingo,'" *México Agrícola* XII, no. 144 (February 1966), 45.
[390] "Primera fase del Plan Chapingo," *México Agrícola* XI, no. 135 (May 1965), 26-27.

described a dystopian intellectual setting reminiscent of George Orwell's novel *Nineteen Eighty-four*. A "Thought Police" seemed to govern the college and a veiled angst, influenced by a number of factors, existed on campus.[391] By 1965, when Gil Preciado spoke to students about Plan Chapingo projecting the college's "beneficence" all over Mexico, a sense of disenchantment among many students was crystallizing into hostility.

The origins of the bitterness in the 1960s could be found in a stifling learning environment that began two decades prior. Since the early 1940s, the Escuela Nacional de Agricultura never changed its curriculum in any substantive manner. It offered eight areas of study: plant breeding, agrostology, irrigation, plant parasitology, forestry, livestock, industrial agriculture, and agricultural economics. Each student took three years of basic agronomic studies, followed by four years of studies in their specialty area. This plan, according to a 1960s catalog, "integrated teaching modern technical and scientific knowledge" that "overcame the encyclopedic" teaching from years past.[392] Lessons, though, rarely deviated from the securities of a bland lecture from a professor, a textbook, an empirical formula, or a chalkboard. After seven years, the ENA degree declared graduates, *técnicos* (technicians) with the title Agronomic Engineer. But they were not researchers.

This distinction between researchers and technicians is important. "Technician" derives from the Greek root "tekhnē," which refers to an art or a craft, or dexterity of hand. The term "*técnico*," then, denotes a person with a specific skillset in an area of specialty. They are specialists. In a contrast to some artists or scientists who generate

[391] George Orwell *Nineteen Eighty-Four* (New York: Houghton Mifflin Harcourt, 1949), Kindle edition.
[392] Escuela Nacional de Agricultura, Catálogo 1966, "Desarollo histórico de la Escuela Nacional de Agricultura," 6, Archivo EHX, COLPOS.

new knowledge or new ways for examining complex phenomena, a technician is a person in a practical field equipped with an adroitness towards dealing with a familiar problem or question. They receive intensive training for problem-solving within a strict empirical framework and often the training that they receive is adequate for the tasks they are assigned to fulfill. Not universally, technicians can often shortchange (or neglect) complex phenomena or overlook alternative approaches or forms of inquiry. When applied to methods for improving certain human conditions – for example, helping peasant farmers during the 1950s and 1960s – *técnicos* could be considered operatives of what anthropologist James C. Scott called "high modernism."[393]

By the latter half of the 1950s, the Escuela Nacional de Agricultura was a *técnico* factory. *Technical Agriculture in Mexico* was a major peer-reviewed agronomic journal in Mexico during the 1950s and many ENA instructors were more than likely trained by the journal's founders and contributors. In their classes, professors privileged a brand of pedagogy that advocated rote memorization, numbers, and formulas. That the material they taught was derived in empiricism and supported by the scientific method lent legitimacy to professors' teaching methods. In terms of curriculum, the college offered eight specialty areas, with no opportunity for interdisciplinary study. An irrigation specialist knew irrigation and only irrigation. An entomologist student learned how to proportion chemical formulas to eliminate or manage plant diseases and not much outside of this task. A plant breeding student

[393] Scott defined "high modernism" as "…a strong (one might say muscle-bound) version of the beliefs in scientific and technical progress that were associated with industrialization in Western Europe and in North America from roughly the 1830s until World War I. At its center was a supreme self-confidence about continued linear progress, the development of scientific and technical knowledge, the expansion of production, the rational design of social order, the growing satisfaction of human needs, and, not least, an increasing control over nature (including human nature) commensurate with scientific understanding of natural laws." See Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998), 89-90.

focused on developing disease-resistant or climate-adapted or high-yielding seeds and not much else. Teachers rarely held discussions outside of subject matter and often relegated social science topics to areas that fell outside of their lesson plans, outside what a *técnico* should worry about. "There was no sociology, no specialty aligned with the humanities or close to anthropology and other disciplines," said one 1960s student.[394]

A military-base atmosphere reinforced the strict, parochial pedagogy. Bugles woke up students every day. They lived in military-style dormitories. They wore uniforms and lined up for roll call before meals. A Military Department official required students to line up in evenings so that he could deliver the national news, as if they were stationed at a remote "battlefront," said one ex-student - as if Mexico City were not only a dozen kilometers away from campus.[395] Before national holidays, they practiced marching for parades. Should cadets display poor cadence, the Military Department chiefs were not above strong discipline; in one instance, one chief forbade students from eating breakfast one morning until they marched in a manner he saw as appropriate.[396] Some students hazed one another to build, in some of their eyes, fraternity and camaraderie. Social night fell on Wednesdays, the one night a week that the auditorium played movies or where student meetings took place.[397]

Thus was life at Chapingo for years. Administrators kowtowed to military traditions like marching in formation and reporting for chowtime. Teachers delivered

[394] Taide Aburto, *1967*, 19.
[395] Rafael Ortega Pazcka, interview with author, Chapingo, Estado de México, Mexico, December 2, 2013.
[396] Efraín Marín Reyes, "A propósito de…," *Chapinguito* XVII, no. 1 (February 1961), 38-39.
[397] Hiram Núñez Gutiérrez, *1967*, 85.

an underwhelming pedagogy minus dynamism and breadth. And many students rarely questioned how things were done at school for much of the 1950s.

During the decade, in fact, one may have a hard time believing that any sense of dissatisfaction existed on campus. Students held the college in high regard. In 1950, Francisco Baldobinos offered a list of suggestions for the college. Chapingo had a small student population, but its "importance in a number of areas – social and intellectual discourses, and sports – is huge." He added that Mexico "is in our hands."[398] A year later, another student told classmates that students were "soldiers…who must study how to nourish Mexico and earn its spot among the advanced countries of the world."[399] In 1956, one *Chapinguito* contributor called school "a place…where Mexico has invested its hopes."[400]

Other parties invested money in the college. By 1959, for example, Sears, Roebuck & Company began sponsoring scholarships for ENA students to study agronomy in the United States.[401] In the same year, Mexico's Agricultural Credit Bank lent Chapingo 50,000 pesos to purchase land for a new Training Center for Agricultural Machinery Instruction, where crash courses for students in Mexico's agricultural vocation schools on heavy farming equipment took place. At the center, John Deere, Fordson, Massey-Ferguson, and International Harvester representatives oversaw maintenance and operation of equipment worth nearly one million dollars that

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[398] Francisco Baldobinos, "La Sociedad y nuestra agricultura," *Chapinguito* (June 1950), 4. As mentioned in a footnote in Chapter Four, *Chapinguito* printings, particularly during the early 1950s, did not always include volume and issue numbers.
[399] "Editorial," *Chapinguito* (September 1951), 2.
[400] "Editorial," *Chapinguito* XII, no. 3 (March 1956), 1.
[401] "Reciente visita," *Chapinguito* XV, no. 1 ([March] 1959), 2. Based on my research, this issue of *Chapinguito* is from March of 1959.

companies had donated to Chapingo. The US government promised to add to the center by donating a state-of-the-art machine shop-warehouse for equipment.[402]

Other parties from all over the world praised the college during the 1950s and early 1960s. In February of 1959, at least a couple Ministers of Agriculture from Latin American countries visited campus to "glance at the school's facilities."[403] Months later, Luis Eduardo Chalita quoted an article from abroad that praised the college, mentioning that it was the only agronomic college in Latin America with graduate studies in several fields - "an international center for agricultural studies."[404] Two years later, other guests included some from Yugoslavia.[405] In September of 1962, Israel's ambassador to Mexico visited because Chapingo's name was "a learning center with international prestige."[406] Such compliments were affirmed in 1963, as delegates from ten Latin American countries and one FAO officials toured campus and praised the progress of teaching and research at school.[407]

According to an extensive report by Efraím Hernández, the school deserved a degree of praise by 1961. It employed more full-time professors (35) than ever. The government issued between 200 and 250 scholarships annually to new students. Less than half of these students managed to graduate - studies were rigorous. No other Latin American college offered the eight specialty areas that Chapingo offered. The college owned one of the world's most notable agricultural seed germplasm banks. Its graduate college, the Colegio de Postgraduados (COLPOS), received financial support from the

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[402] "Notas sobre el Centro de Adiestramiento para Instructores de Maquinaria Agrícola," ibid., 1-2.
[403] "Visita," ibid., 1.
[404] Luis Eduardo Chalita Tovar, "Glosas," *Chapinguito* XV, no. 3 (September 1959), 19.
[405] "Fantasmagorias macartistas," *Chapinguito* XVII, no. 1 (February 1961), 26.
[406] Caption, *Chapinguito* XVIII, no. 4 (Fall 1962), cover.
[407] "Las responsabilidades de los agrónomos extensionistas," *México Agrícola* X, no. 112 (June 1963), 34.

government, the United Nations, and the Organization of American States, and it had more than two dozen students as of 1961.[408] The same year of Hernández's report, President López Mateos announced plans that would eventually open an ENA satellite campus on Mexico's east coast to begin research in tropical regions.[409] If job placement indicated success, then students and ENA officials had no worries in the early 1960s: graduates counted on at least "one or two job offers," or at least had an idea where they wanted to land after college, said one student.[410] Fungicide, pesticide, and fertilizer company representatives, along with government agencies, "snatched" *chapingueros* outside campus gates, said another student.[411]

The prestige from the 1950s resonated with students in the following decade. Many of them considered the college's gates to be where revolutionary rhetoric fused with the need to find one's vocation. In 1960, one student returning to his "always homely school," told classmates that they had "the great fortune of attending school at a wonderful place. It provides us with everything, and in exchange, it's demanded that we study hard." He encouraged classmates to manage their time carefully because it went towards "a noble cause," that of helping Mexico.[412] The same year another student discussed the progress of the Mexican Revolution, mentioning that the Revolution continued apace with new generations of "neo-revolutionaries," who, on the one hand, "salute the noble cause of helping the Mexican people," but, on the other hand, "leech and plunder our national budgets." In the meantime, "the fight continued

[408] Efraím Hernández Xolocotzi, "La enseñanza en la Escuela Nacional de Agricultura," Mexico, paper delivered at Mexican Society of Natural History, June 9, 1961, Archivo EHX, COLPOS.
[409] "Panorama de la agricultura nacional," *México Agrícola* VIII, no. 91 (September 1961), 49.
[410] Gerón, *1967*, 32.
[411] Lauro Bucio Alanís, interview with author, Mexico City, DF., Mexico, November 29, 2013.
[412] Miguel Caballero Deloya, "Decídamonos," *Chapinguito* XVI, no. 1 (February 1960), 13-14.

with *chapingueros*" towards being a revolutionary flag bearer and putting forth the manpower to "elevate the future of agriculture."[413] A month before the same student shared a short piece noting that peasants still suffered from a number of injustices. Fortunately, he wrote, "Chapingo – the only true revolutionary school – carried on with its mission."[414] Taide Aburto, a classmate, saw the school's motto – "Teach the exploitation of the soil, not man." – as "fundamentally Zapatista" and found the motto to be inspirational when he arrived on campus in 1964. Professors gave students the idea that "we had to work in a social context, and a career" to students. Chapingo allowed "you to make a living while keeping a social outlook."[415]

There was an underside to the optimism, however. Small signs were visible during the latter half of the 1950s. Sergio Reyes called himself and classmates ignorant in 1956. So much time in classrooms made them ignorant of farmers and agriculture, and insecure when they graduated from school. Only during their final years did *chapingueros* make what Reyes called "tourist trips" off campus, for a total of six to eight days. The majority of instruction occurred in "classrooms with no more material than chalk, an eraser, and a chalkboard." Courses were so classroom-bound, Reyes suggested, that many students who study tropical agriculture cannot identify coffee bushes or cacao outside of a diagram.[416] Three years later, Gerardo Lartigue spelled out an informal survey of campus. "Hollow words. Hollow smiles. Political posing and posturing. Insincere phrases," his piece began. Describing classmates, Lartigue said he knew "no other way" to begin his editorial. "Chapingo's goal," he continued, "is to

[413] Luis E. Chalita Tovar, "Glosas," *Chapinguito* XVI, no. 3 (July 1960), 3.
[414] ----, "Con la esperanza me quedo," *Chapinguito* XVI, no. 2 (June 1960), 3.
[415] Taide Aburto, *1967*, 20.
[416] Sergio Reyes O., "¿Nueva estructura? ¿Para qué?," *Chapinguito* XII, no. 3 (March 1956), 4.

train agronomists, quality workers, and most important, upright men." But the school failed. Students received "anti-pedagogical teaching from horrible teachers." More important, students graduated after seven years of "unbalanced" training, lacking "familiarity with society and culture." The effects of such a "chaotic situation" were well-known. Effects included a lack of interest in classes and research, displays of indiscipline, "and worse: a devaluing of the countryside and a total shortage of ideology." Before encouraging classmates to take hold of their education, Lartigue wrote that "An agronomist who devalues the countryside was a farce. Someone without culture or ideology amounted to a hollow man."[417] In *Chapinguito*'s next issue, an editorial discussed a "pessimistic current" and other complaints that floated around school. The young man mentioned the school's forty-year-old curriculum that "followed anti-pedagogical methods," and how students spent hours "simply cramming, memorizing pages and pages that never ends." Once "we pass a test, completing our mission of being 'intellectual sponges,' we forget forever. Instead of passing the exam via intelligence and rationalism on solid grounds about the material, it's more probable that we gain an unconscious aversion towards the subject." He went on to mention criticisms about campus discipline and mentioned criticisms of the school's director. He added that the Student Body Association held hollow meetings instead of discussion of opprobrium towards *latifundios* who "lord over the martyred Mexican soil, who still flagrantly spit in the direction at the misery of Mexican peasants." The editorial

[417] Gerardo Lartigue Gordillo, "Sub-problemas," *Chapinguito* XV, no. 1 ([March] 1959), 7.

finished by outlining how well material life was at Chapingo, but many things needed improvement, namely a reassessment of values.[418]

Others echoed the criticism, underscoring a restiveness and concern that students behaved like automations. During the spring of 1959, Luis Eduardo Chalita suggested that school leaders lacked vision and that research on campus remained inadequate. Teachers imparted a brand of agricultural extension taught that was "behind the times," bolstered by the diffusion of a futile bulletin to help farmers. Chalita also squashed some of the zeal expressed in a Latin American publication about the Chapingo's prestige, saying the college failed to exercise decisive influence with farmers near its grounds.[419] Chalita's harangues continued in 1960. He criticized the few "ill-equipped" extension agents in Mexico and added that ENA halls "remained half empty."[420] Students later wrote a petition concerning unqualified teachers, and soon afterwards, instructors' resignations "rained" on campus.[421] The same author later said that an agronomist was "one of the most uncultured professionals. His technical preparation could be excellent, but he has lost an important intellectual quality," particularly culture. He suggested that students failed even to read popular magazines at the library or respond to music in the student lounge, displaying apathy towards anything not related to schoolwork. "The ignorance among students about the world

[418] "Editorial, Va en decadencia la Escuela Nacional de Agricultura," *Chapinguito* XV, no. 2 (month not indicated 1959), 1-3.
[419] Luis Eduardo Chalita Tovar, "Glosas," *Chapinguito* XV, no. 3 (September 1959), 19-20.
[420] ----, "Glosas," *Chapinguito* XVI, no. 1 (February 1960), 15.
[421] JSM, "Editorial, Los hombres pasan[,] las instituciones quedan," *Chapinguito* XVI, no. 2 (June 1960), 1.

outside of campus is of Olympic proportions," he wrote in an editorial titled "It's Time We End Our Confinement."[422]

The despondency and complaints intensified in 1961. In reaction to a film crew on campus, one student asked if the production was a strategy to attract more city dwellers to the college. This would be a problem, the writer suggested, because "desktop agronomists were already a plague" in Mexico.[423] Students registered more complaints against ENA teachers for failing to attend their own classes or, when they attended, trying to cover all the material in two or three weeks.[424] Students shared stories of how many left school to become either "agricultural technicians" or "professionals," who adopted poor attitudes that worsened with time. "What a pitiful lot! What a waste of human resources because of the modern ways of life!" the students added.[425] In the same issue, José Héctor Silva shared his interpretation of history, saying that science always had a connection to philosophy and culture. His school, though, suffered from the absence of philosophy. A newly-developed plan of study had begun on campus, but, he said, the plan sought to rectify problems "without including cultural material, which is required if graduates worked to improve society." Moreover, the school failed "to have its *own philosophy* concerning the world in which we live" (emphasis in original). The main reason for this, Silva wrote, was pedagogy failed when it did not account for "the value of human spirit towards the existence of man."[426]

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[422] ----, "Editorial, Es preciso poner fin a nuestro confinamiento," *Chapinguito* XVI, no. 3 (July 1960), 1-2.
[423] "¡Mejor no nos ayudes, compadre!," *Chapinguito* XVII, no. 1 (February 1961), 13.
[424] Efraín Marín Reyes, "A propósito de…," ibid., 40.
[425] Gregorio I. Canó Treviño, "El ejercicio professional," *Chapinguito* XVII, no. 2 (March 1961), 4-5.
[426] Héctor José Silva R., "El ausentismo filosófico en nuestra escuela," ibid., 7.

Frustrations mounted later that year. When the governor of the State of Mexico visited, students failed to arrive on time to a talk-lecture because of "general apathy."[427] One student rhetorically asked classmates if bureaucracy among school administrators was "the brake" stopping agricultural education, as students found it difficult to get materials for labs. "Pure bureaucracy" existed on campus, he wrote.[428] In the same *Chapinguito* issue, two writers described how one professor suggested, "in a serious and dogmatic tone," that students should not ask for anything more from their education, they should not venture further than "'technical aspects'" at school. Another adage heard on campus, the writers said, was to "'only worry about themselves and not about everyone else.'" Such words amounted to "intellectual laziness," and the writers urged classmates to leave their mental comfort zones because "A society comprised of people without frustrations or questions never progresses. A society of technicians could be a civilized grouping, but not enlightened." Writers reminded peers about the global context that they ignored when they adopted an existence with worries that rarely ventured outside of schoolwork: Africa's decolonization; the fight against South African apartheid; Patricio Lumumba's murder in the Congo; US support for dictatorships in Nicaragua, the Dominican Republic, Haiti, and Paraguay; the Central Intelligence Agency's interventions in Algeria, Hungary, El Salvador, Guatemala, Laos, France, and the Bay of Pigs invasion. "Always keep in mind," they finished, "that utilitarian science and manuals only produce machines. It is much more to be human."[429] Later that year students wrote an open letter to the school director in which they alluded to a pervasive passivity at school, the absence of the word "distinction

[427] Miguel Caballero D., "El letargo de la Sociedad," *Chapinguito* XVII, no. 4 (1961), 13.
[428] Efraím Marín Reyes, "Sección de crítica," ibid., 45-46.
[429] López-Bago V. and Palacios, "¿Qué efecto te produce esto?," ibid., 35-37.

[even] from campus dictionaries," and "the lack of competent people who display a concern for values and their human, social qualities."[430]

If a penchant for agitation existed in Chapingo by 1962, it was partially swayed by contemporary events in Mexico and in Latin America. At a time when Carlos Fuentes's *The Death of Artemio Cruz* (1961) drew attention to the moral bankruptcy of Mexico's ruling party, students were not impervious to national controversies: the Jaramillista Movement; the army's invasion of the National Polytechnic Institute in 1956; the guerilla campaigns in Guerrero; and the controversial arrest of labor leader Demetrio Vallejo in 1959.[431] Latin American happenings, particularly the Cuban Revolution, tremendously influenced students' frustrations.[432] It seemed Ernesto "Che" Guevara was prescient when he wrote in January of 1959 how the Cuban Revolution "touched the consciousness" of Latin Americans.[433] Chapingo's Class of 1960 named

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[430] Gregorio I. Canó Treviño, "Usted, Sr. Director," *Chapinguito* XVII, no. 6 (1961), 13.

