

2005

Is Geography Destiny?: Lessons from Latin America. and Troubled Harvest: Agronomy and Revolution in Mexico, 1880–2002

Andrew Sluyter

Louisiana State University, asluyter@lsu.edu

Follow this and additional works at: http://digitalcommons.lsu.edu/geoanth_pubs



Part of the [Anthropology Commons](#), and the [Geography Commons](#)

Recommended Citation

Sluyter, Andrew, "Is Geography Destiny?: Lessons from Latin America. and Troubled Harvest: Agronomy and Revolution in Mexico, 1880–2002" (2005). *Faculty Publications*. 41.

http://digitalcommons.lsu.edu/geoanth_pubs/41

This Article is brought to you for free and open access by the Department of Geography & Anthropology at LSU Digital Commons. It has been accepted for inclusion in Faculty Publications by an authorized administrator of LSU Digital Commons. For more information, please contact gcoste1@lsu.edu.

Joint review by Andrew Sluyter of *Is Geography Destiny?: Lessons from Latin America*; and *Troubled Harvest: Agronomy and Revolution in Mexico, 1880–2002*, *Annals of the Association of American Geographers*, Volume 95, Number 1 (March 2005), pp. 232–236.

the politics of scale, popular culture is largely silent on these issues. This is an important point, but I think he chose the wrong set of examples from which to make his argument. He first suggests that it is the *extraglobal* that matters more to the average citizen, as seen via the popularity of science fiction movies such as *Mars Attacks!* or the *Terminator* series. (I would suggest that special effects more adequately explain the popularity of science fiction films, particularly when written science fiction is not nearly as popular.) More believably, Kirby suggests that popular culture is not concerned with a taxonomy of scale, but ideas of “front” and “back,” especially in our age of reality television and electronic surveillance. Finally, Mains’s chapter was the best in the book at considering how a multiplicity of scales can be present at the same time. She investigates the U.S. Border Patrol on the California/Mexico border, showing how personal stories are intertwined with nationalist discourse, and, furthermore, how those personal stories are masculinized. She shows how immigration discourse conflates individuals with the nations they come from, though they potentially threaten the livelihoods of both individuals and the country as a whole.

The final section discusses “Scales of Praxis,” making the point that the larger scale isn’t always the better; “jumping scale” may mean limiting an issue to a local or regional scale. Crump tells the story of the struggle between two rival unions to represent the farm-implement workers of Illinois in the mid-twentieth century. In this case, the national state “jumped down” to the local

to the concept of collective action frames, borrowed from social movements research, to see how different groups created discourses at different scales. Finally, Leitner, Pavlik, and Sheppard bring together the heretofore distant literatures of globalization and networks and globalization and scale. They conclude with a criticism similar to Allen’s: whereas these approaches, most of which were developed by nongeographers, do a good job of placing individuals in relation to each other, they are largely aspatial. If there are uneven social relations, there must be uneven spatial relations as well, which again is one of Allen’s main points.

Despite their different aims and areas of study, these two books complement each other fairly well. Allen paints in broad strokes, while the contributors to Herod and Wright use specific examples to work through broader notions of scale. Allen occasionally discusses scale, though not in as much detail as he does place and space. Only a couple of the Herod/Wright contributors explicitly discuss power, making the book’s title somewhat of a misnomer. Finally, and importantly, both works explicitly consider praxis, whether as a separate section of the Herod and Wright book, or as one of Allen’s major motivations for considering the connections between spatiality and power. Both of these books are therefore far from academic exercises, but rather show that thinking deeply about theory and the role of spatiality and scale make it possible to challenge—and change—the status quo.

Key Words: power, scale, networks, empowerment, globalization.

Is Geography Destiny?: Lessons from Latin America. John L. Gallup, Alejandro Gaviria, and Eduardo Lora. Stanford, CA: Stanford University Press and The World Bank, 2003. xiv and 171 pp., maps, diags., notes, biblio., and index. \$21.95 paper (ISBN 0-8213-5451-52003).

Troubled Harvest: Agronomy and Revolution in Mexico, 1880–2002. Joseph Cotter. Westport, CT: Praeger Publishers, 2003. xxviii and 393 pp., notes, biblio., and index. \$89.95 cloth (ISBN 0-313-32515-4).

Reviewed by Andrew Sluyter, Department of Geography and Anthropology, Louisiana State University, Baton Rouge, LA.

Mexico is the birthplace of the Green Revolution. Yet, according to the World Bank, a quarter of its nearly 110 million people are living in extreme poverty and suffering chronic hunger and malnutrition. The belief that better

understanding of the basic processes underlying that horrible irony will result in better development policy motivates many geographers and others who do research in Mexico and elsewhere in Latin America. Two ap-

proaches characterize much of that effort. One seeks better understanding in categorical associations, the other in historical processes. Each of the two books under review here epitomizes one of those approaches, offering an opportunity to compare and contrast their basic and applied contributions.

