3. The “Berkeley School” and the Great Mesoamerican Demographic Debate: *Un homenaje*

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How many people lived in America, or “The Americas,” or the pre-Hispanic Caribbean, or pre-Conquest Mexico are all questions which have engendered a great deal of controversy in the last half-century. As one scholar put it, “estimation of population size at contact is not a trivial issue. Rather, knowledge of the size of native population at the time of contact engenders a better understanding of the magnitude...of population decline throughout the Americas after 1492.”1 Such numbers have also bolstered the “case,” conducted sometimes in academia, but more often in popular discourse, of the magnitude of the “crime” committed, willfully or unknowingly, by the Europeans against the indigenous inhabitants of the New World.

Woodrow Borah, one of the central figures of what the French annales historians called “L’école Berkeley,” pointed out that matters of European conscience, reparations for historical and material wrongs to native peoples, exaltation of European culture and even the search for *indigenismo* as national identity rode on such population estimates.2

The literature on Amerindian demographics is immense, and in my brief essay I shall not attempt to list it. I will review the history of this question, highlighting the central contribution of the “Berkeley School”: Lesley Byrd Simpson, Sherburne Cook, Carl Sauer, and Woodrow Borah. Four scholars from Spanish, history, geography, and physiology, all teaching at the University of California, who represent a remarkable cross-disciplinary collaboration long before such partnerships became common in academia. (I exclude anthropologist Alfred Kroeber from membership in *l’école*, although his work on Native American population was seminal, because he worked in an earlier time period, and not in collaboration with the School members.)

It was Pierre Chanu, author of more than 50 books, including the classic *Séville et l’Atlantique, 1504-1650*, who identified “the Berkeley School of Hispanic American History,” with a focus on colonial economy and Indian demography. He included Borah, Simpson, Cook, as well as Sauer, James Parsons, Robert West, Homer Aschmann, and B. Le Roy Gordon as key members. Sauer has often been referred to as the “father of cultural geography.”3
I shall briefly describe the early careers of the four members of *L’ecole Berkeley*, and then outline the methods and definitions, all disputed, of counting or calculating which delineate the parameters of the debate.

The most senior of the quartet was Carl Ortwin Sauer, born in Missouri in 1889. After earning his doctorate from Chicago in 1915 in geography (“The Geography of the Ozark Highland of Missouri”) Sauer taught in Ann Arbor, before coming to Berkeley in 1923. When he arrived, the department consisted of two doctorate-less instructors. He literally built the department in his thirty years as chair. Soon after arriving on the West Coast, Sauer discovered the Baja Peninsula, as a “conveniently accessible area in which little scientific work had been done.” He started taking students into Baja, and later into Mexico, exploring aboriginal and colonial populations, cultivated plants, and the carrying capacity of the land.

Amazingly, it was after his retirement that he wrote a quartet of memorable books on the historical geography of the Americas: *The Early Spanish Main*, *Northern Mists*, *Sixteenth-Century North America: The Land and People As Seen by Europeans*, and *Seventeenth Century North America.*

Leslie Byrd Simpson was also born in Missouri, in 1891, although he grew up in Los Angeles. After enrolling at UC Berkeley, at a time when ROTC was compulsory, he became a pilot and flew bombers in World War I. After the war ended he worked, attended school, and taught in California until he joined UC Berkeley’s Spanish department as an associate, teaching while working on his doctorate, which he finished in 1928. The fact that his doctoral thesis was in history, rather than language or literature (“The Development of the Theory of Forced Native Labor in the Spanish Colonies With Particular Regard to Española and New Spain”) may have retarded his progress within the department. Promotion came very slowly to Simpson. He began his life’s work, the study of Spanish colonial society through its administrative control of Mexico’s Indians, always utilizing Spanish colonial records.