[431] Recently, the scholarship concerning the movements against the authoritarianism of the Partido Revolucionario Institucional between the 1950s through the 1980s has grown substantially. For more on the Jaramillista Movement and the "Pax Priísta," see Tanalís Padilla, *Rural Resistance in the Land of Zapata, 1940-1962* (Durham: Duke University Press, 2008); on the urban student movements and origins of the movements, see Jaime Pensado, *Rebel Mexico: Student Unrest and Authoritarian Political Culture during the Long Sixties* (Stanford: Stanford University Press, 2014); for the guerilla movements in Guerrero, see Alexander Aviña, *Specters of Revolution: Peasant Guerillas in the Cold War Mexican Countryside* (Oxford: Oxford University Press, 2014). Other related works include *Challenging Authoritarianism in Mexico: Revolutionary Struggles and the Dirty War, 1964-1982*, Fernando Herrera Calderón and Adela Castillo, eds. (New York: Routledge, 2012) and Dolores Trevizo, *Rural Protest and the Making of Democracy in Mexico, 1968-2000* (University Park, PA.: Penn State University Press, 2012); and Eric Zolov, *Refried Elvis: The Rise of the Mexican Counterculture* (Berkeley: University of California Press, 1999).

[432] In relations to the Cuban Revolution and Mexico, see Eric Zolov, "¡Cuba sí, yanquis no!: The Sacking of the Instituto Cultural México-Norteamericano in Morelia, Michoacán, 1961," in *In From the Cold: Latin America's New Encounter with Cold War Studies*, Gilbert Joseph and Daniela Spenser, eds. (Durham: Duke University Press, 2007): 214-252 and Olga Pellicer de Brody, *México y la Revolución cubana* (Mexico City: El Colegio de México, 1972).

[433] Ernesto Che Guevara, "Social Ideals of the Rebel Army," in *Che Guevara Reader: Writings on Politics & Revolution*, Second Edition, David Deutschmann, ed. (New York: Ocean Press, 2003), 94. Guevara's faith in Mexican support for the Cuban Revolution was short-lived. By 1962, he wrote that "Mexico is fast becoming a U.S. colony. There is a kind of bourgeoisie in Mexico, but it has made a pact with imperialism. It is a country that has been greatly harmed by the so-called Mexican Revolution, and important actions against its government can be foreseen there." See Guevara, "The Cuban Revolution's Influence in Latin America" (1962), ibid., 286.

Fidel Castro their godfather, particularly after some students had visited Havana and had spent time with some of the July 26 Movement's leaders in 1959. Héctor José Silva returned praising Cuba for "awakening an interest" in Latin America.[434] Silva expressed other effusive words the next year, when Cuba's president, Osvaldo Dorticós, visited Chapingo.[435] At least one student was peeved when government officials forbade him from traveling to Havana for the first ever Latin American Youth Congress in 1960.[436] Students also defended Fidel Castro's policies, asking if it was a crime to "gain liberty [from exploitation] in your country…from those who have done so much harm to his *patria*?"[437] In the month after the failed Bay of Pigs invasion, some student leaders wrote an open letter to the president of Mexico about the "cowardly aggression" of the "mercenary army" that tried to invade Cuba. They shared their willingness to lend "military, moral, and material support" to their fellow Latin Americans in the Caribbean.[438]

The happenings in Cuba tapped into anti-*yanqui* rhetoric that had circulated for some time in Chapingo. In 1959, Javier Zuñiga said that he no longer cared to see representatives and Mexican interns under the tutelage of the Rockefeller Foundation (RF) giving demonstration talks on campus. He resented the fact that RF representatives, while having help fund the opening of the Colegio de Postgraduados, had tried to keep a representative on campus in exchange for its donations. "If the Rockefeller Foundation wants to help Mexican agricultural development," Zuñiga

[434] Héctor José Silva R., "Cuba: País de actualidad," *Chapinguito* XV, no. 5 (November 1959), 34-35.
[435] ----, "Cuba, México, Chapingo," *Chapinguito* XVI, no. 2 (June 1960), 37.
[436] "Fantasmasgorias macartistas," *Chapinguito* XVII, no. 1 (February 1961), 25-26.
[437] Fernando Peña Rodríguez, "La verdad sobre Fidel," ibid., 51.
[438] "Carta abierta," *Chapinguito* XVII, no. 3 (May 1961), 10.

implored, "they have nothing else to do but leave. They are now in the way."[439] Héctor Zamudio later revealed his anti-Yankee sentiment, saying that for every cent that the United States invested in Mexico, it sought to take one hundred. He lamented that many compatriots had been "conquered" by cultural mores from the United States and that many Mexicans more than welcomed US "'help.'" "I want everyone," Zamudio continued, "to understand that if we have the presence of the Rockefellers - highlighting a palpable case close to home [at Chapingo] - it is not because they want to help us develop our agriculture; rather, it is so that we do not develop our agriculture. Hence, misery and ignorance will continue and Mexico will remain a mental prisoner."[440] Near the same time, ENA students from Central America added articles with similar anti-Yankee themes. A Panamanian classmate wrote articles highlighting the exploitation of the Panama Canal. In one commentary from 1962, he said that the canal functioned as a "*gringo* colony."[441]

The amalgam of anti-Yankee rhetoric, angst towards authorities, and general intellectual frustration came to a head in 1963. In May of the previous year, students arrived at administrators' doors with three demands. First, they demanded that ENA Director Enrique Espinosa be removed from his position. Second, complainants wanted the Directive Council, the student-faculty group that decided on major college decisions since 1938, to better address students' needs. Finally, students demanded that college funding increase. SAG and ENA officials met to deal with the small ENA mutiny. Espinosa soon resigned. The demand for more funds on campus resulted in less money

[439] Javier Zuñiga Mejía Borja, "Demostración en el campo El Horno," *Chapinguito* XV, no. 5 (November 1959), 2.
[440] Héctor Zamudio Fuentes, "Una carta," *Chapinguito* XVI, no. 3 (July 1960), 11 and 21.
[441] Luis Barraza de Freitas, "Un canal a nivel," *Chapinguito* XVIII, no. 4 (Fall 1962), 5-6.

from SAG officials. As for the second mandate to have more say in changes that occurred on campus, SAG officials' reaction disappointed many students. Later, after meetings between Espinosa's replacement and Julián Rodríguez, the Minister of Agriculture and Livestock, it was decided that Chapingo's preparatory school would be terminated. This was a problem among several students because the preparatory school functioned as an avenue for many teen-age peasants to receive state-funded elemental training on campus that they would not otherwise receive. Students called the policy change, which possibly violated student-faculty Directive Council bylaws, an "unfounded and disrespectful transformation" that would affect the students who were supposed to be the population that the college purported to help.[442]

A few days later, it appeared that students learned about Plan Chapingo from Mexican newspapers - not from school officials. Their response was tepid. "If we let an exaggerated sense of optimism to overcome us, we would celebrate such a plan as one of the most important on campus in the last fifteen years. But we reserve judgement. We remember that the interests of foreign parties on campus do not always coincide with Chapingo's revolutionary ideology." In a wait-and-see tone, the article finished with hope that school authorities and the government had not aligned themselves with interests foreign to advancement of the Mexican Revolution, "and that our leaders wisely put these donations to good use that made school more dynamic in order to continue fighting for Mexico."[443]

By the summer of 1963, then, during Plan Chapingo's initial stages, things were astir at the Escuela Nacional. For nearly four years, discontent accumulated among

[442] Juan López Tirado, "Progresamos….?," *Chapinguito* XXIX, no. 1 (March 1963), 5-9.
[443] "Editorial," ibid., 1.

many students. They badmouthed their teachers and school administrators. They vocalized skepticism about foreign interests at the college, some indulging in strong anti-Yankee rhetoric. And many of them begged for an overhaul of the school's pedagogy, something weightier than the intellectual and ideological impoverishment that governed at a college that bespoke revolutionary ideals.

This restiveness exemplified the construction of what historian Jeremi Suri called a "language of dissent." Colleges during the early 1960s were hot-blooded environments in many countries. They were places where large concentrations of young people furthered their literacy and idealism. They also represented settings where idealism often outmeasured many realities and where young people often developed skepticism toward the leadership in many countries. As Suri wrote, higher education during the 1960s became "a distinct government-sponsored activity, with its own clearly defined and regulated facilities" where women and men rattled taboos and jettisoned old ideas.[444]

A handful of *chapingueros* spent the late-1950s and early-1960s weaving their "language of dissent," their own penetrating critiques of the on-campus world. And often these criticisms translated into larger indicments of Mexican authorities. Many attendees began their academic career seeing their institution as the place that would train them to help peasant farmers. On ENA grounds they would attain the know-how to help their poorest rural inhabitants. Students responded with aggresive critiques when such elevated expectations appeared unfulfilled. These harsh appraisals gathered

[444] Jeremi Suri, *Power and Protest: Global Revolution and the Rise of Détente* (Cambridge: Harvard University Press, 2005), 92. I am abbreviating Suri's larger discussion about the development of an international "language of dissent." See Suri's third chapter for his entire discussion. His collection of primary sources reinforces the history of 1960s student movements and their results in a global context; consult Jeremi Suri, *The Global Revolutions of 1968* (New York: W. W. Norton & Company, 2007).

steam in their student newspaper, in their dormitories, in their personal notebooks (see the poem at the opening of this chapter), and in other spots on campus.

LA XOLOCOTZIA

Students' complaints found fertile soil in Efraím Hernández's classes. Since the 1950s, Hernández had griped about what he considered intellectual narrowness in ENA classes (see Chapter Three). He resented the dogmatic teaching among many colleagues, arguing often with anyone who would listen that students needed to become less servile to the insular, uncreative approach to agriculture at Chapingo. His classes and his way of questioning truisms about agriculture (and most other things) became legendary. An inclination to put everything on trial came to be called "*la xolocotzia*," and it meshed well with students' angst in the 1960s.

Hernández stood out on campus from the day he arrived in 1953. Professors typically wore ties, sport coats, and dress shoes. To his first class, Hernández donned a green pinned-striped suit, with a collared polo underneath, and moccasins for shoes. The pants had a noticeable hole in the rear. He wrote his name on the chalkboard, instructed students to take out a sheet of paper, and he administered a quiz the first day of class. When a student later retold him how they imagined a teacher in a suit and tie, Hernández replied, "You didn't realize [that along with dressing differently], I was also a badass botanist."[445] He always refused, one colleague said, to be part of the crowd, he had to be "the protagonist" everywhere he went.[446] Students usually realized his

[445] Fidel Márquez Sánchez, "Cuando Xolo llegó a Chapingo," *Aquí Centros Regionales* XIV (February 2011), 5.
[446] Edmundo García Moya, interview with author, Montecillo, Estado de México, Mexico, October 9, 2013.

intelligence within minutes of meeting him and, as former students said, many were attracted to a charisma one sensed when they shook his hand.[447]

Hernández was likely the toughest teacher on campus and not above cursing at students. Ramón Mariaca, a Hernández pupil during the 1980s, recalled visiting Hernández's office to retrieve a thesis draft and finding his work in a trashcan. A scolding followed, with cursing and the admonishment that Mariaca should not turn in garbage posing as a thesis.[448] His approach to teaching was that students did not have to be the cream of the crop, nor did they have to share his ideas. But they had to display effort and an indication that they studied for a reason. A student attending college for the sake of doing so – pursuing "the love of knowledge," knowing simply to know - was anathema.[449]

For those who withstood the often-gruff personality and for those who showed effort, the relationship with Maestro Xolo, as he was known, was special. To these students, the *xolocotzianos*, Hernández gave money during financial straits (e.g., Méndez), lent his car when they went into labor, attended movies, paid for meals, and shared numerous experiences. José Sarukhán never forgot the day Hernández changed the subject of a conversation they were having during a road trip. Maestro Xolo made sure his student paused to admire the sunset descending on Mexico.[450] Being a *xolocotziano* transcended the typical top-down student-teacher relationship on campus in the 1960s.

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[447] Patricia Colunga García-Morín and Daniel Zizumbo-Villareal, interview with author, Tuxtla Gutiérrez, Chiapas, Mexico, October 25, 2013.
[448] Ramón Mariaca Méndez, interview with author, San Cristóbal de la Casas, Chiapas, Mexico, October 24, 2013.
[449] I borrow the phrase "love of knowledge" from Jim Cane-Carrasco. Thank you, Dr. Cane, for introducing the term to me and for teaching me how to make an informed decision about the term's ramifications.
[450] José Sarukhán Kermes, interview with author, Mexico City, DF., Mexico, November 11, 2013.

In his classes, Hernández made students obey academic conventions, yet their work also had to have style. Should a student deviate from either one of these expectations, their grade paid a price. Carlos Bermejo found this out in 1965 when he wrote a paper on poultry cages for Hernández's animal husbandry seminar. In what probably should have been a formal exposition describing why farmers should cage poultry, Bermejo turned in three pages of facts listed in bullet point format with a short summary at the bottom of the assignment's last page. Hernández docked points for a lack of clarity and mistakes in orthography. But the longest comment concerned another matter: "It would be wise to read books that are not so technical, namely Spanish classics to improve your style." Bermejo received 7 out of 10 points.[451] The grade and comments were vintage Hernández. He demanded clarity and that students obey conventions like accent marks and grammar, and because using the wrong adjective or being wordy in an assignment constituted mortal sins, he always encouraged all students to have a dictionary on their person. Just as important, as Bermejo discovered, assignments and projects needed to have verve; aesthetics mattered.

If the rule in ENA classes during the 1960s was for teachers to be boring and dictatorial, then Hernández's classes were the exception on campus. Students traded in the book study, numbers, and memorization for discussions that rarely generated an answer and debates that rarely yielded consensus, but always made for critical thinking. Common discussion topics were the lack of creativity and social science courses on campus. Another topic was how the improved seeds, fertilizers, extension efforts, and other technologies later associated with the "Green Revolution" failed to benefit the

[451] Carlos Bermejo Suaste, "Sistema de jaulas individuales," November 1965, Archivo EHX, COLPOS.

majority of Mexican farmers, specifically peasants with a lack of access to irrigation. Always respectfully, Hernández suggested of how leaders in the Mexican Agricultural Program, the organizational origins of the "Green Revolution," were "technocratic" and "uncreative."[452] Debates were mandatory. Everyone who argued had to deal with the "three whys." After they expressed an idea, the first "Why?" followed. If one could competently answer two subsequent "Whys?," then the person had something to say that deserved attention.[453] Relative to other classes on campus, in which statistics or formulas yielded definitive, concrete answers, Hernández exhorted students to deal with abstractions and difficult questions. Erin Estrada once had an exam that asked for a definition of God. Another time Hernández made her give a lecture to classmates about the origins of man.[454] To ensure that students left his classes understanding some of modern biology's foundation, Hernández assigned Charles Darwin's *The Origins of Species*.[455] More related to botany, Hernández assigned Edgar Anderson's *Plants, Man, and Life*, considered the seminal book about ethnobotany since its publication in 1952. Students read anthropologist Robert Redfield, considered the founder of modernization theory, and his now-debunked – yet, in vogue among academics studying Mexico until the late 1960s - studies about "folk ways" among Mexican peasants giving way to

[452] Hernández always respected the "Green Revolution's" most-known figures. He thought Paul Mangelsdorf, Norman Borlaug, and EJ Wellhausen deserved the most respect for their contributions to Mexican agriculture. In the 1980s, in fact, Hernández advocated for all three men to receive *emeritus* honors from the Colegio de Postgraduados. He parted ways with them when it came to seeing agriculture as an abstract activity, while the motivations of their work had a more productivist outlook.
[453] Unidentified, interview with author, Chapingo, Estado de México, Mexico, October 17, 2013.
[454] Erin Estrada, interview with author, San Cristóbal de Las Casas, Chiapas, Mexico, November 26, 2013.
[455] José Sarukhán, Hernández's most famous student and the leader of Mexico's National Commission for Knowledge and Use of Biodiversity, a government-funded institute for studying and promoting biodiversity, dedicated his most successful book to his adviser. The book is still considered the most accessible and a best-selling book in modern Latin America about the scientific context of Charles Darwin's career. See Sarukhán, *Las musas de Darwin* (Mexico: Fonda de Cultura Económica, 1988). Since the 1970s, Sarukhán has been considered one of the premier ecologists in the world, particularly in tropical areas.

modernization and technology.[456] Students also read literature. In one instance, Rafael Ortega called one of Aldous Huxley's books "bourgeois." Suggesting that Ortega's contrarianism forbade him from enjoying a fine book, Hernández called him a "brute."[457]

Field trips with Hernández were legendary. In part, this was because students often were joined by their professor in late-night drinking binges or trips to night clubs.[458] Trips, however, were memorable because of the learning that took place. A funding proposal for a 1961 trip detailed Hernández's method for teaching botany. The class visited agricultural regions with three goals: to understand the local sources of research and extension at research stations; to "gain knowledge of rural populations" and how government research got to rural groups and their opinions "about their problems and how resolved the problems, and local growers' opinion about outside influence into their communities"; and to understand the agronomic shortcomings among rural populations. "Discussions would be held," the proposal read, "nightly or in the morning before breakfast."[459] Classes spent the entire day learning - walking, collecting plants, quizzing one another about the scientific names of plants and their uses, sketching plants, and observing agriculture in all its glory.

Observation meant saturating one's self in agriculture: plants, the use of plants, soils, farmers, ecology, plants' origins, crop marketplaces, indigenous farmers' cultures, and any other attribute that could remotely be housed under the rubric of agriculture.

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[456] I am referring to Redfield's two most famous works: *Tepoztlán: A Mexican Village – A Study of Folk Life* (1930) and, with collaboration from Alfonso Villa Rojas, *Chan Kom: A Mayan Village* (1934).
[457] Ortega, interview with author, Montecillo, Mexico, December 2, 2013.
[458] E. Escalante Rebolledo, Erick Lugo Estrada, and Ignacio Méndez Ramírez, "Homenaje al Maestro Efraím Hernández Xolocotzi: En sus treinta años de docencia," *Revista Chapingo* VIII, no. 42 (Oct.-Dec. 1983), 9.
[459] Efraím Hernández Xolocotzi, "Visita a las principales zonas agrícolas del país," December 19, 1961, Archivo EHX, COLPOS.

Students reported back at night or in mornings. They held discussions among one another about everything they had learned and seen during the day. For advanced students, Hernández dropped them off individually, to "soak" themselves in a village, and write a "comprehensive report of the experience" and the agriculture of the site.[460] Heaven help the student whose report failed to include scientific details like the site's climate type using the Köppen climate classification system or the precise soil type of their site, and an informed discussion on why local populations used or failed to use a given cultivar. Agriculture, in Hernández's classes, required science and people. It was never only about volume levels, tons per hectare, improved seeds, or fertilizer combinations.

Peasant growers were the greatest sources for learning, without fail. Students had to approach *campesinos* and ask questions. Why do you dig to that specific depth in the soil? What is the use of this plant? If you do not consume the plant or use it for forage, is the plant decorative or does it have a religious value? What other plants are grown in this region? What is the indigenous name of the plant? Any time students approached Hernández with questions about plants, he almost invariably referred them to the farmers: "Go ask them [*campesino* farmers]. I promise that they know more about the plant than you." He predicated his teaching methodology on the premise that students learned best about plants from those Mexicans whose life depended on plants. In Hernández's view, it defied logic that peasants, whose existence depended on an acute familiarity with crops, could not have plenty to share about plants.

