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Title

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Nephi’s Descendants?
Historical Demography and the Book of Mormon

Reviewed by James E. Smith

The Book of Mormon presents itself as “an abridgment of the record of the people of Nephi and also of the Lamanites” (Title Page), engraved on metal plates by Mormon in the late fourth century. Mormon’s son Moroni added an abridged “record of the people of Jared” (Title Page) and other writings, and then buried the plates in about A.D. 420. Some fourteen centuries later the resurrected Moroni directed Joseph Smith to the plates, which he found in a hill in upstate New York. Joseph translated a portion of the record, returned the plates to Moroni, and in 1830 published his translation as the Book of Mormon.

Latter-day Saints believe the Book of Mormon contains a record of some important events that took place somewhere in the ancient Americas. One of Mormon’s purposes was to show God’s action in history, or, in his own words, “to show unto the remnant of the House of Israel what great things the Lord hath done for their fathers” (Title Page). These “great things the Lord hath done” are recounted in numerous historical narratives such as those describing Lehi’s exodus from the Old World, the Liahona compass miraculously guiding Lehi’s ship (1 Nephi 18:12–22), Alma’s conversion from among the wicked priests to found the Church (Mosiah 18:1–18), the conversion and libera-

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1 The author thanks Kathy Robison, Lee Robison, and Margaret Smith for comments that improved the ideas and text of this paper. Angus Crane greatly facilitated this research. P. Smith digested an early version. Responsibility for any facts or views expressed herein rests solely with the author.


3 See the modern Introduction to the current Latter-day Saint edition, which affirms that the book is “a record of God’s dealings with the ancient inhabitants of the Americas.”
tion of Limhi’s people (Mosiah 22:9–13), the ministry of the resurrected Jesus in Zarahemla (3 Nephi 11–26), and the preservation of the sacred records for future generations (Words of Mormon 1:1–11; Mormon 1:1–4; 8:1–6.) These and the many other narratives in the Book of Mormon include numerous historical details such as proper names of people and places, carefully dated events, recitals of speeches and letters, explicit descriptions of warfare and political intrigue, and details of personal religious experiences.

In one sense it is necessary to take these historical details literally, for Robert Alter reminds us that all texts contain “details that are to be taken literally, that ‘mean’ themselves, whatever else they may mean.”4 However, the fact that the text conveys literal meanings to the reader does not itself prove the accuracy or historical reality of what is being reported. For the Old Testament, Richard Coggins notes that “too often vividness of detail has been assumed to imply also historical accuracy and precision.”5 And every reader knows that authors of literature can effectively use realistic (“resembling or simulating real life”) details to make fictional stories appear factual. As just one example, Umberto Eco’s The Name of the Rose6 presents itself as a factual historical record, complete with introductory comments explaining its discovery and translation. Only the book’s dust jacket confesses its fictional character.

Since scriptural texts do not come with dust jackets, so to speak,7 readers are left to judge whether a particular text should be taken literally or figuratively, as a factual historical report or as an inspired story. Those who have faith in the historical reality of events reported in scripture need not feel uncomfortable with this, for, as Brown and Schneiders explain:

Every piece of writing can be classified as belonging to one type of literature or another. Factual history is a type of literature; fiction is another; both exist in the Bible, as do almost all the intermediary literary types between the two extremes. If one correctly classifies a

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7 The metaphor of dust jackets is from Raymond Brown.
certain part of the Bible as fiction, one is not destroying the historicity of that section, for it never was history; one is simply recognizing the author’s intention in writing that section.\(^8\)

Believers in the Book of Mormon have no reason to shrink from responsible scholarly investigation into the historical reliability and factuality of its text. Having rejected the dogmas of scriptural inerrancy and verbal inspiration (wherein scriptural text is declared to be both complete and completely accurate), Latter-day Saints believe scripture is written by human authors who are divinely inspired but not compelled in every detail. Their writings are subject to the inevitable incompleteness of human expression, the vagaries of human language, and the infusion of each author’s own style and perspective into the writing, not to mention some degree of human error expected in any factual reporting. Indeed, Mormon proclaims the human authorship of his book and acknowledges its possible “mistakes of men” while at the same time solemnly declaring that it contains “the things of God” (Title Page). Compiled from records kept over thousands of years by a long succession of authors, then abridged and edited by Mormon and Moroni, and finally translated by study and revelation by Joseph Smith (who apparently used the King James Bible for stylistic guidance and for some sections of parallel text), the Book of Mormon has the earmarks of an ancient scriptural record that is both humanly authored and divinely inspired.