The last member of the Berkeley quartet (and the only one I had the privilege to know personally) was Woodrow Borah. Born in rural Mississippi in 1912, he was reared in Los Angeles, and attended graduate school in Berkeley in the 1930s. In both his 1985 *HAHR* interview and in personal
The “Berkeley School” and Mesoamerican Debate

reminiscences to me, he painted a vivid picture of attending Cal during the Depression, when the university’s superb library and its athletic facilities represented a kind of paradise to a lean and hungry generation. He finished in 1940, with a dissertation entitled “Silk Raising in Colonial Mexico.” Herbert Eugene Bolton, the elder dean of Mexican studies, warned Borah—as he put it to me, “in a kindly fashion”—that as a Jew he would have trouble obtaining a university position; indeed, when Borah taught at Princeton after finishing his Ph.D., it was as an instructor. They made it clear to him, he told me more than thirty years later, that it was a temporary post. Borah served in the OSS (in Washington) during the war, and returned to Berkeley in 1948 to teach in its Department of Speech, where he remained for fourteen years before being offered the Shepherd Chair in History. He was only the second Jew to become a professor in its History Department.7

Having outlined, albeit briefly, the origins and early careers of the members of the Berkeley School, I shall move to their body of relevant work. Cook got the ball rolling early in his career examining Native Americans in Baja California. His first article on the subject was published in the journal California and Western Medicine. His next essay was published in a periodical which became the “house organ” of the Berkeley School, Ibero-Americana. Number one of this irregular series appeared in 1932, with the introduction “The series IBERO-AMERICANA, is to form a collection of studies in Latin American cultures, native and transplanted, pre-European, colonial, and modern. Physical and racial backgrounds have a place in the collection, but it is anticipated that the studies will be in the main contributions to culture history.” The editors were Herbert E. Bolton, A.L. Kroeber, and C.O. Sauer.8 The first number was entitled “Aztatlán: Prehistoric Mexican Frontier on the Pacific Coast,” by Carl Sauer and Donald Brand. The second was a comparative ethnology of Northern Mexico before 1750, the third a classic: “The Road to Cíbola,” also by Sauer. “Cíbola” is classic Sauer: an examination of early Spanish entradas into Western Mexico, with careful attention to both the Spanish text and corresponding geographical details.

Ibero-Americana was published between 1932 and 1977. All of the members of “the School” published seminal work in it. Years before he produced his classic study The Encomienda in New Spain, Lesley Simpson published “Studies in the Administration of the Indians in New Spain,” as number 7 of Ibero-Americana, in 1934. Borah turned his doctoral thesis into “Silk Raising in Colonial Mexico,” Ibero-Americana number 20, in 1943.

What of the native depopulation? The question comes down to population data, which can only be calculated for the pre-European Americas. Historians and scientists have used ethnohistorical sources, archaeological data, physical anthropological data, ecological evidence, and demographic data, when it is available. Populations must be counted across time and space, and without hard statistical data, other, creative methods must be employed.
In what one scholar calls the *ethnohistorical methods*, one may employ *subpopulation projections*, in which information about a subpopulation of a larger group is simply multiplied out to the larger unit. *Subareal projections* parallel the subpopulation method, in which calculations for a small area are then multiplied to achieve a larger total. These methods are, of course, open to questioning based on the accuracy of the initial data.

Ecological projection is based on more indirect information: e.g., projections of average village or household size, using subpopulation or subareal methods to gain a “total” number. Another popular method is *carrying-capacity projection*, where environmental and technological calculations establish how many people *could have been supported* in a particular geographical area. This technique is highly problematic, not only from the basic objection that people who *could* have been supported does not necessarily translate into people who *were* supported. In addition, assumptions made about ecological conditions, including patterns for rainfall, soil, plant and animal food in the past may not be valid for present conditions.

Finally, *depopulation projections* include epidemiological projections and mathematical and statistical formulas, where known populations are projected back in time to establish earlier population figures. To sum up, as another anthropologist listed them, the data sources are narrative accounts, mission and municipal records, archaeological documentation, and human remains. All these sources, he noted, “have strengths and weaknesses, but each have the potential for providing important perspectives on contact-period population biology, including areas such as demographic reconstruction, dietary history, health status, and activity patterns.”

Biologists, anthropologists, geographers and historians have been arguing for a few centuries about “the evidence” and its validity or lack thereof. The “low” baseline school is generally accepted to be represented by James Mooney, whose *The Aboriginal Population of America North of Mexico*, published in 1928, proposed a total North American (i.e., the U.S. and Canada) population of only 1.5 million inhabitants; Kroeber later reduced that to 900,000. Kroeber had calculated that the arable land in Mexico for beans and maize production would allow for a population of 10 million persons, although he reduced that for *antiquity* by four-fifths. In contrast, a French scholar calculated a population for Mexico in 1492 of 4.5 million.