[460] ----, "Laboratorio de Botánica Sistemática Escuela Nacional de Agricultura," June 2, 1965, Archivo EHX, COLPOS.

This methodology for teaching was not be confused with a disregard for theory. Agriculture, Hernández taught students, was a dialectical concept. Adapting Hegel's two-pronged thesis-antithesis model for examining phenomena and relationships of humans and plants, Hernández taught that agriculture – in its most prosaic sense – represented the meeting of man and plant to fulfill a certain need. The need to grow plants could have been to avert hunger, or to fulfill a religious motivation, or any number of other reasons. Contrary to a philosophy to what many ENA instructors led students to believe, agriculture was not a series of technical composites (e.g., soil, seeds, irrigation) and activities that failed to interact. Instead, it was a complicated dialectic, and Hernández "said it a thousand times."[461]

Known for such eccentricity, colleagues were not surprised when Hernández was one of the strongest advocates for major curriculum changes at Chapingo when talks for doing so began in 1962. In February, he and some colleagues began reviewing curriculum plans at universities in the United States, the Soviet Union, and other colleges in Mexico.[462] Five months later, Marcos Ramírez, the new ENA director who arrived to replace the previous chief who had resigned after students' demands, asked for more input about possible changes. One colleague suggested that since many Mexican agronomists conducted their training in the United States, "I think we should adopt programs and systems in harmony with the United States, which will bring out the best in students." The only substantial item in the colleague's letter involved

[461] Sarukhán, interview with author, November 12, 2013.
[462] Efraím Hernández Xolocotzi, José Guevara Calderón, and Jorge Flamand R., "Untitled," February 22, 1962, folder Restructuración ENA, Archivo EHX, COLPOS.

changes to some specialty classes and allocating more funds towards research.[463] Suggestions from others included opting for a semester academic calendar and closing the college's preparatory school, which allowed for reducing the academic careers of *chapingueros* from seven to five years and, consequently, accelerating the number of agronomists to help farmers.[464]

The meat of Hernández's reply dealt was his proposition that the technical training should continue on campus, but it needed to be combined with an "emphasis in pedagogy that led to the acquisition of new knowledge, in very specific terms [of a campus specialty], as well as in larger context." A study plan should account for producing more *técnicos*, as well as generate new knowledge, with an emphasis on better teaching, "it must be emphasized that marked differences emerge when managing time towards physical-mathematical science or scientific work applied to technology and basic science or research," he wrote. Technology's main purpose, he continued, "is the application of the available basic knowledge. Consequently, education aims to give learners the information known in a field while providing for the application of this information towards a methodology for solving a practical problem, and towards facilitating time and resources to acquire the know-how for solving a problem." Research, however, involved the generation of new basic knowledge and skills. "Scientific education aims to give pupils the basics…in different fields, provide a methodology and skillset for managing ideas, and teach the scientific method and science's philosophy." A margin, he charged, existed between technology and research,

[463] Salvador Lira López, "Sr. Dr. Marcos Ramírez Genel," July 18, 1962, folder Restructuración ENA, Archivo EHX, COLPOS.
[464] Enrique Espinosa V. and Enrique Castro García, "Muy señor nuestro," July 20, 1962, folder Restructuración ENA, Archivo EHX, COLPOS.

and Chapingo needed to figure out how to cultivate both *técnicos* and researchers. "Few people work in an area that straddles both fields. But to produce capable graduates, Chapingo needs to differentiate the two concepts and more effectively teach" students. He finished his report with recommendations of keeping the preparatory school and advice on restructuring classes.[465]

In a report written in 1965 about the Colegio de Postgraduados' botany department, he spelled out his hopes for the maturity of agricultural studies in Chapingo. He began by saying that "a balanced approach is desirable in the development of agricultural research in Mexico." In early research in the country, "heavy emphasis is placed on plant breeding and plant pathology" and other basic disciplines. But as research matures "it becomes appropriate to extend work to other fields of botany." After outlining basic fields in plant sciences, Hernández arrived at what he meant by expanding work in botany and demanding more of the work done at Chapingo (emphasis mine),

> Although research in the plant sciences is important to Mexican agriculture, botany as a discipline is basic in the education of Mexican plant breeders, plant pathologists, and soil scientists. It would seem desirable, for example, that graduate students in agronomy be able to identify the major crop plants of Mexico. It would seem still more important that they understand the principles on which identification and clarification of plants are based…*the simple knowledge that yield of wheat increases with application of certain fertilizers at Chapingo should be regarded as useful but intellectually unsatisfying*, for it leaves unanswered important questions. How do the nutrients enter the plant? How are they used by the plants?

[465] Efraím Hernández, "Untitled," 1962, folder Restructuración ENA, Archivo EHX, COLPOS.

Such inquiries, he added, were the types of challenges that students should tackle.[466] Knowing that adding fertilizers helped a plant grow was never enough.

By early 1963, Hernández largely sided with the students who sought substantive changes on campus. Students, to be sure, did not inform his opinion of Chapingo's pedagogical malaise; he had been complaining about that since the 1950s. But he realized the restiveness. Thus, when the preliminary talks about Plan Chapingo began in the early 1963, he was optimistic that his membership on the Directive Council and the transformations to take place at the Escuela Nacional signaled an opportunity to address some concerns.

The optimism proved short-lived. By spring of 1963, he forwarded a note to Basilio Rojas, director of the Colegio de Postgraduados, making reference to the administration and management of scholarships that the college was to receive from the Rockefeller Foundation and other Plan Chapingo sponsors. Hernández reminded Rosas that "whatever agreement is reached [between contributors and the college], it must respect the faculty's autonomy, along with the college's administrative and philosophical prerogatives." He added other notes: donors could recommend scholarship candidates, but decisions on who received scholarships and the award's management remained matters of pre-established procedures; research topics remained a college decision; all research generated by students and college faculty should remain property of the school; and administration of scholarships remained in the hands of the

[466] ----, "Botany in the Colegio de Postgraduados, ENA," 1965, folder Dioscoreas, Archivo EHX, COLPOS.

college.[467] The tone of the letter to Rojas spoke to the skeptical reception that Plan Chapingo and foreign involvement in ENA affairs received from Hernández.

ANXIOUS STUDENTS, INTERNATIONAL PHILANTROPY, AND THE FIGHT FOR CHAPINGO'S FUTURE

Between early 1963 and the end of 1966, Plan Chapingo evolved from a project seen by some as a method for transforming the Escuela Nacional into the headquarters of Mexico's agricultural future to a larger argument over what parties would dictate the country's agricultural future. Government officials spent the years in debates and meetings with students trying to sell the project as a method for crystallizing the progress that Mexican agriculture experienced during the 1950s and early 1960s. Students' problem with the plan began as a procedural matter, in that they wanted to add input and approve of the changes to take place in Chapingo, in large part to address many of the issues on campus. The discussions between government officials and student representatives quickly transformed into a debate, mainly on the part of some students, about whether foreign interests would determine the future of Mexican agricultural education and whether the apparatus that the Rockefeller Foundation and local leaders helped build in the 1950s and early 1960s (i.e., the "Green Revolution") would remain in Mexico.

Consequential student agitation of consequence began in 1963. Early in the year, a deluge of complaints in *Chapinguito* and troubles on campus apparently triggered a visit from the Secretary of Agriculture and Livestock Julián Rodríguez in mid-July. At the gathering, student representatives on the college's Directive Council

[467] ----, Letter to Dr. Basilio Rojas, Director, April 2, 1963, Archivo EHX, COLPOS.

vented their frustrations about issues on campus and the lack of consultation between them and SAG officials on Plan Chapingo. Some Directive Council members said that a breach in legal tradition had possibly occurred when they had to find out about Plan Chapingo, after the agreement between parties and minus student or faculty input. Among the 1946 bylaws related to Chapingo becoming Mexico's national agricultural college was the existence and function of the college's student-faculty governing body. Council members jointly decided on campus policies, from the mundane, like improvements to dorms or cafeteria meals, to major curriculum overhauls. Thus at the July meeting, student council members were peeved when certain faculty members proposed to change the student-faculty ratio of the Directive Council in what appeared to be a method for expediting the formality of council approval for changes vis-à-vis Plan Chapingo.[468] To some Council members, it seemed that SAG officials and other Plan Chapingo partners, had skirted ENA tradition and sought to wrest autonomy away from students and faculty.

Rodríguez and another meeting participant responded with an explanation about Plan Chapingo's motivations and objectives. He began by saying the Escuela Nacional remained a "first-rate school" and that his ministry considered ENA graduates SAG's "greatest troops." Rodríguez's assistant then detailed how Plan Chapingo represented agriculture's reorientation. Its focus, the assistant said, was changing towards "lending attention" to more immediate problems, specifically increasing production and developing an industrial sector. For a long time, Mexico "paid much attention towards crop research and, recently, research on livestock and forestry had increased." But the future of research lay in fulfilling other needs. Mexico, the person continued, needed to

[468] ----, "H. Consejo Directivo," July 15, 1963, notebook 2, 134-136, Archivo EHX, COLPOS.

increase agricultural volume levels, lands in cultivation, and forest exploitation. The country's leaders wanted, to now "avoid [agricultural] imports and arrive at a place where it exported, particularly to Latin America."[469] Mexico found itself in an interesting place in its development, the official told Council members. "It had a *técnico* reserve and human resources," and found itself in a position to open international research "to help other countries, particularly in Africa, in maize and wheat." Consequently, the government took an interest in, Rodríguez said, "coordinating all the arms" of agricultural development. Money and effort would be invested in the Colegio de Postgraduados towards generating more breakthroughs and ENA graduates would "form the human element" of Mexico's agricultural future. Plan Chapingo would "build the second agricultural tier atop the base of practical agricultural research." Rodríguez concluded his presentation with a reminder to Directive Council members that "basic production" increase was the new goal.[470]

The meeting left Directive Council attendees miffed. Efraím Hernández's meeting notes consisted of questions and terse statements. "What will be the philosophical bases for the Colegio de Postgraduados?" Integration of social sciences, he noted. Finally, Chapingo graduates, "must leave with more ideals and with more consciousness!"[471] Some meeting participants appeared displeased by legal procedure, and two weeks after the first meeting with Rodríguez, they sought legal advice. Wanting clarity about how the voting composition of the Directive Council could be changed minus their approval, Council members agreed to have a member of the

[469] Ibid.
[470] Ibid.
[471] Ibid.

Mexican Supreme Court consult about the legal grounds by which the voting scheme could be changed.[472]

Relations between those assigned to execute Plan Chapingo and their student partners deteriorated thereafter. Chapingo's director agreed to a cancellation of the meeting with the Supreme Court justice on the grounds that Julián Rodríguez sought a closed-door session to speak with students.[473] Conceding the abrupt cancellation, Directive Council members met again with Rodríguez, and he again used a meeting with students as an opportunity to pitch Plan Chapingo and allay Council members' misgivings about the plan and the way SAG authorities were executing its completion. Reinforcing what he had explained during the previous month, Rodríguez said that the relationship between his office and students was of "grand importance." He wanted to "convert the Escuela Nacional into an important research-education-extension center, as a third national pillar" of education (the other schools with such importance being the National Autonomous University and the National Polytechnic Institute). Cooperation, he argued, between students and authorities remained essential. "The president (Adolfo López Mateos)," Rodríguez said, "in the urgency to conduct such coordination, agrees that an agricultural center must be located at Chapingo."[474] The government's plan, he continued, "will channel influence towards all government agricultural programs, as well as other agricultural schools and colleges." He followed with a reminder to students of the investments made in Plan Chapingo, 100 million pesos via the Alliance for Progress program, the Rockefeller Foundation, and other sources. "Timing,

[472] ----, "H. Consejo Directivo," August 12, 1963, notebook 2, 172, Archivo EHX, COLPOS.
[473] Ibid.
[474] ----, "Despacho C. Sec. Agríc. y Gan.," August 14, 1963, notebook 2, 176, Archivo EHX, COLPOS.

however, remained urgent…And to get started, students and the Ministry of Agriculture and Livestock must be united!"[475]

Students responded with a list of demands. They mentioned their displeasure with the costs at school. They mentioned a lack of discipline on campus and the desire for a flexible budget to help students. "The fundamental problem," they shared, was that "students want something more from their education!" One student added that the school's budget had an "arthritic management." The school also had high faculty and administrative turnover, and an unstable curriculum. Rodríguez responded by asking "Is a change [Plan Chapingo] of this magnitude worth so much [trouble]?" He also told students that school directors could not exist in a state of fear of students and constantly giving concessions. Finally, he finished, instability existed at Chapingo in relation to its directors. "You will not be students your entire lives and the Escuela Nacional will remain after you leave," he charged. The student president had the meeting's last word: "We have been labeled as troublemakers and immature. We are at the receiving end of injustice."[476]

The meeting ended with what seemed to be the point of contention between the students and the Mexican government: Who retained autonomy over the resources that Chapingo would receive from the Rockefeller Foundation, the Ford Foundation, the Alliance of Progress loans, local or foreign interests? When Rodríguez conceded to respect the Directive Council votes and the student-faculty voting parity, one student expressed appreciation. The student added that campus funding still remained an issue. He then inquired about funds from the philanthropic sponsorship. Rodríguez responded

[475] Ibid., 177.
[476] Ibid., 178-180.

with an explanation of Plan Chapingo's arrangement structure, "The deal made between sponsors and Chapingo called for autonomy on the part of sponsors' funds, which would create a hybrid institution, with national and private interests." However, Rodríguez suggested, "if the sponsorship leads to a loss of control at the Escuela Nacional, under the watch of the Mexican government, it would be inconceivable."[477] In the span of six months after its announcement and the celebration that followed after the announcement, Plan Chapingo was proving to be a thorny issue for its backers and students.

Affairs between students and authorities failed to improve by the end of 1963 and into the next year. In his notes from a meeting in late 1963, Hernández baptized Plan Chapingo with a special nickname: "'Education Ford'" – alluding to the foundation's sponsorship of the project.[478] In the same month, *Chapinguito*'s cover photo of the college's well-known Capilla Riveriana (named after Diego Rivera, who painted some of most famous Mexican Revolution-related murals inside the chapel) had a caption saying that the building would soon witness the college "suffer" because of Plan Chapingo.[479]

In the same newspaper issue, students published a more substantive, Marxist-tinged attack on Plan Chapingo. "First, we worry about the purely philanthropic idea," the editorial said. "Philanthropic efforts, along with conspicuous consumption, constitute what are called 'the costs of representation' of monopolistic capitalists." The purpose of "representation" expenses were public relations projects, and "philanthropic

[477] Ibid., 181.
[478] ----, "Junta con Fundación Ford," November 7, 1963, Notebook 3, notebook with no page numbers, Archivo EHX, COLPOS.
[479] "Edificio Principal," *Chapinguito* XX, no. 5 (November 1963), cover.

expenses have, as a final goal, the security of loyalty and the affection of public opinion." "One of the surprising aspects of today's age has been the marked decline of these costs made by the aristocracy of the commercial world; it turns out, the role that the individual philanthropist plays has reduced further and further." This absent-yet-present role of the aristocracy did not mean that the consequences of monopolist capitalism's presence had been abolished, however. "On the contrary," students charged, "as in other aspects of capitalism's function, certain costs have been institutionalized."[480] Philanthropy, the editorial continued, has been institutionalized, and even if foundations were the method for delivering altruism, the same sources exercised an influence, especially in extending private help to institutions of higher education. "We should not, to be sure, presume that this a pure and simple philanthropy." Mentioning that students should already know the interests and nationalities of the philanthropists, the editorial mentioned that "it is particularly interesting to discover that Plan Chapingo relates to teaching, research, and agricultural extension – more or less the key aspects of Mexico's agricultural development." It was possible, therefore, for outside interests to control Mexican agriculture.[481]

The writer's fundamental problem with Plan Chapingo was ideological. Investments of the nature taking place at the Escuela Nacional "are necessary to be able to continue with the agricultural research plans of basic products," which represented a path to have the general population, and workers particularly, so well fed so that the time towards further developing the country's general economy was shortchanged. Relative surplus value increased, they suggested, which was "nothing more than wage

[480] "Editorial," ibid., 1-2.
[481] Ibid., 2.

excess extracted from the peasant masses and agricultural and industrial workers." Almost as a warning to other Latin Americans, the article said that similar Rockefeller Foundation-government partnerships existed in Colombia and Chile, and the same patterns of extraction of relative surplus value occurred. "Perhaps those who have modeled themselves after us [Mexicans] consider that our point of view speaks a little towards pessimism," they said. "This isn't the case. We only would like to point out that we understand and we are conscious of the situation." They concluded

> Let us build new buildings, let us have better laboratories, and let us improve teaching - all of which would be a thousand times better than what we previously had. With good direction, we shall have positive advances. We believe, as do many, that Plan Chapingo, in the long-term, will be useful and will provide the needed conditions so that agricultural higher education remain on a progressive path.[482]

Students accepted Plan Chapingo, only after sharing a reluctance to do so and strong skepticism of the project.

Relations between students and SAG officials worsened in the months afterwards. Without any consultation from members of the Directive Council, Marcos Ramírez left his office as Chapingo's director to be a spokesman for Plan Chapingo. SAG officials failed to properly notify Council members, particularly students, for input about Ramírez's replacement, Gilberto Palacios De la Rosa. Fed up with such treatment, Council members drafted a letter demanding respect for decades-long protocol about such matters. It was "far from acceptable" that students exercised no influence concerning what happened on campus.[483] Students soon began airing the school's dirty laundry, conducting town-hall meetings about the college's problems.

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[482] Ibid., 3

[483] Efraím Hernández X., "H. Consejo Directivo," October 5, 1964, notebook 4, 156, Archivo EHX, COLPOS.

Those people who were not Directive Council members became exposed to larger discussions concerning items like the costs of education at Chapingo, a shortage of capable teachers on campus, and the change to the academia calendar. Absent from meetings, according to Hernández's notebooks, were important SAG officials and other Plan Chapingo powerbrokers.[484]

Undeterred by the hubbub, new SAG chief (under President Gustavo Díaz Ordaz), Juan Gil Preciado in January of 1965 signed contracts with construction companies for new buildings at Chapingo. Attending a ceremony in Mexico City were representatives of several construction companies, several SAG chiefs, Plan Chapingo spokesmen, Rockefeller Foundation representatives, Ford Foundation representatives, Mexico's FAO liaison, and an official from the Inter-American Development Bank. They kick-started the 122-million-peso project that was two years in the making by the day of the occasion, to celebrate a mega-plan that would, said one reporter, "Take science's advances and technical agriculture to all peasants, farmers, and *ejidatarios*, ultimately to increase agricultural production while helping the rural groups of the country."[485]

In the next few months, 122 million pesos escalated to 133 million pesos, and the job of selling Plan Chapingo continued. Plan backers argued to ENA faculty members that it was time for agricultural education to be more research-driven. Thus, it was high time that the research-education-extension holy trinity of Mexican agriculture was centralized. All three areas would maintain their autonomy, officials promised faculty members. Plan spokespersons also promised that the Directive Council and

[484] Author not indicated, "Mesa redonda en ENA Chapingo," October 23, 1964, notebook 4, 164-167, Archivo EHX, COLPOS.
[485] "Noticias agropecuarias," *El Campo* XXX, no. 875 (January 1965), 57.

governing bodies at the Colegio de Postgraduados would remain intact. Yet, Hernández's notes mention the gist of what had become another gripe about Plan Chapingo: discussions for its existence never happened, studies on its viability were never conducted, and the college appeared set to lose some of its autonomy because of the presence of government agencies (the National Institute for Agricultural Research and the Ministry of Agriculture and Livestock). Loyalty would go towards the government, not Chapingo. In his notes Hernández approved of the changes, adding that he and others needed to locate a formula that would not threaten "organizational ways that the college might look in the future, along with future conceptual organizations of the college." Perhaps as a method for garnering faculty support for Plan Chapingo, and a way of demonstrating the number of resources that went into the plan, faculty members received word that the government had a ten-million peso fund that would be allocated to all professors in the coming years.[486]

Weeks later students again found themselves at the receiving of another Plan Chapingo marketing pitch presumably to make the plan's completion smoother. As a selling point, a plan spokesman said one of the plan's goals was that five thousand students would graduate from Chapingo within the next ten years. Making nationalistic appeals, officials emphasized to Council members that the plan was "beneficial to the country." They mentioned other items to palliate old concerns: students could choose the site for a new livestock building; all ENA issues would be referred to the Directive Council; and the government reopened a new fund for the school.[487]

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[486] Efraím Hernández, "Plan Chapingo," March 9, 1965, notebook 6, 175-176 and 178, Archivo EHX, COLPOS.
[487] ----, "H. Consejo Dir.," March 31, 1965, notebook 6, 191-192, Archivo EHX, COLPOS.