Is Geography Destiny? captures the mind-set, methods, conclusions, and policy recommendations of neoenvironmental determinism, the latest version of categorical thinking to offer development studies a “renaissance [that] represents the triumph of reason and science over suspicion and supposition” (p. 1). Following the lead of “intellectual figures of the stature of David Landes, Jared Diamond, and Jeffrey Sachs” (p. 1), Gallup et al. propose that categorical associations between such explanatory variables as climate and such dependent variables as gross national product reveal why so many millions of Mexicans and other Latin Americans suffer chronic hunger and malnutrition.

Chapter 1 concerns all of Latin America and provides context for the country studies that follow by demonstrating that development has failed in the tropics generally because of impoverished soils, rampant diseases, natural disasters, and peripheral location. For example, the equatorial dip in U-shaped graphs of gross national product against latitude is determined by the inherently low productivity of tropical agriculture (pp. 28–30). Even that quintessential tropical fruit, the banana, apparently does not grow well between the Tropic of Capricorn that cuts across northern Argentina and the Tropic of Cancer that bisects Mexico. According to table 1.4 (p. 35), Latin America’s tropical banana yields average only 78 percent of its nontropical banana yields: 166 mt/ha (metric tons per hectare) versus 214 mt/ha. Calculating back from that table to the original FAOSTAT data (<http://apps.fao.org>) reveals that Gallup et al. base their nontropical yield on the average of Argentina (241 mt/ha), Paraguay (204 mt/ha), and the Bahamas (198 mt/ha), which clearly are all nontropical countries because substantial portions of their national territories fall poleward of $23\frac{1}{2}^{\circ}$ (although skeptics might point out that all Argentinean, Paraguayan, and Bahaman bananas grow within a degree or two of $23\frac{1}{2}^{\circ}$ and within the ecological if not the geometric limits of the tropics). The authors then average the banana yields of thirty-three tropical Latin American countries (those with all or most of their territories between $23\frac{1}{2}^{\circ}$ north and south), thereby compensating for the high yields of a few gargantuan producers such as Costa Rica (2,500,000 mt in 1998 at a yield of 532 mt/ha) with the low yields of the many miniscule producers such as the Cayman Islands (206 mt in 1998 at a yield of 13 mt/ha) to arrive at

a tropical yield of 166 mt/ha. The application of simple arithmetic thus reveals the folly of growing bananas in the tropics, with countries such as Ecuador flaunting the principle of comparative advantage by wasting 206,931 ha on banana production while David Ricardo cries out in his tomb to expand the mere 10,705 ha of bananas in Argentina, Paraguay, and the Bahamas.

Chapter 2 then applies that same sort of categorical thinking to Mexico, Brazil, Bolivia, Colombia, and Peru to reveal the country-level “details, the nuances, indeed the exceptions” to the first chapter’s hemispheric analysis. Using Mexico as an example, Gallup et al. first demonstrate that variables such as latitude explain differences in development even at the country level: “an increase of one degree (a little more than 100 kilometers) is associated with an increase of income per capita of almost 9 percent” (p. 74). Country-level research also permits integration of such statistical analysis with what the authors call “detailed historical and ethnographical evidence,” through which they reveal that the arid environments that dominate much of Mexico have long determined the dominance of its “hydraulic societies” and their “despotic,” “archaic institutions” (p. 72) that, apparently, stymie development, especially in states such as Chiapas and Oaxaca that have large indigenous populations.

Chapter 3 closes the book with conclusions and policy recommendations derived from such categorical thinking. The authors conclude that environment determines development to such a great degree that “were Mexico a completely homogenous country from a geographical standpoint, regional inequality would be at least 20 percent lower than what it is today” (p. 78). And while many environmental variables remain relatively immutable and therefore inimical to the authors’ desired homogeneity, Gallup et al. point out that “geography is not destiny” because “adequate policies and institutions can offset its adverse effects” (p. 65), such as those related to location. So they recommend building roads into so-called peripheral locations because neoliberalism failed to reduce poverty in Mexico, where falling real incomes have characterized the decade following the 1994 inception of the North American Free Trade Agreement (NAFTA), apparently because “the potential benefit of trade liberalization policy may in turn be severely limited by lack of infrastructure,” with “transportation bottlenecks” preventing development of export sectors, “especially primary ones” (p. 134). Boldly discounting the disastrous social and environmental histories of projects such as the Trans-Amazon Highway, Gallup et al. argue that building more roads will result in development by making Mexico a more “completely homogenous country from a geo-

graphical standpoint” and facilitating, for example, the replacement even in “peripheral locations” of cuisines that “still reflect ancient traditions” with “more cost-effective diets” (p. 67). The authors make other similar policy recommendations, the originality of which they best summarize themselves: “What is new is that these policies can better incorporate the various geographical variables that influence their effectiveness” (p. 6).