In 1948, Cook and Simpson teamed up to produce *Ibero-Americana* no. 31, “The Population of Central Mexico in the Sixteenth Century.” The duo used unpublished materials from Spanish archives, including *suma de visitas*, *relaciones de tasaciones*, tribute *relaciones*, *relaciones geográficas*, and various *cartas* and other reports written by ecclesiastics. Here we see the element of documentary reliability coming into play. Many of the critics of the Berkeley School have based their critiques on the supposed unreliability and exaggeration of contemporary observers, both civil and religious. Since Cook
and Borah later used depopulation projections in their work in the 1960s, the accuracy of the colonial data becomes crucial.

Cook and Simpson’s meticulous documentation for the time period between 1540 and 1570 allow them to propose a central Mexican population of 3,234,385 persons, excluding Nueva Galicia. Since they believed that the *suma* estimates were too low, they adjusted the figure to 4.2 million (4,204,700, to be exact). They believed that their estimates for 1565 to be reasonably accurate, and the soundest that could be had for 16th-century Mexico. However, it was important to obtain some notion of the magnitude of the decline of the population during the hundred years following the conquest. This, they admitted, could be achieved only in broad outline, since “with the information now available or ever likely to be uncovered it is impossible to determine annual or even decennial fluctuations of a minor or local sort.”

Simpson and Cook took into account such factors as supposed average family size, infant and adult mortality, military estimates of warriors correlated to total adult population, and urban density estimates. Their four data points for the sixteenth century show a smooth curve downwards.

Sherburne Cook published on his own an *Ibero-Americana* volume the next year, 1949, entitled “Soil Erosion and Population in Central Mexico” (number 34), which, running contrary to a generalized notion of the pre-contact Americas as a paradise, proposed that central Mexico was actually poised on the brink of ecological catastrophe when the Spaniards arrived.

*Ibero-Americana*’s numbers 43, 44, and 45 contain central elements of the School’s demographic work. All written by Sherburne Cook and Woodrow Borah, numbers 43-45 are as follows: “The Population of Central Mexico in 1548: An Analysis of the *Suma de visitas de pueblas*” (1960), “The Indian Population of Central Mexico, 1531-1610” (1960), and “The Aboriginal Population of Central Mexico on the Eve of the Spanish Conquest” (1963). The last of these raised the first of several “red flags” to other historians, for it proposed the highest population estimate ever made for pre-Conquest Mexico.

Cook and Borah, in the introduction to the first 1960 work, put their finger on one of the most controversial aspects of their work:

The publication of the Cook-Simpson estimates, with their radically high values for the earlier decade of the sixteenth century and their postulation of a catastrophic loss in numbers during the sixteenth century, led to animated debate among scholars. Even though Cook and Simpson attributed the depopulation primarily to the introduction of Old World diseases, over which the Spaniards could have had little or no control, a number of scholars were disturbed at what they feared would become substantial reinforcement of the so-called “black legend” of Spanish oppression the New World natives.

Many others flatly refused to accept such high population estimates, some from chauvinism (one French scholar admitted to Borah that he...
couldn’t believe that pre-Columbian Mexico had a higher population than *la belle France*) while others found it difficult to believe that the pre-Hispanic population was higher than that of contemporary Mexico.\(^\text{17}\)

Cook and Borah used the *sumas de visitas*; literally, the household counts carried out by Spanish civil authorities which were translated into tribute counts for settled areas. Over the course of eighty years, they traced a precipitous decline in Indian numbers.

It was in their last *Ibero-Americana*, number 45, “The Aboriginal Population of Central Mexico on the Eve of the Spanish Conquest” that Cook and Borah made their most famous (or infamous) proposal: that the pre-Conquest population of Central Mexico was 25.2 million people. The first section of their study, entitled “The Problem,” recapitulated the evidentiary problems involved in people-counting, as well as historical prejudices which informed the debate.