The next month students received word that the Ministry of Agriculture and Livestock had an extra 2.5 million pesos that they could put towards other projects on campus. Among the ideas that became the Directive Council's focus for the next couple months was reopening an ENA preparatory school, which had been terminated when Plan Chapingo talk with students began. The preparatory school would reorient the college's social promise – it would, according to Hernández's notes, "increase the probability of enrolling students of peasant extraction."[488] The Council spent the remainder of the year ironing details about the soon-to-be-reopened preparatory school.[489]

Money never seemed to be a problem in Plan Chapingo. Weeks after ironing out details for the preparatory school, members of the Directive Council learned how Mexican officials planned to spend some of the money pouring into the school. Nearly two million pesos would go towards thirteen new houses on campus for faculty and administrators. Graduate students would receive new dormitories. Visiting professors would receive new dormitories. Newly-donated machinery from Massey Ferguson was also to arrive on campus.[490] A month before Council members learned about the financial windfall, Chapingo should have finished hosting intensive agricultural extension courses – covered by the Ministry of Agriculture, which had earlier signed donation agreements with the Ford Foundation that included a donation of 9.3 million pesos for the ministry's extension department (another deal that gave 2.4 million pesos

[488] ----, "H. Consejo Directivo," April 12, 1965, notebook 7, 7-8, Archivo EHX, COLPOS.
[489] ----, "H. Consejo Directivo," November 29, 1965, notebook 9, 54, Archivo EHX, COLPOS.
[490] ----, "H. Consejo Directivo," December 7, 1965, notebook 9, 55-57, Archivo EHX, COLPOS.

to the Colegio de Postgraduados).[491] As the early construction finished in 1966, magazine writers mentioned that the project's cost ballooned to 135 million pesos.[492]

The money and presidential visits failed to change every student's mind. Many ENA students appreciated the investments and improvements, but in mid-1966 many of them still expressed degree of dissatisfaction in relations to their input in school decisions.[493] They received no substantive reaction from authorities for the remainder of 1966. The year ended with a group of outspoken students expressing numerous complaints and Plan Chapingo in place.

CONCLUSION

Nineteen sixty-six was also the same year that Franco Gerón wrote the scathing poem to himself referenced at the beginning of this chapter, calling himself a traitor, demonstrating the level of frustration among many students in Chapingo in 1966. He expressed despair towards the training he received on campus and the technocratism that others experienced. His classmates expressed concern for a lack of their input in the transformations at school, which seemed to be converting Chapingo into a bigger *técnico* factory than it already was by 1966 and a place modeled and financed by sources outside of Mexico. In 1967, the ingredients for conflict would boil into a national strike that involved students patrolling Chapingo with rifles while the government informally threatened to besiege campus.

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[491] "Primer seminario de profesores de extensión agrícola," *México Agrícola* XI, no. 140 (October 1965), 20; "Donativo de la Fundación Ford para trabajos de extensión agrícola," *México Agrícola* XI, no. 137 (July 1965), 50.
[492] "El señor Presidente visitó las instalaciones para la realización del 'Plan Chapingo,'" *México Agrícola* XII, no. 144 (February 1966), 44-45.
[493] Efraím Hernández X., "H. Consejo Directivo," June 23, 1966, notebook 10, 77, Archivo EHX, COLPOS.

CHAPTER FIVE
A MOMENT OF CLARITY: THE STRIKE OF MEXICO'S AGRICULTURAL SCHOOLS IN 1967 AND A SYMBOLIC END OF THE "GREEN REVOLUTION"

Robert Jordan: "Perhaps it is the day. The day is good."

Agustín: "Who knows? Perhaps it is that we will have action."

– Ernest Hemingway, *For Whom the Bell Tolls*[494]

Chapingueros jilted tradition at the opening of classes at the Escuela Nacional (ENA) on February 22, 1968. Protocol at inaugurations called for students to stand at attention while the Mexican president, the Minister of Agriculture, or another dignitary read a speech and afterwards handed out awards on a platform. But in 1968 a small scene ensued when a Student Council member approached the stage to give President Gustavo Díaz Ordaz (1964-1970) what amounted to a list of complaints about life at the college. Guards stopped the young man from getting too close, and it appeared that they were going to hurt him. Sensing that a classmate was in danger, other students began running towards the stage with their formation rifles in hand. Security teams responded by evacuating Díaz Ordaz to his helicopter due to suspicion of an imminent threat. Juan Gil Preciado, the head of the Ministry of Agriculture (SAG), finished the ceremony that morning with a familiar oration about students helping *campesinos*.[495]

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[494] Ernest Hemingway, *For Whom the Bell Tolls* (New York: Scribner, 2003), 293.

[495] José Luis Marín Sánchez, *Chapingo estudiantil en movimiento – experiencias de construcción universitaria – (1937 a 2003)*, Rosaura Reyes Canchola and Jorge Gustavo Ocampo Ledesma, eds. (Chapingo, Mexico: Universidad Autónoma Chapingo, 2012), 170-171; "Inauguración en la Escuela Nacional de Agricultura en Chapingo, Méx., de los Cursos del Año Lectivo 1968," *Tierra* XXIII, no. 3 (March 1968), 177-179 and 230-231. The first of these two sources is a collection of oral histories from former students at the Escuela Nacional de Agricultura.

No one planned to harm Díaz Ordaz at the inauguration that morning. But in the eyes of the president and his assistants, there was little to be gained from allowing a plucky young man to hand deliver a small catalog of frustrations in front of hundreds of people. More importantly, six months prior to the inauguration, *chapingueros* and more than a dozen other institutions staged a national mutiny that shut down agricultural schools around Mexico to the point that the military almost besieged the Escuela Nacional. Thus before arriving to the campus in 1968, Díaz Ordaz and his handlers knew that they were walking into a combustible atmosphere and they were overly vigilant.

This chapter discusses the protest that engendered the hostile environment that the president entered. Using newly-available records from the Ministry of Agriculture, untouched records from the Ministry of the Interior, and the Efraím Hernández archive, this chapter chronicles the ten weeks of what I call the symbolic end to the "Green Revolution" in Mexico. I argue that although the agricultural colleges' strike during the summer of 1967 did not involve a massacre or immediate changes, it was a watershed event.[496] It was the instance when the angry *chapingueros* discussed in the previous chapter joined with other people designated to deliver the "Green Revolution" to the Mexican countryside to demand an alteration to the direction of agricultural development.

[496] The only other notable discussion about the 1967 strike comes from an edited volume by Hiram R. Núñez Gutiérrez, Rosaura Reyes Canchola, and Jorge Ocampo Ledesma; see Núñez, Reyes, and Ocampo, *1967: La huelga nacional de las escuelas de agricultura en 1967* (Chapingo, Mexico: Universidad Autónoma Chapingo, 2008). I must thank all three authors for their tremendous help with this chapter.

PRELUDE TO A *HUELGA*

In sharp contrast to the helicopter scene a year later, the opening of ENA classes on February 22, 1967, portended happy days to many people. Workers had finished most of Plan Chapingo and many important people were on hand to celebrate the project's completion and the beginning of classes. Foreign ambassadors, the heads of other schools, government functionaries, and Mexico's head of state arrived to see the college's new library and state-of-the-art research centers. President Díaz Ordaz told his audience that Mexicans' hopes for the future were invested in its *técnicos*. Juan Gil Preciado challenged *chapingueros*: "I have the most fervent wishes for each of you when you enter the splendid new buildings at this college, from your work in classrooms and in the field, you will learn how to become the crucibles" of the country's agricultural destiny. Later during tours of campus E.J. Wellhausen praised Plan Chapingo, saying it "opens a new stage in agricultural development." He added that the centralization of research, extension, and education – what people called the "Holy Trinity" - in one location would be an attraction to people from all over Latin America. Three of the most important farming magazines in Mexico, as well as one national newspaper, fawned over Plan Chapingo and its inauguration.[497]

Chapinguito writers panned the congratulatory tone of the inauguration a couple days after people left the college. On the newsletter's cover was a picture of students standing at attention during the February 22 ceremony. Behind the cadets were banners that ENA graduates displayed for all those present to read. The signs praised President

[497] "Inaugurense el Plan Chapingo y los Cursos de la Escuela Nacional de Agricultura," *Tierra* XXII, no. 3 (March 1967), 177-179; "Apertura de Cursos de la Escuela Nacional de Agricultura e Inauguración del Centro 'Plan Chapingo,'" *México Agrícola* XIV, no. 157 (March 1967), 35-41; see March of 1967 *Tierra* issue for mention of *Excélsior*'s positive tone, page 179. *El Campo* published favorable coverage a month prior to these articles: "Editorial," *El Campo* XLIII, no. 900 (February 1967), 1.

Díaz Ordaz and expressed faith in the changes his administration had instituted at the Escuela Nacional. Alumni had apparently heard about complaints emanating from campus over the past five years (see Chapter Four) and the signs sought to undermine those grumbles. *Chapinguito*'s caption to the picture sarcastically asked if alumni lacked the decency to refrain from using the opening of classes as an occasion to respond to unhappy students. Pedro Zapata made a point of saying that graduates had "left a good amount of trash" at the college that day. Another photograph also featured a biting caption. Under an image of an entourage of alumni following Mexican politicians who toured Plan Chapingo installations, newsletter editors wrote "The opening of classes here isn't a political gathering. Don't make the campus a gross venue for brownnosing and cheap politics."[498] Writers wished that their older *agrónomo* brethren would have toned down their mawkish adoration for Díaz Ordaz and the changes that his administration had begun at the Escuela Nacional.

Other complaints about life at school littered the newsletter. Salvador Luna brought up an old topic: the lack of social science courses at school. "We learn," he wrote, "how to identify plant diseases and how to improve seeds. [We learn] new farming methods, and in general, we know how to increase crop yields. But only a few of us worry if our research ever reaches the people who could benefit from it." If students tried to worry about research translating well in the countryside, Luna continued, "it becomes difficult for us to ponder. This is a symptom of a lack of social training."[499] The message was that students lacked a social consciousness or a concern about whether or not the material they studied helped peasant farmers. A different

[498] Caption, *Chapinguito* no. 1 (February 1967), front cover, 47-48, and back cover.
[499] Salvador Luna Z., "¿Máquinas?: Nuestro gran problema," ibid., 3-5.

article was an interview with a professor who said that students left school as well-prepared *técnicos*, but unprepared to work in the real world because of their "ignorance about human relations." When interviewers asked if the lack of "cultural training" affected the campus environment and *chapingueros*' professional lives in the future, the professor responded, "Of course."[500]

New issues accompanied these older problems in 1967. Students argued with one another about hazing (*novatadas*). One writer encouraged classmates to behave like humans and abandon the tradition, which included beatings and staged drownings for new arrivals (labeled *pelones* for the mandatory buzz cut that they received).[501] The hazing problem devolved into violence eventually when one day *pelones* rose up so fiercely that one *Chapinguito* writer asked those who incited the uprising to find a "sane" route to address *novatadas*.[502] Also by 1967, school administrators began regularly admitting women, which heightened the anxieties of some at the college.[503] To complicate life further, the Ministry of Agriculture brought the Cold War to the school in February. Ricardo Acosta, the SAG Vice Minister, began asking for the identity of writers for a leftist newsletter on campus. Mocking Acosta and his search, Pedro Zapata warned his clandestine peers to "take note" of the communist hunt that was under way.[504] Chapingo in early 1967, then, was a hub of edgy young adults who all but begged for an incident that would allow them to let off some steam.

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[500] Juan Fco. Escobedo C., Eduardo Sabugal M., and Ignacio Olalde G., "Sección de entrevista," ibid., 10-14.
[501] "Sobre las noveleadas," ibid., 16-19.
[502] Hermess Noyola Isgleas, "¿Influencias extrañas?," ibid., 21-23.
[503] Rafael Ortega Paczka, *1967*, 24.
[504] Pedro Zapata V., "¿Pedradas?: Antes de que se me olvide….," *Chapinguito*, no. 1 (February 1967), 47. Note: Zapata framed his sarcasm in parentheses, "([classmates] should take note)."

But the problems on campus could not slow down the attention that the world continued to give Mexico because of its agricultural development. As in years past, people from all around the world continued to witness the agricultural marvel occurring south of the Rio Grande. A month after Acosta began his search for communists, Food and Agricultural Organization representatives from Iran, Africa, the United States, Venezuela, and India stopped at the Escuela Nacional. One member of the group said that they were "summarily pleased" with the host country's progress and its projects with other nations.[505] United Nations experts shared similar words weeks later, saying that Mexico's advances in agriculture over recent years helped facilitate economic industrialization.[506] On May 3, SAG heads sealed separate deals with officials from Pakistan and Turkey to sell improved wheat seeds. Mexico's Minister of Agriculture gave his Asian partners a tour of the Escuela Nacional after finalizing the transactions. Ahms Doha, Pakistan's Minister of Agriculture, commented that work done at the college would benefit rural families and "give impulse" to crop production.[507]

A disruption to the golden years of Mexican agriculture had already begun, however.[508] The same month that Gil Preciado gave tours and accepted praise for his country's improvements, ENA Student Council members agreed to not use some of the new facilities that arrived because of Plan Chapingo. They thought that the new U.S.-style student lounge with televisions and a bowling alley contrasted too strongly with the peasant conditions of the Mexican countryside.[509] At the same time, students at

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[505] "Noticias Agropecuarias," *El Campo* XLIII, no. 901 (March 1967), 55-56.
[506] Y Gai Liberté, "Editorial: El Reverso de la Medalla," *Tierra* XXII, no. 5 (May 1967), 335.
[507] "Noticias Agropecuarias," *El Campo* XLIII, no. 903 (May 1967), 56-57.
[508] I am adapting the "golden years" phrase from agricultural economist P. Lamartine Yates, who said that the heyday of Mexican agriculture was from 1940 to 1965; see Yates, *Mexico's Agricultural Dilemma* (Tucson, AZ.: University of Arizona Press, 1981), 4.
[509] Hiram Núñez Gutiérrez, *1967*, 72-73.

"Hermanos Escobar" Agricultural College in Ciudad Juárez, Chihuahua, were finalizing a scheme for taking over their college via force. Anxious *chapingueros* and those concocting plans in Chihuahua would soon fuse their frustrations.

"HERMANOS ESCOBAR"

Before the spring of 1967, many people regarded "Hermanos Escobar" Agricultural College (ESAHE) as one of the four premier agricultural colleges in Mexico (the others were Chapingo, the "Antonio Narro" College in Saltillo, Coahuila, and the Monterrey Institute of Technology and Higher Education).[510] After graduating from the Escuela Nacional de Agricultura, Rómulo and Numa Escobar became respected agronomists and eventually made a fortune in the publishing business during the *porfiriato* (1876-1910).[511] They generated enough wealth that in 1906 they ventured into philanthropy and founded a small private agricultural school in Ciudad Juárez, Chihuahua. The university eventually adopted the name of its founders and people knew it as "Hermanos Escobar." For years, the school attracted young people from all over and its graduates earned respect in professional circles.

But "Escobar" students began demonstrations that undermined this prestige in 1957. That year, undergraduates staged the first of several revolts that continued over the next decade. One conflict reached the point that administrators in President Adolfo López Mateos's (1958-1964) cabinet personally intervened.[512] Authorities heard the

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[510] On the history of agricultural schools, see Juan Manuel Zepeda del Valle, "Estudio histórico de la educación agropecuaria en México," *Textual*, no. 10 (December 1982): 88-114.

[511] A metal bust for Rómulo Escobar sits on Chapingo's esplanade of renowned graduates, professors, and administrators.

[512] "Escuela Nacional de Agricultura de Chapingo," June 20, 1967, Archivo Histórico (Archivo Histórico hereafter), Biblioteca Central, Universidad Autónoma Chapingo (UACh hereafter), Chapingo, Estado de México, Mexico (Chapingo hereafter). Some details about citations from material at the Archivo

same grievances in each protest. Students railed against the quality of teaching at the college. Like Chapingo, pedagogy in Ciudad Juárez revolved around rote memorization and bookwork, with instructors failing to teach basic and applied research.[513] The college's facilities left much to be desired, as there was a shortage of classrooms and laboratories. College administrators also reportedly lent tractors and plows to school donors rather than students.[514] The facilities were such disgraces that during the 1967 shutdown people entertained the idea of burning down a dormitory because its conditions were so poor that nobody would miss the building.[515] The biggest problem by 1967 was alleged financial malfeasance by the Escobar family, or what unhappy *cebolleros* (ESAHE students' nickname) called "Compañía Escobar." According to what students later told a newspaper, the Mexican Ministry of Agriculture doled out a 250,000-peso appropriation to "Compañía Escobar" every year with the intention that the money would translate into improvements at the institution. Instead, this subsidy found its way to the pockets of the Escobar family who managed the school "like a lucrative business," students later said.[516]

Histórico: This folder contains copies of documents belonging to the Archivo General de la Nación (AGN). In my search for these records, I consulted more than one record group and spoke with at least three archivists at the Archivo General de la Nación in Mexico City. This pursuit included showing photographs of a citation of these records to archivists, along with several searches using every available finding aid. Still, the folder in question was not available. According to communication with an author who has cited the folder in question, these are, indeed, AGN records. Said historian cited the material in this manner: "AGN, box 16, folder 4 (103 G-12), June 1967-August 1969." The Archivo Histórico folder of these documents is labeled in this manner: "[AGN], box 136, folder 4 (103 G-12), June 1967-August 1969." I have concluded that these documents are not yet available to the public and that said historian knows an AGN employee who sent him copies. It is also possible that the author inadvertently indicated box "16" instead of box "136" in their citation.

[513] Núñez, *1967*, 68.

[514] Fernando Gutiérrez Barrios, "Instituto Politécnico Nacional," July 12, 1967, Investigaciones Políticos y Sociales (IPS hereafter), box 1452B, Archivo General de la Nación (AGN hereafter), Mexico City, Mexico (Mexico City hereafter); "Manifiesto a la Opinión de los Estudiantes del I.P.N.," June 28, 1967, IPS, box 1452B, AGN, Mexico City.

[515] Ortega, *1967*, 27.

[516] "Estado de Chihuahua," May 29, 1967, Archivo Histórico, UACh, Chapingo.