Despite the simplicity of such categorical research, typically requiring little more than a quick download of public-domain data and packaged statistical analysis, the late Joseph Cotter insisted on expending great effort to better understand the complex historical process through which Mexicans followed their successful revolt against colonial sovereign power with capitulation to (post)colonial disciplinary power. In a failed attempt to ameliorate food deficits, Mexican governments disowned indigenous food production systems, which achieve high productivity and sustainability because they are rooted in the dynamic particularities of real places, in favor of a Green Revolution that not only did not reduce hunger and malnutrition but also destroyed much environmental and cultural heterogeneity. Much of the existing literature argues that the Rockefeller Foundation, which implemented the Green Revolution, imposed agricultural dependency on Mexico by focusing on large irrigated farms rather than on small rain-fed farms, on tropical commodities for export rather than on food crops, on agrochemicals rather than on locally available resources, and on labor efficiency that fostered urban migration and a flexible industrial workforce rather than on resource efficiency that would have fostered social and environmental sustainability. In some accounts, the Mexican *agrónomos* (agronomists) who worked with the Rockefeller Foundation become little more than neo-imperialist pawns; in others they become one-dimensional idealists. On the basis of research in a broad range of archives, Cotter is able to provide a more sophisticated understanding of both the Rockefeller Foundation and, especially, the role of the *agrónomos*. He spent considerable time at the Rockefeller Archive Center, the National Archives in Washington, and the Archivo General de la Nación in Mexico City to understand how *agrónomos* participated in the Green Revolution within the context of broader processes such as U.S. and Mexican domestic politics. But he also delved into various Mexican state, municipal, and university archives to understand the details, contradictions, and conflicts of that participation.

When the Rockefeller Foundation initiated the Green Revolution in the 1940s, Mexican *agrónomos* had already for many decades been trying to establish the dominance

of their knowledge/power. Chapter 1 of *Troubled Harvest* traces their emergence as a professional group during the dictatorship of Porfirio Díaz (1876–1911). Throughout that Porfiriato, hacienda owners expanded their lands by dispossessing neighboring communities and small farmers, ensuring a compliant workforce disempowered through debt peonage and landlessness and, also, ensuring that *agrónomos* lacked clients. The potential clientele of small farmers, even if they could have afforded the services of the *agrónomos*, was largely eliminated. And hacienda owners had such a flexible supply of cheap labor that most had little interest in increasing efficiency. Even those who did want to innovate needed specific practical advice based on field or experimental research in Mexico rather than general scientific theory based on European publications, the main source of the *agrónomos*’ knowledge. The *agrónomos* reacted by retreating into the isolation of the Porfirian state’s tiny agricultural bureaucracy in Mexico City and criticizing the, in their view, backwardness of rural Mexicans.

The Mexican Revolution (1910–1921) ended the Porfiriato and, as chapter 2 recounts, expanded the agricultural bureaucracy to implement an agrarian reform that returned hacienda lands to communities and small farmers. Many *agrónomos*, although not all, participated in surveying and redistributing lands because they believed that expanding the number of farmers would ensure a ready clientele. Yet participating in such a profound restructuring of social power not only earned the enmity of the hacienda owners but also made clear that *agrónomos*, despite their claims of scientific objectivity, had political motivations. Moreover, the homogeneity of the *agrónomos*’ scientific knowledge diametrically opposed the heterogeneity of agricultural knowledge systems and practices that agrarian reform proliferated by fragmenting land tenure. That contradiction drove the conflicted ideas and actions of *agrónomos* in the two decades following the Mexican Revolution. The dominant strategy, however, became the “cultural campaign,” the topic of chapter 3 (p. 81). Through the publications, rural youth organizations, extension agents, loans, contests, and country fairs of the Ministry of Agriculture and Development, *agrónomos* tried to establish the dominance of their homogenous knowledge/power by invalidating heterogeneous local agriculture as “traditional,” “backwards,” and “irrational” (pp. 60–69). Most farmers successfully resisted the cultural campaign because the *agrónomos* offered no locally applicable knowledge that would increase maize yields yet demanded significant local disempowerment.