Eighteenth-century historians tended to dismiss as exaggerations statements about the size of Indian armies, and stories of vast cities. “Indians were known to be brutish savages still using crude implements of bone and stone, incapable of the organization and marshalling of resources necessary for building cities or maintaining imperial institutions.” Allowance, wrote William Robertson for one, must be made for the “warm imaginations of Spanish writers.”\(^\text{18}\) Francisco Clavijero, writing centuries later, vigorously defended the contemporary statements of Spanish conquistadors, missionaries, and government functionaries, pointing out that such authorities, acting from different motivations and points of view, would hardly have conspired or colluded to exaggerate the historical record.

After a careful description of tribute collection records, Cook and Borah calculated an average family size of 4.5 persons in tribute-collecting areas of Mexico, and a corresponding population of over 25 million. Even allowing for smaller families, they ended their study by stating that “the evidence nevertheless clearly supports the conclusion that central Mexico had a very dense aboriginal population when Cortés landed on the Gulf Coast, and that, in general, early Spanish statements and accounts are in accord with fiscal evidence.”\(^\text{19}\)

The Berkeley School’s work culminated a decade later in the publication of Cook and Borah’s Essays in *Population History: Mexico and the Caribbean*, the first volume of which was published by the University of California Press in 1971. The eighteen essays which make up the three volumes cover a wide range of topics, including explorations of the pre-Columbian Mesoamerican diet and royal revenue collection in New Spain, but which also contained the second of the prominent “red flags” which enraged certain critics: extremely high population estimates for pre-contact Hispaniola, as well as for Mexico. Friar Bartolomé de Las Casas had estimated a population of 3 to 4 million or even more, but his interest in magnifying the extent of depopulation owing to Spanish cruelty and depredation made his figures suspect.
Borah and Cook begin by reviewing previous population estimates, starting with that of one of their most prominent critics, Ángel Rosenblat, a Venezuelan linguist, essayist, and historian. As early as 1935, Rosenblat wrote a series of pieces entitled “El desarrollo de la población indígena de América,” which he followed up with several books, *La población indígena de América desde 1492*, and *La población indígena y el mestizaje de América*, the first published in 1945, and the second in 1954.

Rosenblat, wrote Cook and Borah, “really listed items rather than attempting the massive critical examination of sources customary in medieval and ancient European studies.” His estimate was 100,000 persons living on the island at the time of Columbus’ arrival.

Cook and Borah quote contemporary statements from Columbus and Las Casas which indicate that the new land was a densely-populated island. The *repartimiento* of 1514 (the Spaniards exported their labor institutions, which proved so destructive to the natives) indicated some 22,000 surviving males, a figure which Rosenblat accepted. Some discussion on the percentage of children over and under 14 years of age, as well as the category of *naborias de casa* as well as *indios de servicio* follows, but Cook-Borah also quote Las Casas (3 million), fourteen Dominican friars (2 million souls), Peter Martyr (1.2 million), and a *Licenciado* Zuazo, an *oidor* in the *audiencia* of Santo Domingo (1.13 million), etc.

A controversial aspect of the Cook-Borah Hispaniola estimate is that they doubled the 1496 population count, on the grounds that the Spanish only controlled half of the island, and that “the half still free from Spanish control had not as yet been subjected to the adverse effect of direct physical contact with the invaders.” They estimate “conservatively” that there were 2.26 million potential tributaries on the entire island. By the end of the chapter, they had reached an estimated population count of 7 to 8 million, pointing out that the inhabitants of the Caribbean islands could cultivate manioc, which had higher yields than maize, and better agricultural conditions than drought-prone Mexico.

Discussing probable causes, Cook and Borah referred to Sauer and attributed not disease, but rather harsh systems of labor exploitation and the disruption of native social and economic organization in destruction of the indigenous population.

Rosenblat counter-attacked against the Cook-Borah thesis in his 1967 essay on the population of Hispaniola in 1492, which was translated for William Denevan’s *The Native Population of the Americas in 1492*, a seminal work with essays on the whole population estimate question, and chapters on native numbers in the Caribbean, Mesoamerica, and South America, including the Andes, Argentina, and Brazil, as well as North America. Here Woodrow Borah and Ángel Rosenblat “squared off” against each other—in print, of course.