Other topics and rumors fueled anxiety on campus. According to Pablo Martell, some malcontents in Ciudad Juárez talked about the poor state of education in Mexico and controversies at other colleges. They heard rumors about a cabal of mobsters who managed the University of Guadalajara and about instances of student repression in Sonora and Michoacán. They also got wind of the efforts to shut down the Escuela Nacional's preparatory college and *chapingueros*' less-than-warm reception for Plan Chapingo. One bit of gossip that piqued the interests of Martell and others involved stories related to former Minister of Agriculture, Julián Rodríguez. The rumor at agronomy colleges was that Rodríguez, an "Escobar" graduate and one of the three movers behind Plan Chapingo (the others were Juan Gil Preciado, Minister of Agriculture in 1967, and Marcos Ramírez, ENA director for a short while before *chapingueros* demanded that he leave and played music as he left school grounds), had close financial ties to a transnational agribusiness, Anderson Clayton.[517]

These discussions and rumors stoked the suspicions of a small group of ESAHE students in early 1967 and the most agitated eventually hatched what Martell later called an "unorthodox" plan.[518] They formed an underground group that they named "Avante" ("Forward"). Members held secret meetings in which attendees discussed problems in Mexican colleges and more immediate issues like how to address the problems on their own campus. Related to both topics, they talked about the 1918 youth movement in Argentina, a protest that was a catalyst for the modernization and

[517] Pablo Martell Santos, *1967*, 11-13. About those who led Plan Chapingo, see Colegio de Postgraduados, *Las ciencias agrícolas y sus protagonistas, Volumen 1* (Chapingo, Mexico: Colegio de Postgraduados, 1984), 20.
[518] Martell, *1967*, 14.

democratization of colleges throughout Latin America.[519] Avante leaders soon decided to take action and they put together a network of couriers that they sent to colleges throughout Mexico. The messengers' goal was to "generate national solidarity" with anxious students around the country and spread the word that something was in the works in Ciudad Juárez, according to Martell. By the spring of 1967, the messengers had established contact with groups in several places: the Federation of Chihuahua Students in their home state, *chapingueros* at the Escuela Nacional in the State of Mexico, students at the University of Guadalajara in Jalisco, others at the College of Agronomy in Ciudad Mante in Tamaulipas, and young people in rural agricultural high schools and colleges in several states.[520]

Avante members staged what Martell later called a "revolution" on May 8, 1967. He and others arrived to campus that morning with hundreds of fliers and two hundred baseball bats. Restaging their own version of Martin Luther's hanging of the Ninety-Five Theses, Avante leaders hung a notice at ESAHE gates indicating that the college remained closed while a meeting took place in the school's auditorium. Students at the gathering debated whether or not they should shut down their college. By the time discussions ended and a vote had taken place, ninety percent of those who had voted agreed to support a closure and decided that the university would remain inaccessible until the federal government took over management of the institution. Those with baseball bats cleared people off campus, took control of the school's

[519] For more on the intellectual inspirations of the student movement in Argentina, see Richard J. Walter, "The Intellectual Background of the 1918 University Reform in Argentina," *The Hispanic American Historical Review* 49, no. 2 (May 1969): 233-253.
[520] Martell, *1967*, 12-14.

entrance, and began patrolling on the grounds.[521] Avante's baptism into rebellion on May 8 initiated a movement for the federalization of a premier private college in arguably Mexico's most capitalist region and secured control over the same institution via force.

Things advanced slowly after the initial putsch. After dispatching classmates to Chapingo and other places to explain the situation in Ciudad Juárez, members of a newly-formed ESAHE Strike Committee attempted to have a meeting with SAG chief Juan Gil Preciado. He refused to talk and instead sent members of his staff for a fruitless meeting on May 18. Eight days later, twenty *cebolleros* began a public hunger strike because Gil Preciado failed to give them an audience and classmates had received threats that the army would "crush" them if the unruliness continued on campus. On May 29, other students traveled to Chihuahua's capital to see the governor for a meeting that never happened.[522] Thus, a little more than three weeks after the start of their "revolution," Avante's leaders found themselves snubbed by the governor, threatened with military intervention, and ignored by the head of the one government agency with whom they wanted to talk.

The cold shoulder from the Ministry of Agriculture was not an accident. Juan Gil Preciado, the agency's chief, had two reasons for ignoring the insurrection on his hands. First, he was a political heavyweight with more than three decades of success in the treacherous world of Mexican politics. By the age of eighteen, he helped run an elementary school in his home state of Jalisco. After a stint in the military, he worked as an administrator at the University of Guadalajara, as a political party leader in the

[521] Ibid.; "Estado de Chihuahua," 29 May 29, 1967, Archivo Histórico, UACh, Chapingo.
[522] "Estado de Chihuahua," May 29, 1967, Archivo Histórico, UACh, Chapingo; Núñez, *1967*, 85-86.

same city, and as a director in Mexico's national agrarian reform agency. By 1953, the ambitious *tapatío* won a seat in his home state's local Congress and a few years later became governor of Jalisco. His promotion to Minister of Agriculture in 1964 was another stop in a successful career that could hypothetically lead to the presidency.[523] For a man with the political ambitions and record like Gil Preciado, *cebolleros* must have seemed like a nuisance to be brushed aside.

The second and more important explanation for Gil Preciado's lack of urgency to negotiate with ESAHE representatives was because by the end of May he had inside knowledge of the anarchy on his hands. Like his colleagues in Gustavo Díaz Ordaz's administration, Gil Preciado blurred ethical lines in the hunt for communists in Mexico during the Cold War. After it became known that *cebolleros* had opened dialogue with other schools, he put together an informant network to ensure things did not get out of control. SAG supervisors oversaw a ring of informants – unflatteringly called *perros de oreja* (watchdogs) - that covered at least seventeen agricultural schools in no fewer than sixteen states.[524] Spies, who were likely students, attended student meetings and later reported to Gil Preciado's ministry about talks at schools and the support that students around the country expressed for the protest in Ciudad Juárez. The first report from Chihuahua arrived to Mexico City on May 29.

Gil Preciado had few reasons to worry based on the content of the earliest reports. Records from May 30 indicated that activities in Ciudad Juárez carried on "calmly." At "Escobar," the college's president griped about strikers' burning of

[523] For Gil Preciado's background, see "Profesor Juan Gil Preciado, Secretario de Agricultura y Ganadería," *El Campo* XXIX, no. 874 (December 1964), 8-9; "Estado de Jalisco," June 13, 1967, Archivo Histórico, UACh, Chapingo.
[524] Núñez, *1967*, 105.

wooden workstations (to provide light at night and to give warmth for those who patrolled campus at night) and their slaughtering of goats that belonged to the college (for food). Things fared just as poorly off campus. Some *huelguistas* (strikers) ended a hunger protest in exchange for news that authorities in Mexico City would relay their grievances to President Díaz Ordaz. Some of their classmates boarded a bus, reporting that they intended to force a meeting with President Díaz Ordaz in Mazatlán, Sinaloa, or to carry out a hunger spectacle in Mexico's capital if a discussion with a high government representative failed to take place.[525] Neither the meeting with the president nor the protest in the country's capital occurred. Instead on June 2, these *cebolleros* found themselves being taken to a hospital to get treatment for malnutrition. The next day a local newspaper published a story saying that those refusing to eat engaged in a spectacle that was "pure farce" and cheated public sympathies because classmates reportedly brought them meals. Notwithstanding a loud public rally that included a total of thirty people in its audience, Avante's insurrection looked more like a tantrum than a revolution by June 3.[526]

That day's notes contained news that may have interested Gil Preciado, however. Pablo Martell, Vice President of the "Escobar" Strike Committee, boarded an Aeronaves airplane bound for Mexico City on the evening of June 2.[527] He and classmates appeared in the correspondence from SAG spies at the Escuela Nacional the next day. In the same update was news that eight representatives of the National Student Federation of Agricultural and Forestry Sciences (FNECAF), a network of activist college and high school students from seventeen schools around the country,

[525] "Estado de Chihuahua," May 30, 1967, Archivo Histórico, UACh, Chapingo; Núñez, *1967*, 100.
[526] "Estado de Chihuahua," June 3, 1967, Archivo Histórico, UACh, Chapingo.
[527] Ibid.

also arrived on campus. The visitors spent a good portion of the day in preliminary talks with the ENA Student Council about the possibility of transforming the happenings in Chihuahua into a general strike at FNECAF affiliates.[528] Gil Preciado would have a headache on his hands if Chapingo, the symbol of agricultural modernization in the "developing" world, and more than a dozen other institutions decided to join forces in a general walkout.

A NATIONAL STRIKE IS BORN

The Escuela Nacional pulsed with tension before FNECAF representatives arrived. About one week after the start of troubles in Ciudad Juárez, a handful of ENA students learned about the happenings up north while they traveled back to Mexico City after a field trip with Efraím Hernández. After returning to campus, Student Council members approached Gilberto Palacios De la Rosa, their college's director, about lending support to those in Chihuahua. Palacios De la Rosa allowed Council members and SAG employees to discuss the idea of supporting "Escobar" students on May 15.[529] Ministry spokesmen disappointed a handful of those at the meeting when they explained that their agency held no legal grounds for federalizing "Escobar."[530] This explanation failed to placate some of those in the auditorium who found it obtuse that officials could

[528] "Federación Nacional de Estudiantes de Ciencias Agropecuarias y Forestales en la Escuela Nacional de Agricultura (Chapingo)," June 3, 1967, Archivo Histórico, UACh, Chapingo.
[529] People consider De la Rosa one of the most important directors in ENA history because he managed several crises during the 1960s. He receives credit for overseeing changes on campus: regular admittance of women, support for anti-hazing policies, and elimination of the school's military environment. See *Homenaje al Ing. Gilberto Palacios De la Rosa*, Jorge Ocampo Ledesma, ed. (Chapingo, Mexico: Universidad Autónoma Chapingo, 1998).
[530] Efraím Hernández, "Informe de la comisión mediatora de profesores para dar termino a la suspensión de actividades en la E.N.A.," July 7, 1967, folder Suspensión Actividades E.N.A. 1967, Archivo Efraím Hernández Xolocotzi (Archivo EHX hereafter), Rama de Etnobotánica, Centro de Botánica, Colegio de Postgraduados, Montecillo, Estado de México, Mexico (COLPOS hereafter).

not intervene in a situation involving misappropriation of funds from their office. Although two *chapingueros* left to "Escobar," the Escuela Nacional stayed out of the business up north through May. But ingredients for conflict – the shutdown in Chihuahua, animosity vis-à-vis Plan Chapingo, and the apparent disinterestedness of their government towards fraud – remained in Chapingo.

Things changed quickly after Martell and FNECAF representatives arrived asking for a general strike at the Escuela Nacional on Saturday, June 3. FNECAF members met twice that day to discuss a nation-wide protest. According to the *perro* at the college, despite "ample discussions," strong rhetoric on campus that day (one person called "Escobar" a "pedagogical plantation"), and signs of support for expanding the protest, *chapingueros* could not agree and settled on having more talks in two days.[531] In the meantime, *cebolleros* in Ciudad Juárez dealt with local newspaper writers calling them "phony communist agitators" and other people calling them vandals.[532]

June 5 proved to be the decisive date at the Escuela Nacional. According to the on-site informant, FNECAF representatives met at Chapingo in the afternoon and agreed to send a notice to President Díaz Ordaz, indicating that the government had forty-eight hours to intervene in Ciudad Juárez or else disorder would ensue in several places. This, of course, represented a weak threat since ENA students, attendees of the country's most important agricultural school, had yet to commit to the movement up north. But immediately after dinner on June 5, Student Council members arranged for much of campus electricity to be disabled as a signal to everyone that an important

[531] "Federación Nacional de Estudiantes de Ciencias Agropecuarias y Forestales en la Escuela Nacional de Agricultura (Chapingo)," June 3, 1967, Archivo Histórico, UACh, Chapingo.
[532] "Estado de Chihuahua," June 4, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Chihuahua," June 5, 1967, Archivo Histórico, UACh, Chapingo.

meeting had begun in their main auditorium. After a contentious debate that went past midnight, the majority of *chapingueros* agreed to support a stoppage of all activities on campus that would remain in place until the government federalized "Escobar."[533]

A national movement appeared unnecessary before the news arrived in Chihuahua, however. Hours after many *chapingueros* returned to their rooms following their crucial vote, a Ciudad Juárez newspaper reported that people in Juan Gil Preciado's office and others from Mexico's Ministry of Public Education agreed to sit between protestors and the Escobar family to hash out an end to the conflict within one week. The article also mentioned that the Escobars agreed to cede their college to government management after authorities promised to recognize the family's "investments and [their college's] prestige." Picketers, according to an informant, had cancelled rallies around the city that day and things on campus carried on "calmly."[534]

But it was too late for calmness outside of Mexico City. Almost immediately after their decision to support "Escobar" students, *chapingueros* hung a *roji-negra* protest flag outside the school's gates, suspended classes, and took over the college. Many of them began shifts at Chapingo's main entrance to monitor who entered and exited. With the exception of administrators and "kitchen personnel," all researchers and professors could not walk onto campus.[535] The takeover made it impossible for

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[533] "Federación Nacional de Estudiantes de Ciencias Agropecuarias y Forestales," June 5, 1967, Archivo Histórico, UACh, Chapingo; Núñez, *1967*, 65-66 and 89. Sources conflict about the count of those who voted for and against joining the strike, but we do know that a majority of students agreed to support Ciudad Juárez. We also know that the vote was dramatic because *pelones* participated in a decision with school-wide implications for the first time (previously, they could talk at Student Council meetings, but could not vote) and because those students who rejected participation in the strike were adamant. After the *huelga*, several *chapingueros* ceased talking to one another. Hiram Núñez discusses the on-campus dynamics before and after the June 5 meeting at length; see Núñez, *1967*, 62-136.
[534] "Estado de Chihuahua," June 6, 1967, Archivo Histórico, UACh, Chapingo.
[535] "Escuela Nacional de Agricultura. (Chapingo)," June 6, 1967, Archivo Histórico, UACh, Chapingo; Núñez, *1967*, 89.

investigators to work at the National Institute for Agricultural Research and the National Extension Center, and for the Colegio de Postgraduados to hold classes. Each part of Plan Chapingo's "Holy Trinity" - research, extension, and education - ceased to function. The gigantic, internationally-financed project in which Mexicans (and foreign experts) had invested their hopes and money for the country's agricultural future screeched to a halt. Operations that had opened in late February did not make it to June 6.

The strike became a national phenomenon and much of agricultural education came to a standstill over the next couple days.[536] Within forty-eight hours of Chapingo's closure, eight *cebolleros* finalized plans to stage a hunger strike at Mexico's largest university, and the strike also became a topic among members of the National Federation of Technical Engineers, the National Center for Democratic Students, as well as the Mexican Communist Party.[537] By June 10, the University of Guadalajara (UG) shut down. Students there voted to walk and "in orderly fashion," said one *perro*, gave faculty time to gather belongings before hanging a *roji-negra* flag on campus.[538] Other schools in Nuevo León, Guanajuato, Tamaulipas, and Guerrero ceased operations within two days of the closure at the University of Guadalajara.[539] At the "Antonio Narro" Agricultural College in Coahuila students refused to take scheduled exams, hung

[536] Some important colleges did not participate. Students at the Technological Institute of Durango rejected the strike. According to informant records, students there said shutting down would disrupt the academic year; see "Estado de Durango," June 10, 1967, Archivo Histórico, UACh, Chapingo. In Puebla, a school director called the strikers selfish. Solely out of "*compañerismo*," he donated two hundred pesos to FNECAF representatives who arrived to his campus looking for support; see "Estado de Puebla," June 14, 1967, Archivo Histórico, UACh, Chapingo.
[537] "Universitarios," June 6, 1967, Archivo Histórico, UACh, Chapingo; "Escuela Nacional de Agricultura de Chapingo," June 7, 1967, Archivo Histórico, UACh, Chapingo.
[538] "Estado de Jalisco," June 10, 1967, Archivo Histórico, UACh, Chapingo.
[539] "Estado de Nuevo León," June 12, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Guanajuato," June 12, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Tamaulipas," June 12, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Chihuahua," June 12, 1967, Archivo Histórico, UACh, Chapingo.

a flag at the school's entrances, and forbade most people from entering and exiting within a week after the general protest began.[540] During the same days, FNECAF leaders also began efforts to spread word about their uproar by visiting union houses in Chihuahua to ask for support.[541] A newspaper headline from Ciudad Juárez on June 12 captured the gravity of what had taken place over the last few days: "The Strike Affects 5,000 Students."[542]

The mutiny grew in intensity and geographic breadth over the next two weeks. Two days after writers said that 5,000 people were affected by the strike, one SAG agent reportedly told strikers that "it was not difficult for him to have federal troops stationed in Sonora travel to Ciudad Juárez to pacify a group of ten agitators."[543] "Narro" students canvassed city streets to publicize the protest via megaphones, and collect donations one day after strikers received threats about the military being unleashed on protestors.[544] Reports from the next couple days detailed the strike's reach by June 20: the University of Michoacán was shut down; thirty-three rural schools in several states halted classes; hundreds of supporters took to Guanajuato's streets to ask for donations; in Oaxaca, a state college shut down and local Ejido Bank employees began a donation campaign for the strike; and in Mexico City, fliers denounced government officials' refusal to negotiate with students.[545] One newspaper indicated

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[540] "Estado de Coahuila," June 13, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Coahuila," June 12, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Coahuila," June 14, 1967, Archivo Histórico, UACh, Chapingo.
[541] "Estado de Chihuahua," June 13, 1967, Archivo Histórico, UACh, Chapingo.
[542] Cited in "Estado de Chihuahua," June 12, 1967, Archivo Histórico, UACh, Chapingo.
[543] "Estado de Tamaulipas," June 14, 1967, Archivo Histórico, Chapingo.
[544] "División en Saltillo Sobre la Huelga de Estudiantes Agrícolas en Juárez," *Excélsior*, June 16, 1967, Biblioteca Central (BC hereafter), Universidad Autónoma Chapingo (UACh), Chapingo, Estado de México, Mexico (Chapingo hereafter).
[545] "Señor Si…[unintelligible in report]," June 18, 1967, Archivo Histórico, UACh, Chapingo; "Estado de Chihuahua," June 19, 1967, Archivo Histórico, UACh, Chapingo; "Principales acontecimientos derivados

that one rally speaker said that no fewer than ten thousand people were affected by what was taking place all over Mexico (double the estimate from another source days earlier). This same paper also noted that protestors claimed that they expected three hundred thousand college attendees everywhere to support their cause if the military intervened in the conflict.[546] Avante's protest that began with baseball bats in early May had transformed into a national news item that threatened to become a massive youth movement by early mid-June.

Image 5.1 Strikers in Ciudad Juárez (from Biblioteca Central, Universidad Autónoma Chapingo).[547]

Two of the most widely circulated farming magazines published editorials that confirmed the uproar taking place in the country. *Tierra*, the Mexican government's journal for rank-and-file readers, ran a piece that subliminally accused students of

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del conflicto planteado por los alumnos de la Escuela Superior de Agricultura 'Hermanos Escobar', de Ciudad Juárez, Chihuahua, al día 20 de junio," June 20, 1967, Archivo Histórico, UACh, Chapingo; "El conflicto planteado por alumnos de Escuela Superior de Agricultura de Ciudad Juárez, Chih., quedará hasta el día de ayer, el siguiente estado," June 20, 1967, Archivo Histórico, UACh, Chapingo.

[546] "Piden los Huelguistas: Manos Fuera de la ESA el Ejército" and "Más Candente," BC, UACh, Chapingo. Based on my research, I am almost certain that this article appeared in *El Fronterizo* on June 20 or June 21.