Chapters 4–6, which are the analytical core of *Troubled Harvest*, cover the Green Revolution that offered

agrónomos the means to gain credibility as a scientifically objective discipline. Despite Mexico's expropriation of foreign oil companies in 1938, including the Rockefeller family's Standard Oil, World War II and a series of food crises spurred, respectively, the U.S. and Mexico to agree to have the Rockefeller Foundation establish the Mexican Agricultural Program (MAP) in 1943. MAP had within a few years begun producing hybrid varieties of maize and other crops that yielded so much per hectare that farmer demand for the so-called improved seeds far exceeded supply. Finally *agrónomos* had something farmers wanted and, even better for establishing the dominance of disciplinary knowledge/power, the MAP hybrids required farmers to become dependent on the *agrónomos'* professional expertise. Unlike the hybrids that farmers had been breeding for thousands of years to fit dynamic local conditions, use of the Green Revolution's hybrids required buying new seed every year, buying agrochemicals, and investing in irrigation. Rapid growth of the agricultural bureaucracy reflected MAP's success at creating that dependent clientele. Some *agrónomos* saw MAP as a rival and actively tried to sabotage its activities. Some insisted on the importance of the heterogeneous knowledge, both extant and that lost during the colonial period, that Mexican farmers had developed in diverse places over many generations. But most *agrónomos* enthusiastically embraced the homogeneous knowledge/power of the Green Revolution that promised them continued upward mobility.

Failure soon followed the initially hopeful results of the Green Revolution. Mexico became self-sufficient in maize for most of the 1950s and 1960s, which at first legitimated botanist Paul Mangelsdorf's advice to the Rockefeller Foundation to ignore the heterogeneous knowledge of Mexican farmers, whom he referred to as "uneducated peons" (p. 145). But the need to renew maize imports in the 1970s confirmed the wisdom of Carl Sauer and Edgar Anderson, who had from the outset urged MAP to focus research "on the selection of ecologically adapted native items" (p. 81) and "traditional farming and crop varieties" (p. 196). Other proofs of the failure of the Green Revolution continued to mount, including biodiversity loss, aquifer pollution, soil erosion, blight susceptibility, fossil-fuel dependence, land consolidation, rural pauperization, and rapid population growth.

As with *Is Geography Destiny?* the final chapter of *Troubled Harvest* closes the book with conclusions and policy recommendations. Based on better understanding of the understudied roles of the *agrónomos* who contributed, among many other factors, to the establishment of the failed model for the Green Revolution, Cotter

recommends establishing new agricultural colleges in rural areas to recruit students from among farming families, train them in plant and animal genetics, and provide incentives for them to apply that knowledge/empowerment in their home communities. Otherwise, he believes, the heterogeneous knowledge of Mexico's farmers will be "lost or stolen in a maelstrom of neoliberal-induced technological and socioeconomic change" (p. 334). And indeed, the second Green Revolution currently underway uses, like the first one, the homogeneous knowledge/power of the placeless laboratory to produce the next generation of so-called improved seeds, albeit through the direct introduction of specific genes, even those from other species, rather than through the extensive recombination involved in plant breeding. Mexican farmers use several such genetically modified (GM) crop varieties, and although Mexico banned the cropping of GM maize, its transgenes have contaminated the heterogeneous maize germplasm resource that farmers have created over thousands of years, threatening to overwhelm and homogenize it. Historical research is the only way to understand the basic natural/social processes qua processes involved. In contrast, the categorical thinking of neodeterminist gurus "of the stature of David Landes, Jared Diamond, and Jeffrey Sachs" (p. 1), and of their disciples such as Gallup et al., offers nothing but fatalism and rationalization of counterproductive policies such as road-building programs. At best they waste scarce capital, and at worst they accelerate exposure of a greater number of maize fields to transgene contamination. Instead, providing *agrónomos* with resources to validate their knowledge/power in ways that enhance rather than destroy the heterogeneity of Mexican agriculture would help to make the second Green Revolution more successful than the first.

In general, therefore, the intellectual rigor and applied utility of *Troubled Harvest* far exceeds that of *Is Geography Destiny?* Cotter's book certainly is stronger in some respects than others, and some of its problems might be due to posthumous publication, his colleagues having the wisdom to recognize scholarship well worth shepherding through the final stages of publication (p. xxi). Repetitions, a welter of acronyms, a lack of illustrations, and an enormous cast of characters bog down the explication of historical process, but very competent chapter summaries help to delineate the salient patterns. Connections to natural/social theory are strangely absent given the great relevance of concepts such as quasi-object to understanding the failure of the Green Revolution's hybrid seeds. A thorough elaboration of the relationship between the Green Revolution and *indigenismo* (Mexico's nationalistic indigenist ideology) also

seems strangely lacking, especially since that aspect of Mexican cultural politics has long been basic to reconciling glorification of the precolonial past in the interests of nationalism with disempowerment of living natives. Thus the second Green Revolution defines Mexico's germplasm as the ancient patrimony of humankind, a common good inherited from the ancient Maya, while corporations who develop GM crops from that germplasm patent them to the detriment of the living Maya.

But no book can do everything, and I hope geographers will use *Troubled Harvest* as a solid foundation on which to build regional studies of how landscapes change in relation to the actions of *agrónomos* and others involved in the first and second Green Revolutions.

Key Words: Latin America, Green Revolution, development, neo-environmental determinism, history.