Rosenblat opened with a scarcely-veiled attack on Cook and Borah: “All historiographical work carries with it the proclivities of its authors...[it
is] common for the scholar to slant facts and even figures in order to reach preconceived conclusions. There is no more malleable material than statistics.\

He continues to give historical analogies, such as the number of Persians invading Greece under Xerxes, as proof that historical exaggeration is a norm, not an aberration, before comparing Las Casas, Fernando de Oviedo, and a modern historian, Charles Verlinden, to re-affirm his estimation of 100,000. Along the way, he takes a swipe at Carl Sauer for supposedly idealizing native agriculture, health, and nutritional values before using the term “hyperbolic calculations” to condemn high counters, or the entire Berkeley School.

Borah’s essay in the same volume, “The Historical Demography of Aboriginal and Colonial America: An Attempt at Perspective,” is not an answer to Rosenblat’s criticisms, but rather an overview of the questions involved in people-counting and its attendant guesswork. Borah reviews the numbers given by contemporaries and scholars over the course of centuries, and the techniques being used in population “guesstimates.” His concluding statement was “Whatever the problems of evidence and analysis, careful regional studies are being carried out in increasing volume. Our great need now is to search out the evidence, test it with care, and let it lead us where it will.”

Another scholar who took vigorous aim at Cook and Borah is David Henige. In an HAHR article from 1978, “On the Contact Population of Hispaniola: History as Higher Mathematics,” Henige questioned their methods, their conclusions, and even their “questionable” translations of original source material. “Cook and Borah,” he wrote, “have, I think, given evidence in the essay under review how very difficult it is to subordinate theory to evidence.” He did, however, concede “But if one cannot agree with their methods or their conclusions, one may still be grateful to them for prompting us to ask questions about just what historians are, or ought to be.”


However, Noble David Cook, in a book review in The Journal of Interdisciplinary History, more or less eviscerates Henige’s claim that he is a lone voice crying in the wilderness. Henige’s thesis is that the “high counters” were successful in establishing a new historical paradigm in spite of questions about their quantitative methods. But Henige, who accuses his critics of using sources selectively, does the same himself, according to Cook.
Henige’s most questionable charge is that Cook and Borah’s work was not subject to rigorous review. In footnote 131, page 331 of *Numbers From Nowhere*, he writes: “There is reason to suspect that Cook and Borah did not benefit from criticism at the front end of the process, either. The volumes on Mexico were all published in *Ibero-Americana*, a series under their control, while the University of California Press—a house organ—published their other works.” If Henige has “reason to suspect” this, he does not provide evidence of it in a book of 532 pages. As someone who has had the privilege of working with Woodrow Wilson Borah over the course of a decade, I can state categorically that if any scholar possessed a sense of academic integrity, it was Borah.

Henige wonders why Woodrow Borah, who by the 1980s was the only living member of the Berkeley School, has not defended his thesis, as he is puzzled by what he calls the silence of most of the rest of the high counters. Borah, saddened and diminished (as he acknowledged to me) by the deaths of the friends with whom he had worked so closely for so many years, chose to shift his attention and energy elsewhere in the last decades of his life, finishing the superb *Justice by Insurance: The General Indian Court of Colonial Mexico and the Legal Aides of the Half-Real* in 1983.

But the debate was carried on by others: R. A. Zambardino critiqued Henige’s *HAHR* article the same year in the same journal. While he accepted Henige’s doubts about the “extraordinary” figure of 8 million for Hispamola, he accuses Henige of hyperbole when he throws cold water on all such demographic work: “He seems to imply that his rejection of the Borah and Cook estimates extends to the rest of the New World, and, after an attack on the abuse of mathematical methods and the inhumanity of logarithms, he concludes with a deeply pessimistic note with the assertion that at present it would be futile to attempt population estimates for the early period of Spanish rule.” Hispamola, he continues, is only a sideline of Cook and Borah, and “their work on central Mexico differs by orders of magnitude, both in quantity and quality, from their brief and late study of Hispamola. The abandonment of their Hispamola estimate cannot be extended in an unqualified way to their other works.” Henige then responded to Zambardino in a subsequent number of the *HAHR*, and no doubt tenure was happily earned by one and all.