[547] "Cuarto Mitin y la Huelga en la ESA Llega a un Mes 5 Días," BC, UACh, Chapingo. Based on the title of this article and my own research, I am almost certain that this article appeared in *El Fronterizo* on June 14.

abandoning farmers.[548] An editorial in *México Agrícola* showed no mercy for those up in arms. Those out in the streets and outside of their classrooms did so because of "whimsical caprice," not because of poor teachers and bad facilities in Ciudad Juárez, said the writer. He also dismissed all "fabricated complaints" from strikers who had failed to bring government officials to the negotiating table by the day he had written his piece (June 25).[549]

Magazine readers could not fault the editorial's passion, but they could have critiqued its accuracy. Far from snubbing protestors, the Mexican government tried to squelch the clamor taking place soon after June 6. *El Fronterizo* reported on June 11 that high-ranking SAG representatives found that strikers' demands "appeared logical" and agreed to discuss changes.[550] Days after the Escuela Nacional joined the *huelga*, an unhappy Ricardo Acosta told FNECAF members that plans were in the works to end the protest. He included comments about the demonstration lacking justification – troubles in Chapingo took place because of "permanent troublemakers" (read, communists) on campus, he said – and other words about changing the membership of the ENA Student Council.[551] Officials suspended all services (food and laundry) at Chapingo and sat for at least one other unrewarding meeting with students a week after Acosta's less-than-happy words.[552] The acerbic editorial in *México Agrícola*, therefore, amounted to a misinformed rant with no insight about how serious the government regarded the fracas.

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[548] "Editorial, Enseñanza Agrícola," *Tierra* XXII, no. 6 (June 1967), 415.
[549] "Editorial, Una Huelga sin Justificación," *México Agrícola* XIV, no. 160 (June 1967), 7.
[550] "Estado de Chihuahua," June 12, 1967, Archivo Histórico, UACh, Chapingo.
[551] "Escuela Nacional de Agricultura," June 12, 1967, Archivo Histórico, UACh, Chapingo. The same report indicates that students tried to have a meeting with former president Lázaro Cárdenas.
[552] "Señor Si… [unintelligible in report]," June 18, 1967, Archivo Histórico, UACh, Chapingo; "[unintelligible text], NO DELINCUENTES," June 18, 1967, Archivo Histórico, UACh, Chapingo; "Principales acontecimientos derivados del conflicto planteado por los alumnos de la Escuela Superior de Agricultura 'Hermanos Escobar', de Ciudad Juárez, Chihuahua, al día 20 de junio," June 20, 1967,

The author's dismissive tone was wrong on another front. Strikers displayed levels of organization that exceeded a sophomoric tantrum based on "whimsical caprice." Immediately after their June 5 vote, *chapingueros* coordinated patrol teams that guarded campus twenty-four hours a day during the school's closure. They also designated teams to clean campus, to help with the laundry, and to take care of meal preparation. In relation to the latter task, those who refused to leave campus feasted on poultry and cattle that belonged to the college, and received provisions from sympathetic professors. For those students who detested the over-the-top military atmosphere in Chapingo, the suspension of food deliveries provided them poetic justice because they ate a prized horse that belonged to one of their drill instructors. Everyone who stayed at the Escuela Nacional had to work, said Francisco Romahn de la Vega, "Those who did not work could not be fed. Everything…fell on students."[553]

Thus, while many frustrated young people in "developed" countries sought to transcend the world by attending concerts and dabbling in drugs during the Summer of Love, thousands of youth in Mexico took material action to transform their own realities in 1967. A handful of agronomy students succeeded in putting the brakes on agricultural education. They also figured how to fend for themselves while their government refused to engage in substantive negotiations. What was more, students carried out their small coup only months after Plan Chapingo's inauguration, which had represented the beginning of Mexico's agricultural future in the minds of many people.

Archivo Histórico, UACh, Chapingo; "Escuela Nacional de Agricultura de Chapingo," June 20, 1967, Archivo Histórico, UACh, Chapingo.

[553] Francisco Romahn de la Vega, *Chapingo estudiantil en movimiento*, 114-115; Núñez, *1967*, 116. *Chapingueras* were a big help in preparing meals for strikers on campus. Those in Ciudad Juárez were not so lucky when it came to food. While they survived on ESAHE animals, they also had to institute rations.

THE LANGUAGE OF A STRIKE AGAINST A "STAGNANT" EDUCATION

Other than showing support for ESAHE students, why did the movement take off quickly? What was at stake to strikers? If officials at the Ministry of Agriculture paid attention to the quotes from rallies and other propaganda contained in the small cascade of reports arriving to their office in May and June, they would have found answers to both of these questions and could have gleaned three larger conclusions. First, they would have noted that the education system they oversaw – SAG chiefs, not officials in the Ministry of Public Education, managed agronomic training since the 1940s - suffered from severe maladies. Gil Preciado and company would have also noticed that *huelguistas* argued that the agricultural progress that so many people had championed for years failed to help peasants. Finally, SAG officials would have picked up that protestors were so bent on reshaping the future of agricultural development that they were willing to face the military.

Whereas authorities gave lukewarm attention to *chapingueros*' complaints about lackluster teaching and poor curriculum during the early 1960s, the 1967 uprising made it clear that fundamental flaws existed in all of Mexico's schools. At a rally in Hidalgo Park in Ciudad Juárez on June 7, Miguel Valdiviezo said that the education at "Escobar" lacked dynamism; in his words, training was "stagnant."[554] His partners shared similar words days later. After denouncing "Compañía Escobar," they complained about academic shortcomings and a scarcity of practical studies in Ciudad Juárez.[555] In Guadalajara on June 12, José Alatorre assailed the Escobar family's

[554] "Estado de Chihuahua," June 7, 1967, Archivo Histórico, UACh, Chapingo.
[555] "Estado de Chihuahua," June 10, 1967, Archivo Histórico, UACh, Chapingo.

profiteering and added that his and others' cause "battled for the improvement and uniformity of all curriculum plans" everywhere.[556] The same day an informant in Nuevo León recorded similar comments about educational inertia, noting that protestors said institutions everywhere remained behind the times by at least twenty-five years.[557] Two days later Rafael Ortega told more than one hundred people that national education suffered from a "gigantic lag."[558]

Such criticisms and thoughts had formerly been limited to ENA newsletters and dorm rooms or to small brouhahas in Chapingo during the early 1960s. But in the summer of 1967 the critiques emanated from protests in Guadalajara, Nuevo León, and Chihuahua and support for the movement resonated with students in Morelos, Guanajuato, Guerrero, and Oaxaca. The fight to federalize "Escobar," therefore, represented a crisis that assembled soon-to-be agronomists to talk and inventory problems at their respective institutions. In the process, many of them discovered that they shared the same frustrations about the same problems, namely that the educational infrastructure that their government began building in the 1940s was flimsy and obsolete.

Strikers, however, did more than confirm that problems existed. They made larger indictments about how the poor educational infrastructure spelled trouble for the future because it failed to align with Mexico's rural realities. At a rally in Ciudad Juárez on June 7, José Luis Escobedo told listeners that the *huelga* was "the people's fight because Chihuahua and Mexico stood to benefit" from improvement in colleges.[559]

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[556] "Estado de Jalisco," June 12, 1967, Archivo Histórico, UACh, Chapingo.
[557] "Estado de Nuevo León," June 12, 1967, Archivo Histórico, UACh, Chapingo.
[558] "Estado de Chihuahua," June 14, 1967, Archivo Histórico, UACh, Chapingo.
[559] "Estado de Chihuahua," June 7, 1967, Archivo Histórico, UACh, Chapingo.

Two days later, FNECAF leaders crafted a letter blasting agricultural education. Curriculum everywhere was designed by people "who had no global vision about the country's needs." Hence, students received the same degree for the same profession, minus uniformity or a system of accountability for quality, which resulted in the majority of institutions finding themselves in a "frankly unsustainable situation." Schools lacked minimal needs, and consequently, "those who graduate are not equipped to deal with the problems in national agriculture." Furthermore, strikers wrote, "We are firmly convinced that agricultural education…demands decisive and informed changes, an overhaul."[560] Rally leaders expressed similar thoughts at a demonstration on June 10. After setting up their mobile sound equipment, *huelguistas* told an audience that their movement centered on "faith in a bright future" and concern for the next generation of agronomists. They also renounced the Escobar family's misdeeds and their lack of care for the type of graduates their college trained.[561] One sign in Ciudad Juárez summarized complaints in the summer of 1967: "A profession is incomplete when its training disclaims teaching."[562]

So that their message would resonate, those up in arms appropriated the language of Mexico's ruling party to make their point; that is, they linked their cause to peasants. At a rally in Ciudad Juárez on June 7, Jorge Hernández took the microphone to say that he and his comrades fought for "a better education that trained agronomists to better serve *campesinos*."[563] In another part of the city days later, Miguel Valdiviezo told a crowd of more than one hundred people that the government failed to design a

[560] "Manifiesto de la Escuela Nacional de Agricultura: A la Opinión Pública," June 9, 1967, BC, UACh, Chapingo.
[561] "Estado de Chihuahua," June 10, 1967, Archivo Histórico, UACh, Chapingo.
[562] "Estado de Chihuahua," June 14, 1967 Archivo Histórico, UACh, Chapingo.
[563] "Estado de Chihuahua," June 7, 1967, Archivo Histórico, UACh, Chapingo.

training system that delivered the "advice that peasants [really] needed."[564] Strike Committee members in Chapingo sent a note to newspapers responding to criticisms from members of Mexico's Agronomic Society four days after Valdiviezo's words in Ciudad Juárez. According to the letter, part of the strike was "aimed at overcoming obstacles in agricultural education… and putting education within the reach of the people."[565]

By linking their protest to *campesinos*, FNECAF leaders disrupted political rhetoric in the 1960s. For decades, the Partido Revolucionario Institucional owned the privilege of speaking for peasants. Party officials based their legitimacy on the premise that they knew what was best for *campesinos.* Consequently, people presumed that politician's decades-long celebration about agricultural progress – the period that began in 1943 when the Mexican Agricultural Program began and continued with Plan Chapingo's inauguration in 1967 - constituted proof that PRI officials knew what they were doing and that peasant redemption was forthcoming. Strikers in 1967, however, dismantled this presumption. They told the public that the work celebrated by PRI leaders, as well as those in the Rockefeller Foundation, the Ford Foundation, and the other institutions who advised and financed Mexico's quarter decade of agronomic advances amounted to more smoke and mirrors than material changes in the countryside.

To bolster their arguments, students also told the country that they were willing to die for their movement. In response to one critic who said that the government should send in the army to end the conflict, one informant reported that strikers said

[564] "Estado de Chihuahua," June 10, 1967, Archivo Histórico, UACh, Chapingo.
[565] "Escuela Nacional de Agricultura de Chapingo," June 14, 1967, Archivo Histórico, UACh, Chapingo.

they were not afraid. "Whatever happens, happens," Edward Merrem said at a June 14 public rally at a monument for national hero Benito Juárez in Ciudad Juárez. He also told his audience of 140 people that if the government's answer to *huelguistas*' "justified demands" was military intervention, students were not scared. They were prepared "to put their flesh to bayonets for the triumph of their cause."[566]

An informed historian today recognizes the strike of 1967 as a refutation of the "Green Revolution" and high modernism. If we consider the "Revolution" a system built on the belief that technical solutions could solve complex problems, then it should be clear that strikers were articulating the failure of such dogma in 1967. It should not be difficult to see that students rendered the scheme that the Rockefeller Foundation introduced and that the Mexican government wholeheartedly championed for nearly three decades as a collective failure because it failed to help the millions of farmers who people presumed were benefitting from hybrid seeds, synthetic fertilizers, and other awesome technologies: peasants. What is more, protestors were so adamant about altering the direction of agricultural development that they were willing to face the military.

REVIVAL, AUTHORITARIANISM, AND THE END OF A STRIKE

Due to students' conviction in early and mid-June, the strike dragged on for weeks before it ended on July 15. Some colleges began discussions about returning to normalcy when administrators and students began to realize how much disruption the strike had caused to the academic year. When it appeared that things would end with no solution to the situation in Ciudad Juárez and redress for other grievances, the National

[566] "Estado de Chihuahua," June 14, 1967, Archivo Histórico, UACh, Chapingo.

Polytechnic Institute (IPN; the "Poli") joined *en masse* on June 29.[567] IPN students' talks of radicalizing and transforming the agricultural colleges' protest into a youth movement prompted authorities to refrain from a military invasion at the Escuela Nacional and to negotiate with FNECAF leaders. ENA faculty members also played a role in helping seal a peaceful end to the strike. More importantly, faculty members realized that the changes that had taken place at their college since the 1950s (i.e., Chapingo's transformation into the institutional vanguard of the "Green Revolution"; see Chapter Four) had an underbelly.

Relevant talks for ending the conflict began on June 28 when a handful of professors in Chapingo met with SAG Vice Minister Ricardo Acosta. At Juan Gil Preciado's request, Acosta met with Efraím Hernández and colleagues solely to gather information. Instead of gathering information, the Vice Minister talked to professors and displayed Cold War authoritarianism. After some teachers offered their opinions, Acosta explained his Ministry's intransigence up to that date. Officials could not intervene in Ciudad Juárez to "Sovietize" a private college because of legal procedures, he said. Perhaps to underscore how the strike was exacerbating tensions at his campus and thus to encourage talks to end the rebellion, ENA Director Gilberto Palacios De la Rosa added that some *chapingueros* had begun talks about staging a counterstrike. Acosta responded with his ministry's reading of the situation in Chapingo: a group "dedicated to periodically harass authorities existed" on campus and this same group was a communist cell with its own newsletter, *Autocrítica* (a search for newsletter

[567] To reignite momentum in late June, students in Ciudad Juárez discussed making a martyr; see Ortega, *1967*, 28. Sources show that FNECAF strikers sent a manifesto to IPN students dated on June 28. The next day, IPN sources show rallies taking place at the Poli; see "Manifiesto a la Opinión de los Estudiantes del I.P.N.," June 28, 1967, IPS, box 1452B, AGN, Mexico City.

authors began in February of 1967, as mentioned earlier). The existence of Marxist agitators on campus gave the Ministry of Agriculture "plenty of authority" to end the protest, but chose not to get involved "precipitously," said the Vice Minister. After fielding a few comments from professors, the minister adjourned the conference by bluntly telling faculty that they should support the government, work with the available resources, research the possibility of revising education policies, and repudiate the madness taking place.[568]

Thus, the first meeting to end the strike amounted to an exercise in faculty members' patience for bureaucratic authoritarianism instead of discussion of substantive issues. According to Acosta, his agency could not intervene in Ciudad Juárez because of constitutional procedures, but the ministry could intervene at the Escuela Nacional because of the existence of communist agitators on campus. Put another way, the government saw the anarchy at hand around the country as youthful frustration inspired by leftist activists and not about addressing frustrations in education or helping peasants, as strikers purported. To his credit, Acosta was correct in his assertion that Chapingo had a small group of Marxists that published *Autocrítica*. But he somehow failed to read the tea leaves in the reports from his *perros de oreja*. Rarely did reports mention class struggle, socialism, or Marxism. Instead, SAG informants highlighted items that should have sounded familiar to Acosta, ENA administrators and professors, and anyone near Chapingo for the last eight years. Strikers decried pedagogical stagnation and demanded a new approach to agricultural education and planning. Efraím Hernández's notes from the first meeting captured the different

[568] Hernández, "Reunión profesores ENA para auscultar huelga ENA," June 28, 1967, notebook #12, 150-152, Archivo EHX, COLPOS. For a short summary of Acosta's career, see "Noticias Agropecuarias," *El Campo* XXIX, no. 874 (December 1964), 54.

interpretations vis-à-vis the *huelga*'s causes. Following Acosta's bit about communists, Hernández wrote a rhetorical question and answer to the Vice Minister: "What about education's disorder? It is real!"

Another meeting with better results and more Red-baiting took place two days later. After attendees shared ideas, Acosta said that there would be no budging on the part of the government towards federalizing "Escobar" because of lack of funds and because of certain legalities. He then repeated suggestions from the previous gathering, intimating that a brand of communism, particularly one inspired by Che Guevara and Fidel Castro, existed in Mexico. Teasing the minister, Hernández again wrote another sarcastic note to himself: "[Acosta] repeats [his] '007 Acosta versus SMERSH' story.'" Hernández likened the Ministry of Agriculture's crusade against communists to Ian Fleming's James Bond novels and the main character's fight against a Soviet spy agency known as SMERSH. Faculty eventually received permission to form a mediation committee to hear out FNECAF representatives and report back to the government.[569] Professors gave themselves until noon on July 7 to come to some kind of conclusion. Not far from everyone's mind was the unspoken threat that the military would intervene if an agreement could not be reached by the proposed deadline.[570]

The inclination to allow faculty to talk with FNECAF representatives after June 30 likely amounted to a calculated move. Acosta probably knew on June 30 that the

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[569] ----, "Junta Profesores," June 30, 1967, notebook #12, 153-160, Archivo EHX, COLPOS.

[570] The information about the July 7 deadline is outlined in a report that Hernández wrote days after the meeting with Ricardo Acosta on June 30; see Hernández, "Informe de la comisión mediatora de profesores para dar termino a la suspensión de actividades en la E.N.A.," July 7, 1967, folder Suspensión Actividades E.N.A. 1967, Archivo EHX, COLPOS. Mention of the deadline was also later mentioned by strikers at the National Polytechnic Institute; see "Instituto Politécnico Nacional," July 7, 1967, IPS, box 1542B, AGN, Mexico City. The reference to Cuban socialism comes from Hernández's meeting notes, which said "Tricontinental." I am almost certain the term referred to the Tricontinental Conference that gathered leftist representatives from Africa, Asia, and Latin America in Cuba in January of 1966 to discuss non-Soviet paths to socialism and national liberation in the Third World.

Ministry of the Interior (SDG) had its own spy network with reports that the Juárez hubbub had spread to the Poli, one of the largest colleges in the country, a day earlier. According to SDG records from June 29, FNECAF members and student activists led a spirited rally at the Poli that begged for support. A *cebollero* took the stage at an auditorium to castigate the "lack of coordination" at his school and to tell the 250 people in attendance that he and others needed the "decided support" of all students. Another speaker said that he and others would "neither bend nor break" in the face of arrests or reprisals if the military intervened. One *politécnico* (an IPN attendee) told classmates that FNECAF members sought justice in Ciudad Juárez so that graduates could "serve *el campesinado* in a social capacity." Arturo Martínez from the National Center for Democratic Students, a group of Marxist-leaning activists, exhorted people to recall past displays of government repression. He told those in attendance to remember the military's invasion at the Poli in 1956 and another intervention at the National Autonomous University, and a student movement in Michoacán that resulted in several arrests of people who later became political prisoners. Martínez added a challenge to *politécnicos*, encouraging them not to fear arrest because "there isn't enough cement and steel rods in Mexico to build enough prisons for every student when they fight towards a just cause." He finished his homily by saying that Mexico's youth "should work like the youth in other Latin American places….who take to the streets and fight for their rights." Although the plans were eventually cancelled, the demonstration ended with talks about a march to SAG offices the next morning.[571]

[571] Gutiérrez, "Instituto Politécnico Nacional," June 29, 1967, IPS hereafter, box 1452B, AGN, Mexico City.

The tenor and plans shared at the rally at the Poli on June 29 probably made their way to Juan Gil Preciado and Ricardo Acosta. It would be difficult to think that SDG officers would fail to share intelligence indicating that the agricultural colleges strike had spread to Mexico City and seemed to be transforming into a massive uprising with Gil Preciado and Acosta. Consequently, Acosta's permission for faculty to begin talks for peacefully ending the disruption to research and training at the Escuela Nacional on June 30 came about because of news from the previous day. The Vice Minister's alleged mercy had its reasons.