Latter-day Saints base their belief in the Book of Mormon on a personal spiritual witness received along the lines described by Moroni (Moroni 10:4–5). In witnessing to the truth of the Book of Mormon, believers typically affirm the book’s religious teachings and its historical factuality—its “historicity”—as a record of real people and actual events in the ancient Americas. To further understand the historical dimensions of the book, Latter-day Saint scholars have examined it from the perspectives of linguistics, geography, archaeology, history, and other branches of scholarship. A recent volume of essays entitled *New Approaches to the Book of Mormon: Explorations in Critical*

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Methodology proposes to carry forward the scholarly study of the Book of Mormon in ways that will “expand appreciation of Mormon scripture through critical analysis,” meaning the use of “historical- and literary-critical methods” along with social science disciplines such as “sociology, anthropology, and archaeology” (p. ix). But unlike many previous studies of the Book of Mormon which have accepted or attempted to support the historicity of the book, the New Approaches essays are based on the premise that “sophisticated scrutiny” of the Book of Mormon from “new perspectives” using “the results of cutting edge research” (p. xi) might lead to “the possibility that it [the Book of Mormon] may be something other than literal history” (p. x).

John Kunich’s essay on Book of Mormon population sizes (pp. 231–68) fits within this intellectual framework of encouraging scholarly Book of Mormon study while projecting possible doubt about the historicity of the book. Kunich posits “a fundamental difficulty in Book of Mormon population sizes” (p. 231), arising from what he calls the “current LDS” or “traditional” interpretation of the book. According to this interpretation, all of the Nephites and Lamanites mentioned in the Book of Mormon were literal descendants of Lehi’s and Mulek’s groups, which came to the New World in about 600 B.C. Suggesting that “an understanding of historical demography may challenge this traditional interpretation” (p. 231), Kunich’s own application of historical demography as he understands it leads him to the conclusion that the Book of Mormon reports “unrealistically large population sizes,” and, therefore, that “some of the details of events in the Book of Mormon are not literally historical.” In an earlier essay, Kunich concluded that his research “challenges many assumptions Mormons have about the Book of Mormon, including its historicity, its geography, the ancestry of Native Americans, and [Joseph Smith’s] method of translation.” Nevertheless, Kunich advises that “if our faith is strong it will withstand hard evidence” (p. 265).

Does historical demography offer “hard evidence” challenging the historicity of the Book of Mormon? Is Kunich’s conclusion about unrealistic Book of Mormon population sizes based on a “sophisticated scrutiny” of the Book of Mormon using

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"cutting edge research" as the *New Approaches* volume promises? As scholars in every discipline (including biblical criticism) know, not all that claims to be new or sophisticated really is. In the next section I suggest that Kunich’s study fails to accomplish its purpose both as an exercise in critical scriptural interpretation and as an exercise in historical demography. The ensuing sections attempt a fresh start at examining Book of Mormon populations from the perspective of historical demography.

**Kunich’s Argument**

Kunich’s essay begins by citing the popular idea that “the multitudes of Nephites and Lamanites reported in Mormon scripture sprang from two small bands of Palestinian emigrants” led by Lehi and Mulek (p. 231). Kunich identifies this as a “traditional interpretation,” a “current LDS” interpretation, and an “LDS tradition,” indicating that it is a view popularly held by Latter-day Saints. This traditional interpretation is the hypothesis which Kunich sets out to test. He uses a mathematical formula to “operationalize” this hypothesis (in the awkward words of social science research). The formula predicts the numbers of living descendants the Lehi-Mulek groups would have had at various points in Book of Mormon history. Since the traditional interpretation says that all Lamanites and Nephites reported in the Book of Mormon were descendants of the Lehi-Mulek groups, these calculated numbers of descendants serve as the predicted Lamanite-Nephite population sizes under the traditional interpretation.

How well do these predicted Lamanite-Nephite population sizes fit what the Book of Mormon says? Since the book reports no total population counts, the population sizes of Lamanites and Nephites must be inferred from reports of army strength, numbers of battle casualties, or other indirect clues about total population size in the text. Kunich lists about fifty Book of Mormon passages of this type, but only a few report sufficiently precise information to be useful. Admittedly, population estimates obtained in this way are very approximate and can only indicate the rough order of magnitude of Book of Mormon population sizes.