The Berkeley School, as I have noted, had its heyday in the decades before and after the Second World War. Sherburne Cook passed away in 1974, Carl Sauer in 1975, and Lesley Byrd Simpson in 1984. Woodrow Borah soldiered on, finally succumbing in 1999. What I find remarkable about *L’ecole* is the sense of intellectual community among scholars of such disparate disciplines. Simpson was a committee member for Borah’s oral examinations; they later served together on such committees decades afterwards. Carl Sauer, though not particularly involved in the “numbers debate,” brought a geographical context to the study of the conquest of the New World, the conditions of the
places involved, or, in his own words “to learn what the Spaniards found of nature and culture at their coming and what they did in accepting, adapting, and replacing prior conditions.”

His advice (to geographers, and by extension to all scholars) was to physically hunker down, test the air and soil, and get a feel for the terrain. He provided the geographical context for examining more than colonial manuscripts. Simpson absorbed this advice; he begins his classic *Many Mexicos* with a description of Mexico’s unforgiving geography, as well as its dependence on one primary food-crop (maize) for its sustenance. Simpson’s meticulous use of primary materials helped define archival investigation for colonial Mexico. Woodrow Borah continued this example, plunging into regional, municipal, parish, or other records to uncover data from the past, urging his students to “take it gently” and develop *siztflie*sh. He wrote twenty-two books and articles with Sherburne Friend Cook, a physiologist who provided much of the scientific context within which to place the archival data.

To conclude, let me quote Arnold Bauer in his obituary for Borah in the *Hispanic American Historical Review*:

> Had l’ecole Berkeley, as the French called it, stuck to the relatively solid ground of archival research, their work would undoubtedly have been widely regarded as both original and fundamental. What has provoked most critical attention to it was their statistical projection of the demographic curve backward to suggest truly spectacular population figures at the time of European contact. These estimates, ranging as high as 25 million people and more for central Mexico alone, made their way into polemical tracts and popular texts, but have come in for keen criticism by specialists in the field. Whatever the final resolution of this debate, Borah and Cook’s monumental work provided the point of departure for serious demographic history in the Americas and the standard against which present research is measured.

**Postscript:** This paper was presented at SALALM LIII in May, 2008. During the question and answer period at the panel, the question was asked, how do the Borah-Cook numbers appear today, some half a century after their formulation? Has anyone come up with a better methodology, and does the high number still stand in Mexican historiography?

In 2008, Massimo Livi Bacci’s *Conquest: The Destruction of the American Indios* was published in English translation. In this work, Bacci “attempt[s] a synthesis of the numeric data, an evaluation of the human resources which the voyage of Columbus put at risk. It is a technical argument, though one with many ideological and historic implications…we can say that the estimates of the so-called low counters from the first half of the twentieth century have been replaced by those of the ‘high counters’ in the second half.”

The difference between the low and high estimates (for all of America) range from under 10 million to over 100 million. Those for Central Mexico range from a low of 3.2 (Kroeber) to a high of 25.2 (Cook-Borah). The median value of 13 million is just that, Bacci states. After a careful and extensive review
of both epidemiological and tribute-calculation. Bacci writes that criticisms of the “ingenious and composite estimates of Borah and Cook are well-founded,” but still states that “we know little about the Mexican population between contact and 1568.” Bacci believes that reliable information about the native population is limited, but that the total population in 1568 was not far from 3 million, and had suffered a sustained decline of around 2 percent per year for the three decades following conquest, due to the disastrous impact of war, smallpox, and exploitation of the natives after the fall of Tenochtitlan.

He concludes

Much remains to be understood about the demographic history of Mexico during the first century of the Conquest. Given a population reduced to less than 1.3 million at the end of the century, it is conceivable that, over a stretch of eighty years, the pre-Conquest population was halved three times, so an initial figure of ten million seems plausible.

This then, in 2008, is the latest, but almost certainly not final, word on the Great Debate. But in the end, it is not the numbers, but the historical process of examination and analysis which matters most. Woodrow Borah remarked to me that neither he nor Cook ever expected their calculations to stand as definitive or absolute. What mattered most to them, as members of L’ecole Berkeley, was that the questions be posed, and the answers sought, wherever the trail might lead.

NOTES


15. Ibid: 46.


17. Ibid.


21. Ibid.


31. Ibid.


36. Ibid.