Serious talks did indeed occur after June 30. On July 1, FNECAF representatives and ENA faculty mediation committee members discussed a plan for federalizing "Escobar." Efraím Hernández noted suggestions that the government could take over the college, pay an indemnity to the Escobars, and form a council that oversaw the management of a new institution minus the influence of its former owners. FNECAF members also told the committee that Mexico had an education predicament. "In reality, the problem is national," they said. The country needed more trained agronomists and Chapingo's status as an SAG dependency (and not as an autonomous college) produced "specialized graduates" instead of more *técnicos*. As a solution, students said the country needed more training centers and improvements at those that existed.[572] A day later professors heard that spokesmen in Ciudad Juárez had taken concrete steps towards ending the strike. Those up north relayed to Mexico City news that they had sent word to Chihuahua's governor about a government-student council that would decide how to handle the situation at "Escobar." In response, the governor apparently demonstrated an ability to work with strikers, proposing that his office could

[572] Hernández, no title, July 1, 1967, notebook #12, 161 and 163-164, Archivo EHX, COLPOS.

open a new public university in Ciudad Delicias. As talks advanced in Chihuahua and other talks continued in Chapingo, it appeared by July 5 that the national protest would end soon.[573]

Despite this progress, things worsened in the next couple of days. According to an SDG operative at an IPN rally on July 6, about five hundred students heard about classmates from IPN Vocational School No. 7 being "savagely beaten" by *granaderos* – members of the Federal District's police force known for its excessive use of force during the 1960s - as they gathered outside the Ministry of Agriculture the night before. Audience members also heard rumors that the army planned to invade Chapingo within twenty-four hours. News about the beatings outside SAG offices and the impending raid prompted about three hundred protestors to begin a march in Mexico City's streets. When police broke up the procession, students settled for blocking streets and yelling at *granaderos* with shouts of "Viva Chapingo!" and "Death to the apes [police]!" The large trek to government offices ended poorly, but not before one participant invited others to bring classmates to a demonstration the next morning, when they would "force" a march to the Ministry of Agriculture.[574] At a rally that same night, more IPN students agreed to stage an indefinite stoppage of activities in support of "Escobar" and learned about the confrontation with the police earlier in the day. One item stood out in the SDG informant's report about the night of July 6: some students promised to "get hold of every bus that they could and travel to the Escuela Nacional, taking Molotov cocktails and every kind of weapon" to defend *chapingueros* if the military invaded the

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[573] ----, "Junta com. profesores y alumnos," July 2, 1967, notebook #12, 165, Archivo EHX, COLPOS; ----, "Junta con alumnos ENA," July 5, 1967, notebook #12, 169, Archivo EHX, COLPOS.

[574] "Asunto: I.P.N., C. Director Federal de Seguridad," July 6, 1967, IPS, box 1452B, AGN, Mexico City. See Elena Poniatowska, *Massacre in Mexico*, trans. by Helen R. Lane (Columbia, MO.: University of Missouri Press, 1975) for more about the *granaderos* and their abuses.

next day. The next morning, handbills with words about revolution from a small group calling itself the Revolutionary Leftist Student Movement circulated at the Poli. Another spy report from the same day indicated that more IPN schools voted for a stoppage of activities to support "Escobar" and Chapingo and that some IPN students spent the night of July 6 building homemade bombs.[575] The disorder in Ciudad Juárez had morphed into a potentially violent uprising in Mexico's capital by early July.

Optimism dimmed at Chapingo, too. The faculty mediation committee's July 7 deadline passed and no agreement could be reached between students and the Ministry of Agriculture. As a last ditch effort to convince Juan Gil Preciado and Ricardo Acosta to think twice about what they would do next, Efraím Hernández drafted the committee's conclusions. After talking with students and government officials, professors made three observations: first, students expressed a "genuine surprise" for the cold shoulder from the Ministry of Agriculture; second, the strike severely disrupted national agricultural research and education; and third, commission members understood that "the movement in Chapingo centers on serious problems about agricultural training all over Mexico," such as national education policies, Plan Chapingo's arrangement, and recent changes at the Escuela Nacional.[576]

The most damning parts of the report, which apparently never made it to SAG officials, were its last two pages. Prior to the July 7 deadline, ENA strikers wanted to allow negotiations in Ciudad Juárez to be finalized before lifting the closure at the

[575] "Asunto: Instituto Politécnico Nacional, C. Director Federal de Seguridad," July 7, 1967, IPS, box 1452B, AGN, Mexico City; Gutiérrez, "Instituto Politécnico Nacional," July 7, 1967, IPS, box 1452B, AGN, Mexico City.
[576] Hernández, "Informe de la comisión mediatora de profesores para dar termino a la suspensión de actividades en la E.N.A.," July 7, 1967, folder Suspensión Actividades E.N.A. 1967, Archivo EHX, COLPOS.

Escuela Nacional. Juan Gil Preciado and company refused to allow more time. Thus, it appeared – though never said - that the army would invade Chapingo. Before the worst occurred, Hernández craftily lambasted the Ministry of Agriculture's lack of patience, suggesting that the time officials had given the committee to try to resolve things was "clearly short" and failed to give *chapingueros* time to deliberate over whether to return to normalcy or to wait to hear back from Chihuahua. Then the report outlined what Hernández regarded as the fundamental reasons why the strike began and why it appeared to be ending in military intervention:

> The management of an educational institution by an authority fundamentally dedicated to other activities – as is the case here - gives ground to an undervaluing of academic dynamism and damage to school grounds, as well as campus morale and academics. Such an arrangement plants the seed for excessive power struggles and eliminates the professors' role as a rational group and as a mediating body.[577]

Hernández's personal notes elaborated on the lesson he sought to give to the Ministry of Agriculture. On an index card, he wrote four fragments: "direct decisions rested with the Ministry of Agriculture," "to produce the objective professional from the Escuela Nacional, we must produce thinkers," "a platform for free expression and to let off steam about problems," and "Point Four[,] U.S., Department of State."[578] Known for loading his sentences with penetrating messages, Hernández disguised the prose in the committee's statement as an indictment of the maladies in Chapingo since the 1950s. He critiqued SAG officials' control over the college, suggesting that the ministry's mulish dedication to producing uncreative *técnicos* engendered a learning environment that failed to produce "objective professional[s]" and "thinkers." SAG

[577] Ibid.
[578] Ibid.

supervision of the college, he continued, promoted a setting in which some of the hallmarks of any institution of higher education – the freedom of expression and the right to argue – ceased to exist.

Finally, the fragment about "Point Four" referred to the ultimate problem that Maestro Xolo had with the celebration that had taken place at Chapingo since the 1950s, when the Rockefeller Foundation, the Ford Foundation, and other groups began investing time and money into the Escuela Nacional. Begun under President Harry Truman in the 1950s, the Point Four Program was an initiative that provided "technical assistance" to "developing" countries under the premise that assistance prevented the spread of communism.[579] Xolo covertly suggested that SAG leaders' motivation for their training of stolid agronomists unprepared to help peasants was to ensure that the groups who helped design and finance agricultural planning in Mexico remained satisfied (Plan Chapingo received funding from the Inter-American Development Bank, a Point Four institution). Hence, the quote that the management of an institution "by an authority fundamentally dedicated to other activities" represented Hernández's way of saying that Acosta and Gil Preciado operated under the tutelage of bosses in Washington, D.C. That colleagues signed the report proved that what Hernández had shouted for so many years – that Mexico's model for agricultural improvement should begin locally, not with the United States – was finally resonating with colleagues in

[579] Nick Cullather offers an instructive discussion about the Point Four initiative; see Cullather, *The Hungry World: America's Cold War Battle against Poverty in Asia* (Cambridge: Harvard University of Press, 2010). For a critical reading of the Point Four initiative with relations to technical help to agriculture in the "developing" world, see John H. Perkins, *Geopolitics and the Green Revolution: Wheat, Genes, and the Cold War* (New York: Oxford University Press, 1997), 144-156.

1967.[580] The *huelga* proved to be a moment of clarity for students out in the streets, as well as their professors.

Image 5.2 A *granadero* hits a protestor who wanted to demonstrate outside of Mexico's Ministry of Agriculture (from Archivo General de la Nación).[581]

Military intervention did not take place on July 7, but the strike did not end either. On July 8, Gil Preciado agreed to talk personally with five student representatives in Mexico City after hearing from ENA professors about *huelguistas*' grievances.[582] The meeting yielded no significant results. Gil Preciado elaborated on the legalities of getting involving in state matters. Disgruntled students repeated complaints about "Escobar's" annual subsidy and presented solutions similar to the ones that they had previously mentioned to faculty. Hernández's notes summed up his reading of the results of the failed summit: "We tried every possible avenue to solve [the] 'Hermanos Escobar' [issue] but we could not commit to a solution. The reopening of activities [at Chapingo] does not mean that the movement has been abandoned or that

[580] It should be noted that only three of the other nine committee members signed the report.
[581] "Estudiantes de la Vocacional No. 7," July 7, 1967, IPN, box 1457B, folder 28, AGN, Mexico City.
[582] Hernández, "Mesa Directiva Sociedad Alumnos ENA," July 7, 1967, notebook #12, 178, Archivo EHX, COLPOS.

the work towards repairing problems [at school] is done."[583] While professors discussed how to address the impasse, discussions between protest leaders and government officials failed to take place.[584]

The invasion also did not occur because the scene at the Poli deteriorated quickly. A day after the failed talks with Gil Preciado, *politécnicos* and others continued their support for the strike, hanging signs that said "We repudiate [you], [President] Díaz Ordaz!" and "Death to the Ministry of Agriculture and the merchants of education!" at different campuses.[585] Within the next two days, at least fifteen schools refused to hold classes and things at the Poli worsened when two thousand members of an IPN counterstrike attacked "Escobar" supporters by driving a bus through a barricade in front of one of the college's entrances. In another incident, an SDG informant reported that some strikers spent the afternoon bringing gasoline into a building to prepare bombs and planned to visit SAG offices the next morning.[586] Then on July 11, at least twenty-three IPN schools initiated a seventy-two hour shutdown during which the "Escobar" issue needed to be resolved or else more bedlam would begin.[587] An SDG report two days later indicated the size of the strike that the Mexican government had on its hands: a quarter of a million students around the country found themselves outside of classes in support of agricultural college attendees.[588]

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[583] ----, "Junta con C. Secretario," July 8, 1967, notebook #12, 179-181, Archivo EHX, COLPOS.
[584] Hernández's notebook contains notes from two faculty meetings, but does not include talks with students. See Hernández, "INIF Junta Profesores," July 10, 1967, notebook #12, 182, Archivo EHX, COLPOS; and Hernández, "Comisión Mediatora," July 11, 1967, notebook #12, 183-184, Archivo EHX, COLPOS.
[585] Gutiérrez, "Instituto Politécnico Nacional," July 9, 1967, IPS, box 1452B, AGN, Mexico City.
[586] ----, "Instituto Politécnico Nacional," July 10, 1967, IPS, box 1452B, AGN, Mexico City; ----, "Instituto Politécnico Nacional," July 11, 1967, IPS, box 1452B, AGN, Mexico City.
[587] ----, "Instituto Politécnico Nacional," July 12, 1967, IPS, box 1452B, AGN, Mexico City.
[588] ----, "Instituto Politécnico Nacional," July 14, 1967, IPS, box 1452B, AGN, Mexico City.

Image 5.3 IPN Protestors blocked streets in Mexico City (from Archivo General de la Nación).[589]

The massive shutdown was short, as the strike ended peacefully on Saturday, July 15. Earlier that morning, *politécnicos* received notice that ESAHE strikers and the governor's office in Chihuahua had reached a settlement. Students in Ciudad Juárez called the Poli via telephone to relay the major points of the agreement reached up north: 650 ESAHE students would immediately be transferred to the University of Chihuahua for classes over the next couple months; in 1968, the same public university would open a new agricultural college; the governor's office would offer former *cebolleros* help with their move and financial assistance; Praxedes Giner, Chihuahua's governor, also promised to ask the Ministry of Agriculture for funds with which to give a raise to teachers at the new institution; a student-government council would figure out how to proceed with problems at "Hermanos Escobar"; and tuition would be reduced at "Hermanos Escobar."[590] Two days later, about seven hundred students packed buses and cars outside IPN gates in Mexico City bound for Chapingo, where a huge bonfire

[589] "Aspecto general del grupo estudiantil," July 6, 1967, IPS, box 1457B, folder 28, AGN, Mexico City.
[590] Gutiérrez, "Instituto Politécnico Nacional," July 14, 1967, IPS, box 1452B, AGN, Mexico City.

celebration was scheduled to take place. Some of the buses flew signs for people to read: "Fight while studying!"[591]

Days after the bonfire *México Agrícola*, the same magazine that ran a piece castigating strikers nearly a month earlier, published another editorial that contained a small bit that likely pleased students who had demonstrated. The writer criticized those who had protested, asking them if their fuss was worth the disruption to their studies. He added that the only positive to be realized from the rebellion was that "Mexico's youth is not deaf to lessons to be learned" and "does not again fall victim to the same illusions." A parenthetical clause in the editorial's introduction, however, had words that absolved Avante leaders and those people all over the country who supported them, "The authorities, *once they analyzed the issues and considered the youngsters' position was reasonable*, had no qualms about taking the measures needed to resolve the situation" (emphasis mine).[592] Without directly saying so, the writer conceded that strikers' complaints were valid – the Escobar family had shirked its responsibilities as a private entity receiving public funds, "Escobar" was a deficient institution, and Mexican students' demands were "reasonable." Put another way, the *huelga* was warranted.[593]

CONCLUSION

The 1967 strike had important results other than those in Ciudad Juárez. First, it served as an interregnum.[594] It was, as Hiram Núñez has suggested, a "rupture" to the

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[591] ----, "Instituto Politécnico Nacional," July 18, 1967, IPS, box 1452B, AGN, Mexico City; Núñez, *1967*, 91.
[592] "Editorial," *México Agrícola* XIV, no. 161 (July 1967), 7.
[593] "Escobar" stayed open for years after 1967 and continued to receive SAG support; see Ortega, *1967*, 28.
[594] My view of the strike as a pause in the status quo is inspired by James C. Scott's discussion about a very different topic: the Mexican Revolution. See his Foreword in *Every Forms of State Formation:*

discourse that governed Mexican agricultural education and development since the early 1940s.[595] Many *chapingueros* used the situation in Ciudad Juárez as a springboard to channel frustrations that had been building for years. After talking with FNECAF affiliates, ENA students discovered that they were not the only agronomists-in-the-making who disliked their educational training system. They learned that others all over the country dealt with the frustration that what they studied in classrooms failed to help a country filled with peasant farmers. As strike leaders explained to *politécnicos* in their efforts to gain IPN support on June 28, agronomy students everywhere realized that "the problems at 'Escobar' were in no way an isolated or random case…Agricultural education is characterized by complete anarchy. Schools with no rhyme or reason and without adherence to a rational, orderly plan existed everywhere."[596] Thus, the mutiny in the summer of 1967 represented the signpost when those trained under the high modernism that undergirded the "Green Revolution" rejected the status quo and announced that Mexico's agricultural future needed revision.

Second, the *huelga* denoted the moment that agronomy students, particularly *chapingueros*, realized that what became known as the "Green Revolution" involved politics. They realized that it was their government that wholeheartedly embraced the mechanistic training that left many students disenchanted and unprepared to help peasants; accordingly, they blamed the government for adoption of such a flawed system. The strike, therefore, represented a public event in which young Mexicans questioned the legitimacy of their government and disparaged President Gustavo Díaz

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Revolution and the Negotiation of Rule in Modern Mexico, edited by Gilbert M. Joseph and Daniel Nugent (Durham, NC.: Duke University Press, 1994), ix.

[595] Núñez, *1967*, 75.

[596] "Manifiesto a la Opinión de los Estudiantes del I.P.N.," June 28, 1967, IPS, box 1452B, AGN, Mexico City.

Ordaz, *granaderos*, and SAG officials. Proof of the rebellious sprit that the strike engendered was visible at the 1968 opening of ENA classes discussed at the beginning of this chapter. After Díaz Ordaz exited by helicopter, the government began dismantling some of the traditions at school, as guns were removed from campus not long after the incident and presidents quit attending ceremonies at the Escuela Nacional.[597] A couple months after the inauguration incident *chapingueros* angst towards the government continued and many of them became leaders in Mexico's youth movement that culminated with the Tlatelolco massacre on October 2.[598]

Finally, Efraím Hernández's life changed after the summer of 1967. During the tense days of early July, when faculty tried to prevent what looked like an eminent student massacre in Chapingo, Ricardo Acosta inexplicably did not show up for more than one meeting with the faculty mediation committee. Maestro Xolo eventually cracked and told the Vice Minister that professors trying to help end a tenuous situation deserved better treatment.[599] Acosta doled out punishment for what he regarded as insubordination months later. In January of 1968 Hernández told an acquaintance "Per orders above me, I will probably be traveling outside of Mexico quite often during the coming months."[600] Between July and January, Acosta had arranged for the International Maize and Wheat Improvement Center to hire Xolo to collect agricultural seeds in South America. Like other intellectuals in Latin America who had the gall to

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[597] Marín, *Chapingo estudiantil en movimiento*, 170-171.
[598] See *Chapingo y el movimiento estudiantil popular del 68*, Hiram Núñez Gutiérrez, Jorge Gustavo Ocampo Ledesma, and Rosaura Reyes Canchola, eds. (Chapingo, Mexico: Universidad Autónoma Chapingo, 2011) for more about the Escuela Nacional's role in the 1968 student movement. Also see Poniatowska, *Massacre in Mexico*, 33.
[599] Rafael Ortega Paczka, interview with author, December 2, 2013, Chapingo, Estado de México, Mexico. Ortega seems to have been the only person with whom Hernández shared details about why he was exiled.
[600] Efraím Hernández, "Ing. Ignacio Cano Flores," January 26, 1967 (*sic*), folder Correspondencia – 1968, Archivo EHX, COLPOS.

challenge the ruling party in their country during the Cold War, Hernández was sent into exile. His unsolicited sojourn was in South America. He was away from his daughters and students for much of 1968.

CONCLUSION
THE IRONY OF MEXICO'S AGRICULTURAL DEVELOPMENT

What happened to Mexican agriculture after the strike of 1967? To be sure, the unrest at colleges did not immediately result in substantive changes. Government officials did not proceed to announce a reorientation to agricultural development instantly after the summer of 1967. And in the countryside, many growers who had adopted certain technologies and cultivation methods after the 1940s did not alter their approach to farming after the strike. But life at the Escuela Nacional de Agricultura changed substantially after the late 1960s. Ironically, peasant farmers, whom professors and students often overlooked during previous decades, became sources of intellectual inspiration for research.