Kunich finds that the population sizes of the Lamanite and Nephite groups predicted by the traditional interpretation are
vastly different from the population sizes he infers from the text. For example, under a low population growth rate Kunich's formula predicts that Lehi's party of about thirty people would have had thirty-six living descendants at the time of King Benjamin, thirty-eight at the birth of Christ, and only forty-four at the last great battle of the Nephites! With a much higher population growth rate the number of descendants would have been a few hundred, or a few thousand, at these various points in history. Adding Mulek's group to the calculation about doubles the numbers, but still yields only hundreds or perhaps a few thousand Lehi-Mulek descendants throughout most of Book of Mormon history. In stark contrast, the Book of Mormon reports lands and cities full of inhabitants, armies and battle casualties in the thousands and tens of thousands, and hundreds of thousands of Nephites at the last great battle. Clearly, according to Kunich's analysis, there is a major discrepancy between Lamanite-Nephite population sizes predicted by the traditional interpretation and what the text of the Book of Mormon actually says.

What conclusion is to be drawn from these findings? The most obvious conclusion is to reject the traditional interpretation as a hypothesis that is not sustained by the text of the Book of Mormon. Or we might question the way in which the hypothesis has been operationalized. Common sense (and a little genealogy) suggests that even in preindustrial times many individuals had more than thirty-six descendants after five centuries and more than forty-four descendants after a thousand years. Still, despite the fact that these numbers are suspiciously low, and despite the fact that the numbers are disconfirmed by the Book of Mormon text, Kunich does not reject the traditional interpretation. Instead, he assumes that the traditional interpretation of the Book of Mormon must be a representation of what the Book of Mormon says. Therefore, by discrediting this interpretation he believes that his findings "argue against the population sizes reported in the Book of Mormon" (p. 259).

Should we accept Kunich's position that the traditional interpretation of the Book of Mormon accurately represents what the book says? The kinds of critical methods for scriptural study recommended in the New Approaches volume are predicated on the idea that any interpretation of a text should rest on critical analysis rather than popular or traditional notions. Thus it is curious that Kunich adheres to a traditional or popularly held interpretation of the Book of Mormon when his own analysis
shows it to be untenable and when current Book of Mormon scholarship offers alternative views that are more compatible with the text. While recognizing that there are such alternative views, Kunich argues that the Book of Mormon does not allow them. But in making this argument Kunich invokes such uncritical and specious methods of scriptural interpretation as: interpretation by fiat ("it is impossible that the ancient authors of the scriptural record simply exaggerated," p. 259); interpretation by assumed plain meaning ("the plain meaning of the Book of Mormon's own words," p. 264); interpretation based on what the text does not say ("Surely [this] . . . would deserve at least passing reference in the records," p. 262); interpretation by presumption ("But an abridged, largely religious history would presumably address the Nephites' dealings with native masses," p. 262); and interpretation that confuses prophetic utterance with scientific fact ("the dark skin of the Lamanites was genetically passed on to their progeny [quotes 2 Nephi 5:23, which is a prophecy]," p. 263).

In summary, Kunich sets out to test an interpretation of Book of Mormon populations which may be traditional and popular, but which he does not lay out systematically and show by critical argument to be a good reading of the text of the Book of Mormon. Then Kunich finds this interpretation to be untenable because of its demographic implications, but he neither rejects the interpretation nor questions his methods. The apparent reason for this is that Kunich himself holds this popular and traditional interpretation to be a correct view of what the Book of Mormon says. Under this assumption, to disprove the traditional interpretation is to call into question the Book of Mormon as a reliable historical record. But Kunich's argument with the Book of Mormon is not really with the book itself, or a critical interpretation of the book, but rather with his own uncritical adherence to the traditional interpretation.

But even if all these issues of interpretation and critical methodology are put aside, Kunich's study fails in its understanding and use of historical demography. From a review of historical demography, Kunich concludes that populations in the past had very low growth rates because of the prevalence of famine, war, and disease. Unfortunately Kunich ignores completely the extensive literature published in the field of historical demography over the last two decades, a period covering most
of the life of the discipline. This oversight leads him to believe a number of erroneous conclusions about populations and population growth in the past, including such mistaken notions as: population growth in the past was "smooth" and "sluggish" over long periods of time (p. 241), mortality factors like "famine, war, and disease" were the primary reasons population growth was limited (p. 241), rapid population growth was virtually impossible in preindustrial populations experiencing wars (pp. 256-57), and fertility can be ignored when discussing historical population dynamics. All of these wrong ideas are corrected by an understanding of historical demography, as a later section will attempt to show.

Kunich's application of historical demography is focused on calculating the numbers of Lehi-Mulek descendants that could have existed according to a "formula for computing the growth of human populations" (p. 246 n. 2). While Kunich describes this formula as "commonly accepted," it is, in fact, not used by demographers for long-range population projections. One reason is that this formula and other simple growth curves assume constant population growth rates, and "since growth rates are likely to change in the long-term, these formulas are recommended for use only in making short-term projections." But a more fundamental problem with Kunich's formula is that it is conceptually and mathematically inappropriate as a demographic model for calculating numbers of descendants in human populations. In order to calculate whether individuals or groups will have lots of

10 Works in historical demography cited in Kunich's bibliography are by Glass and Eversley in 1965, Hollingsworth in 1969, and Wrigley in 1969, all of which are important foundational works in the field. The large literature published in the past two decades is conveniently noted in issues of the bibliographic journal Population Index under "Historical Demography" and other headings. Also see J. D. Willigen and K. A. Lynch, Sources and Methods of Historical Demography (New York: Academic Press, 1982). A useful summary for some aspects of central American historical demography is T. C. Culbert and D. S. Rice, Precolumbian Population History in the Maya Lowlands (Albuquerque: University of New Mexico Press, 1990).

11 Kunich, "Multiply Exceedingly," 239-46, discusses historical population dynamics almost entirely at the level of total population growth with reference to mortality conditions, but without reference to the important role of fertility levels and variations in historical populations (except to dismiss the idea of "divinely enhanced biological propagation," ibid., 254).

descendants or none, or some number in between, a demographic model must take into account variations in the numbers of children born to different families, along with other demographic variations within and between families, small groups, and lineages. While appropriate demographic models for this purpose are available, Kunich seems unaware of them and relies instead on the inappropriate formula. As a consequence, the numbers of Lehi-Mulek descendants that he calculates are demographically meaningless and numerically wrong. An appropriate demographic model for this purpose will be used in a later section.

Some years ago Hugh Nibley noticed a troubling pattern in so-called "scientific" studies of the Book of Mormon:

The normal way of dealing with the Book of Mormon "scientifically" has been first to attribute to the Book of Mormon something it did not say, and then to refute the claim by scientific statements that have not been proven.

In conformity with this pattern, Kunich puts up a straw man interpretation of the Book of Mormon without critical arguments in its favor and then knocks it down with misunderstood and misapplied historical demography. Of course, the subtitle of the New Approaches volume is Explorations in Critical Methodology. Like many explorations, Kunich's study ventures into some new and unfamiliar territory but ends up being a false start. We now attempt a fresh start.


Nephites, Lamanites, and Others: Traditional and Modern Views

The first rule of any demographic study is to define the population being studied, since little but confusion results from discussions where the populations are not defined. Modern demographers use geographic boundaries, citizenship, residence, ethnicity, gender, age, and other factors to define populations. But for populations in the past, particularly the distant past, there is no such statistical rigor and we are left to guess precisely what an ancient author meant when referring to some population. To make sense of the author’s meaning is the first task; to do this requires attention to the historical context, the author’s viewpoint and source of information, and other texts and sources when they are available. A brief review of traditional and current interpretations of Book of Mormon history will suggest some important considerations in defining the book’s populations.

From Joseph Smith’s day to now, there have been historical interpretations of the Book of Mormon that attempt to situate its peoples in particular historical contexts. For example, almost as soon as the plates were out of the ground, it was assumed that the hill in New York was the ancient Hill Cumorah of Mormon’s day. Believers also applied the term Lamanite to American Indians generally, implying that the Israelite Lehi was the ancestor of all native Americans (for example, see D&C 3:18–20; 19:27; 28:8; 54:8; 57). In addition, the Book of Mormon “land southward,” “land northward,” and “narrow neck of land” were interpreted to mean South America, North America, and the Isthmus of Darien (Panama) respectively, implying a hemispheric scope for Book of Mormon geography and history.