National agriculture took on two characteristics after the late 1960s. The first of these traits was large-scale production, agribusiness. Many people who had adopted modern farming (i.e., the Green Revolution) and who had access to the requirements that facilitated success over the 1940s and the decades afterwards – controlled irrigation; big parcels of land for commercial-scale production; and credit for inputs like fertilizers, pesticides, and seeds that one needed to purchase more often than previously – fared well during and after the 1970s. Several growers, particularly in the states of Sinaloa and Sonora, became players in international export markets for wheat and ancillary crops like tomatoes. Sorghum production boomed, too. In terms of research, Mexico continued to be a beacon in the "developing world" during the early 1970s.[601]

[601] For more on the dual-track configuration of Mexican agriculture after the 1950s, see Angus Wright, *The Death of Ramón González: The Modern Agricultural Dilemma* (Austin: University of Texas, 1990); Cynthia Hewitt de Alcantara, *Modernizing Mexican Agriculture: Socioeconomic Implications of Technological Change, 1940 – 1970* (Geneva: United Nations Research Institute for Social Development,

Most farmers did not enjoy the windfalls stemming from the Green Revolution, however. Certain news items that tarnished the Revolution began appearing as early as the summer of 1967. *Tierra*, the journal of the Ministry of Agriculture, published an editorial reacting to a recent United Nations (U.N.) report. Mexico, according to the report, was one of the world's most "notable examples of rapid economic development," in large part because of advances in its agricultural sector. But the *Tierra* writer also mentioned the "other side of the coin," the underside of such advances. U.N. observers noted that outside of a few regions – primarily those places with controlled irrigation and places populated with "more advanced farmers" – agricultural progress had failed to arrive. Three percent of farmers, the editorial remarked, accounted for 50 percent of the crops that made it to market. Furthermore, many of those growers operated on a commercial scale while the remainder of the rural population remained "totally at the margins of progress." Six million people lived in households that practiced subsistence agriculture on small parcels and these farmers worked their land for a total of only 150 days per year and often remained without work outside of that period. Hence, much of rural Mexico remained underemployed for much of the year. Although the editorial mentioned that the situation in the countryside could improve, the writing was on the wall in Mexico in 1967: the global recognition as an exemplar for agricultural development masked the dire realities of millions of *ejidatarios* (communal land owners) and small farmers.[602]

1976); and Steven E. Sanderson, *The Transformation of Mexican Agriculture: International Structure and the Politics of Rural Change* (Princeton: Princeton University Press, 1986). About tomatoes, see Sterling Evans, "Baja and Beyond: Towards an Environmental and Trans-regional History of the Tomato Industry of Baja California," in *Farming across Borders: Transnational Agricultrual History in the North American West*, ed. Sterling Evans (College Station: Texas A&M University Press, forthcoming).

[602] Y Gai Liberté, "Editorial, El Reverso de la Medalla," *Tierra* XXII, no. 5 (May 1967), 335.

Other signs of the Green Revolution's shortcomings appeared in the same year. Agronomists who had studied in the United States during the 1950s and 1960s began noticing in the mid-1960s that many farmers, particularly those in rain-fed areas, had not embraced improved and fertilizer-responsive seeds, processed fertilizers, and other technologies. Consequently, students from Chapingo, government authorities, and researchers with the Rockefeller Foundation designed a multi-year project intended to devise methods for delivering the Green Revolution to small communities in the state of Puebla. The project, which came to be called Plan Puebla, lasted years and went on to have mixed results.[603] That many of the people who advocated the Green Revolution saw the need to devise such a study, however, represented an admission that "progress" had not arrived to farmers who practiced *temporal* (rain-fed) cultivation.

Thus, while a handful of people benefitted from the advances that had begun during the 1940s, the reality for the majority of Mexican growers was quite different. Many agriculturalists over the 1960s and 1970s found themselves elbowed out of the countryside by market forces and moved to cities, thereby abandoning farming altogether. Meanwhile, millions of those who stayed the course and continued

[603] About Plan Puebla, see Centro Internacional de Mejoramiento de Maíz y Trigo, *The Puebla Project, 1967-69: Progress Report of a Program to Rapidly Increase Corn Yields on Small Holdings* (Mexico City: International Maize and Wheat Improvement Center, n.d.). For some of the criticisms and other discussions related to Plan Puebla, see David L. Clawson and Don R. Hoy, "Nealtican, Mexico: A Peasant Community that Rejected the 'Green Revolution,'" *American Journal of Economics and Sociology* 38, no. 4 (October 1979): 371-387; and Bert Steven Kreitlow, "State and Peasant: Maize and Modernization in Zacapoaxtla, Mexico, 1930-1982" (PhD diss., The University of Iowa, 2002). A resourceful graduate student will eventually write the history of Plan Puebla, and she or he will not be disappointed with the choice of research topic.

practicing subsistence farming found themselves in a precarious coexistence alongside commercial growers.[604]

A similar two-track process unfolded at the Escuela Nacional and its graduate college during the 1970s. On the one hand, pedagogy and the direction of research resembled previous decades. Professors approached research and teaching using a top-down model that adhered to empiricism and rigid science. Hence, Chapingo continued to be a wellspring for *técnicos* and others who still spread the gospel of modern agriculture under the premise that farmers had little to contribute or share.

On the other hand, an alternative approach to research developed.[605] Efraím Hernández's informal exile to South America allowed him to fuse his ideas with science. Before bureaucrats in Mexico City sent him on a time-out, Hernández was known as the eccentric and respected professor who advocated the thesis that *campesinos* were sources of agronomic expertise.[606] While such an idea sounded novel, it also lacked theoretical foundations and evidence outside of personal conviction. But the seed collection trips through the backwoods of Colombia, Ecuador, and Peru over much of 1968 gave Hernández time to hone in his hypothesis and he returned to Mexico as an ethnobotanist.[607]

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[604] Alain de Janvry best describes the existence of capitalist and peasant agricultural modes of production in rural Latin America in his discussion about "functional dualism." See *The Agrarian Question and Reformism in Latin America* (Baltimore: The Johns Hopkins University Press, 1981): 81-93.

[605] About the history of agricultural research and its guiding principles during the 1960s and the 1970s, see Juan de la Fuente Hernández et al., *La investigación agrícola y el Estado mexicano, 1960[-]1976* (Mexico: Universidad Autónoma Chapingo, Subdirección de Investigación Departamento de Diagnóstico Externo, 1990).

[606] By the late 1960s, one of Hernández's biggest claims to fame was his leadership in Mexico's Dioscorea Commission, which is credited with conducting groundbreaking research about steroids that helped produce contraceptive pills. On Mexico, peasants, and the Dioscorea Commission, see Gabriela Soto Laveaga, *Jungle Laboratories: Mexican Peasants, National Projects, and the Making of The Pill* (Durham: Duke University Press, 2009).

[607] Hernández published his most influential article about the methodologies of an ethnobotanist in 1971. Few people know that he drafted the seminal piece while he was in South America during what appears

Some explanations are necessary. In the most basic terms, botany is the study of plants. A botanist deals with a plant's genetics, morphology, and life cycles. Ethnobotany is more complex. According to Richard Evans Schultes, one of the discipline's founders, ethnobotany can be considered a hybrid of botany and anthropology. It is, Schultes wrote in 1941, "the study of the relations that exist between man and the plant environment," as well as the study of the use of cultivated and undomesticated plants by indigenous groups.[608] Researchers are required to integrate the presence of humans and the dynamics that the human species carries - culture, beliefs in the metaphysical, aesthetics, ethnicity, gender, food tastes, etc. - into their research to examine what people call the plant-man relationship.

In South America, Hernández found what agricultural investigation in Mexico had been missing for decades: the presence of people in a dynamic natural setting. Researchers and extensionists had worked for years under the precept that farmers were passive repositories for knowledge who would adopt technologies and growing methods via appeals to their visual or auditory senses (see Chapter One). Hernández regarded such rules as unsatisfying because they defied what he had witnessed for decades – that of peasants being capable farmers who had acute knowledge about plants. He found that research needed to deal with plants *and* humans, with both components being part of a larger setting. He elaborated on his ideas in notes to himself in December of 1970 (written in English):

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to have been the spring or summer of 1968. See Hernández, "Metodología de la exploración etnobotánica," N.D., notebook 14, 62-65 and 110-125, Archivo Efraím Hernández Xolocotzi (Archivo EHX hereafter), Rama de Etnobotánica, Centro de Botánica, Colegio de Postgraduados, Montecillo, Estado de México, Mexico (COLPOS hereafter). It is telling that the handwritten draft in his notebook appears nearly identical to the published article.

[608] Richard Evans Schultes, "La etnobotánica: su alcance y sus objetos," *Caldasia* 3 (1941), 7.

> It seems that if we start with the consideration of man and his culture[,] the relationship of man and plant never assumes its proper dimension and we soon lose ourselves in man's belief[s], fears and fantasies so that his place in the ecosystem is never understood. We must, for this reason, start with the larger reality, the ecosystem and work down to man and plants. Viewed from this aspect, this course [i.e., ethnobotany] would review man's role in the ecosystem and the consequences of the numerous interactions set up. A search for the biological roots of these relationships should lead to the understanding which should serve[,] in turn[,] to clarify future tendencies.[609]

Hernández thereafter approached botany with a wider lens for examination, what he called "the larger reality," or ecosystems. Under such an approach, logic dictated that farmers were not containers for information or growers naturally inclined to adopt certain technologies because of powerful appeals to their senses; to the contrary, they were participants in the farming process. Agriculture, as he had told people for years, constituted an interactive process conducted in a larger space with live actors and natural processes (see Figure 6.1 for one of Hernández's schematics of ethnobotany). It took years to happen, but Hernández captured his botanic Moby Dick in South America – he located a scientific discipline that could test his convictions about *campesinos*.

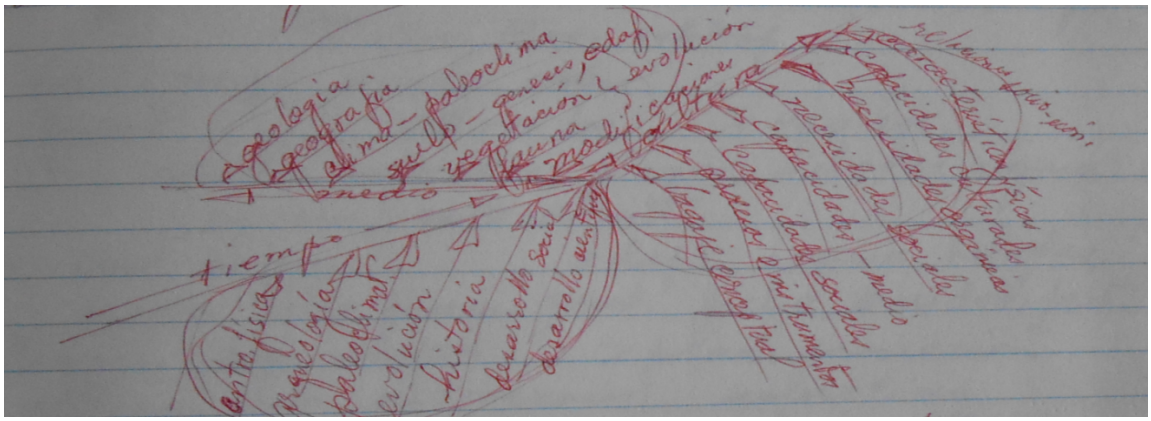

Figure 6.1 One of Efraím Hernández's models of ethnobotany. The interaction of the arrows of "tiempo" (time and space), "medio" (ecology; environment), and "cultura" (culture) added up to the phenomenon of ethnobotany (from Archivo EHX, likely written in late 1977, notebook 32, 22).

[609] Hernández, "Ethnobotany," December 31, 1970, notebook 18, 63, Archivo EHX, COLPOS.

Hernández's conversion into an ethnobotanist coincided with big happenings in national academic circles. The Tlatelolco Massacre of October 1968, an incident involving the killing of students who demanded political reform in Mexico City, eventually spurred the country's ruling party, the Institutional Revolutionary Party, to democratize politics. Thereafter began the country's "*apertura democrática*" ("democratic opening") under President Luis Echeverría (1970-1976). In Mexico City, the opening allowed for sharing among intellectuals, some of whom would go on to become prominent figures in academic circles for their studies related to peasants.

Hernández began attending meetings with some of these researchers in 1972. Among the scholars at the gatherings were figures whose names would loom large in modern Mexican social sciences during the 1980s and 1990s: Enrique Florescano, known for his work on agrarian history; Eric Wolf, Ángel Palerm, and Arturo Warman, anthropologists known for transforming ethnological studies; and Friedrich Katz, arguably one of modern Mexico's greatest historians. Peasants were a common topic at every meeting and Hernández was at home with these men. He began strong friendships with some of them, particularly Palerm and Warman. Thus, at the point in his career that he had bonded botany to anthropology, Hernández also began professional and personal relationships with a handful of the people whose work would collectively reinterpret peasants' role in Mexican and Latin American history.

A year after joining these meetings, which reportedly often lasted into the wee hours of the morning, Hernández and graduate students began multi-institutional studies supported by authorities at Chapingo. The projects were part of a larger program known as "El T.A.T.," Traditional Agricultural Technology. Studies began with

intensive discussions in the classroom. Then students ventured to the field. Hernández dropped off pupils in disparate remote places where they began systematizing the agricultural knowledge of several indigenous groups. Students had to immerse themselves in the communities where they lived. They had to become students of the local growers. Over the 1970s and the 1980s, *xolocotzianos* and others under the mentorship of Arturo Warman and Ángel Palerm could be found following *campesinos*, asking a variety of questions: Why did they choose a particular seed over another?; How did they know when a parcel that they had previously cleared was prepared for cultivation?; How much did terracing a hillside help capture rainwater for irrigation purposes?; Why did a farmer plant in a shaded area versus somewhere else?; What did a certain herb or leaf do for a given cough or illness?

Hernández explained T.A.T.'s guiding principles in an article for a small newspaper in 1973. He and others sought "to deal with the key parts of agricultural, livestock, and forestry exploitation." They did so "not as strangers and superiors to the minds" of peasants, he wrote. Rather, they would be sensitive to local farmers and "anxious to learn and contribute with what we have learned elsewhere [i.e., modern science]." He continued, "We will try to approach questions related to farming under the principle that the most important element of our resources is humans."[610]

This approach proved to be a hit at Chapingo and the Colegio de Postgraduados, and many people, indeed, learned from peasants. Hernández's Ethnobotanical Methodologies seminar became a mainstay at the Colegio after 1972. Other colleges in Mexico followed suit. Ethnobotany also became a topic panel at national conferences.

[610] Efraín Hernández Xolocotzin Guzmán, "La Tierra que Nos Alimenta," *Pueblo Nuevo* 1, no. 1 (October 1973), 2, Archivo EHX, COLPOS. Note: This article was about peasants in Hernández's home state of Tlaxcala.

"El T.A.T." eventually morphed into more complex studies. By 1977, Hernández led well-funded projects that explored the smallest details of traditional agriculture and more complicated projects related to agroecosystems. His students would go on to publish studies that detailed how peasants practiced what today is called sustainable agriculture and how they had an acute knowledge of certain plants that prevented or helped cure modern illnesses. Peasants, students discovered, had intricate ways of conserving seed biodiversity and complicated methods for overcoming environmental constraints like farming alongside a steep mountain or farming with a lack of irrigation.[611] By the 1980s, Hernández took satisfaction in being able to tell people "I no longer have to scream and yell too much to get people to understand me."[612]

He experienced more poetic justice during the 1980s. Mexican exports of products that had previously been high because of Green Revolution technology slowed over the 1970s, and by the 1980s, the country imported basic grains.[613] A deluge of criticisms against the Revolution followed, and Hernández took solace in the fact that he had spent decades harping about the flaws he saw in the model of agricultural development that national leaders had previously embraced. Over the same years, people started recognizing his contributions. In 1981, he received an *Honoris Causa* degree from the Colegio de Postgraduados. Chapingo bestowed an honorary degree

[611] Collections of these studies can be found in some work published while Hernández still lived and two compilations after he passed away. See Efraím Hernández X., ed., *Agroecosistemas de México: contribuciones a la enseñanza, investigación y divulgación agrícola* (Chapingo, Estado de México, Mexico: Colegio de Postgraduados, 1977); Efraím Hernández Xolocotzi, Eduardo Bello Baltazar, and Samuel Levy Tacher, eds., *La milpa en Yucatán: un sistema de producción agrícola tradicional*, Tomo 1 (Mexico: Colegio de Postgraduados, 1995); and Hernández, Bello, and Levy, eds., *La milpa en Yucatán: un sistema de producción agrícola tradicional*, Tomo 2 (Mexico: Colegio de Postgraduados, 1995).
[612] No author, "Notas de vida Efraím Hernández Xolocotzi," N.D., 8, Archivo EHX, COLPOS.
[613] About basic food policies in the countryside during the 1980s, see Jonathan Fox, *The Politics of Food in Mexico: State Power and Social Mobilization* (Ithaca: Cornell University Press, 1992).

five years later.[614] Other honors included officials' naming of a forest in Mexico City after Hernández in 1984. He was also the namesake for a botanical garden established in 1986 in northern Mexico. The Society for Economic Botany named him Distinguished Economic Botanist in the same year (in the letter acknowledging the award, he recognized his debt to colleagues, teachers, and "of course" Latin American peasants).[615] Other people who became (and remain) preeminent scholars in research on sustainable and organic farming, such as Stephen Gliessman and Miguel Altieri, recognized his work. Gliessman, for example, invited Xolo to a conference in the United States in 1981. Five years later, Altieri told Hernández that he would be "exceedingly interested" in visiting Chapingo and interviewing him and others involved with agroecology, ethnobotany, and rural development.[616] What is more, graduate students from U.S. universities traveled to Mexico to study under Maestro Xolo's tutelage. History came full circle, as Americans went south to learn about agriculture from a group of researchers who claimed peasants as their teachers.

Thus, agricultural development during the 1970s and 1980s was deeply ironic. During previous decades, Mexico was famous for its advances in research and increases in production of basic crops. People flocked to the study in the country and witness the spectacle of the Green Revolution. All the while, Efraím Hernández and a handful of others expressed skepticism and advocated a vision of agricultural development that saw the country's most destitute farmers as sources of intellectual inspiration. Authorities and colleagues largely ignored such ideas over the 1950s and 1960s. Then

[614] The Colegio moved to its own campus and became a separate institution from the Escuela Nacional de Agricultura in the late 1970s.
[615] Efraím Hernández X., Letter to Dr. Garrison Wilkes, January 28, 1986, Archivo EHX, COLPOS.
[616] Stephen R. Gliessman, Letter to Efraím Hernández, October 12, 1981, Archivo EHX, COLPOS; Miguel A. Altieri, Letter to Efraím Hernández, March 5, 1986, Archivo EHX, COLPOS.

came the 1970s, the decade when many people began realizing some of the shortcomings of the Green Revolution, and it was Hernández's brand of botany that attracted the attention of foreigners. It seemed that the debate over agricultural development discussed in this dissertation was partially won by those Mexicans who looked locally for inspiration.

New debates related to the direction of Mexican agriculture have emerged, and some of the responses to current issues resemble ones heard in the past. A visitor at Chapingo can see fliers renouncing free trade agricultural policies that national leaders began in the 1990s. The same person can hear suggestions on campus that the Mexican government should not forget about the country's smallest farmers.[617] If someone travels a couple kilometers away to the Colegio de Postgraduados, he or she will likely see posters related to the dispute surrounding transgenic maize in the countryside.[618] Among the arguments that some Mexicans make against the introduction of transgenic maize is one about fusing modern science with *campesino* knowledge to formulate a national plan for food sovereignty and security.[619] The irony of Mexican agriculture continues.

[617] For more on the debates about free trade and agriculture, see Tom Barry, *Zapata's Revenge: Free Trade and the Farm Crisis in Mexico* (Boston: South End Press, 1995).
[618] See Elizabeth Fitting, *The Struggle for Maize: Campesinos, Workers, and Transgenic Corn in the Mexican Countryside* (Durham: Duke University Press, 2011) about transgenic maize. About the history of plant biotechnology, see Jack Ralph Kloppenburg, Jr., *First the Seed: The Political Economy of Plant Biotechnology* (Madison: University of Wisconsin Press, 2005).
[619] Lourdes Rudiño, "No a los Transgénicos de Plantas Nativas: Conabio," *La Jornada Baja California*, December 12, 2015, http://jornadabc.mx/tijuana/12-12-2015/no-los-transgenicos-de-plantas-nativas-conabio. The person who made this assertion was José Sarukhán. Experts have considered him one of the world's best tropical ecologists since the 1970s, and he is the national coordinator of Mexico's National Commission for Knowledge and Use of Biodiversity. From what I can gather, Sarukhán was Efraím Hernández's first graduate student.

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