And amid popular nineteenth-century speculations (and so little scientific knowledge) about the origin and fate of former New World civilizations like the Mound Builders and the Maya, believers at one time or another saw the Book of Mormon peo-

15 Joseph Smith apparently never explicitly identified the hill in New York where he obtained the plates as “Cumorah” but others in the early Church certainly did make this inference. See Rex Reeve, Jr., and Richard O. Cowan, “The Hill Called Cumorah,” in Regional Studies in Latter-day Saint History (Provo: Brigham Young University Department of Church History and Doctrine, 1992), 71–91.

16 See below.
ples as the source of most, if not all, extinct civilizations, archaeological ruins, and ancient artifacts in the Americas. 17

During the nineteenth century the most influential view of Book of Mormon history was expressed by Orson Pratt. In an 1840 British missionary tract he wrote matter-of-factly that Lehi crossed the "Pacific Ocean and landed on the western coast of South America." 18 The Nephites colonized the "northern parts of South America" and expanded into North America as well, while the Lamanites possessed the "middle and southern parts" of South America. After Jesus visited the Nephites, "the Nephites and Lamanites were all converted unto the Lord, both in South and North America." By the fourth century, the Nephites were in North America and the Lamanites in South America, with wars between them at the Isthmus of Darien. These wars pushed the Nephites northward until they were finally exterminated at a great battle in what is now New York State. Some thirty years later, after he first published them, Pratt was still preaching these views in the Salt Lake Tabernacle. 19 Pratt's views also were incorporated into his footnotes for the 1879 Latter-day Saint edition of the Book of Mormon. Although these footnotes were not an official Church interpretation of the book, they represented and reinforced what had become the prevalent hemispheric view of Book of Mormon history.

In the decade after the 1879 edition was published there were lively discussions about Book of Mormon geography, but the Church did not offer any official interpretation. 20 However, in 1890 George Q. Cannon, then a counselor in the First Presidency, wrote in a Church periodical that the First Presidency would not issue an official statement on Book of Mormon geography since "the word of the Lord or the translation of other ancient records is required to clear up many points now so obscure." 21 In preparing for the next edition of the Book of Mormon, a Church committee heard different views on Book

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17 For example, Charles Thompson, *Evidences in Proof of the Book of Mormon* (Batavia, NY: Thompson, 1841) and Orson Pratt, *Interesting Account of Several Remarkable Visions and of the Late Discovery of Ancient American Records* (Edinburgh: Ballantyne and Hughes, 1840).
21 Ibid., 390.
of Mormon geography but apparently did not find any position so compelling as to warrant inclusion in the book.\(^{22}\) When the new edition of the Book of Mormon was published in 1920, it omitted historical and geographical footnotes—a practice that has continued since.

As the twentieth century progressed, it became apparent that support for the traditional hemispheric view of Book of Mormon history was waning. John Sorenson has summarized more than fifty published statements on Book of Mormon geography from the 1830s to the present.\(^{23}\) His analysis shows that until the early twentieth century the traditional hemispheric interpretation dominated, but by the midtwentieth century most authors believed that Book of Mormon history took place primarily within Central America. Today almost all writers on Book of Mormon geography agree that Lehi’s landing place, the narrow neck of land, the lands northward and southward, and Mormon’s Hill Cumorah were situated somewhere in Central America. Recently, John Sorenson has suggested a specific Mesoamerican setting for the Book of Mormon involving roughly a few hundred square miles.\(^{24}\)

Views of Book of Mormon history and geography imply possible definitions for Book of Mormon populations. According to the traditional hemispheric interpretation, the American continents were empty of people when Jared’s party arrived. When the Jaredites self-destructed, Lehi’s and Mulek’s recent immigrant groups were left to repopulate the land. This implies that all pre-Columbian inhabitants of the Americas, including all of the populations of the Olmec, Maya, Inca, Aztec, and other North and South American native populations, and their descendants down to modern times, grew from one or more of the three Book of Mormon migrations. In considering this traditional view, B. H. Roberts noted how it implies “an empty America three thousand years B.C. . . . into which a colony may come.”\(^{25}\) After the Jaredites arrived, grew to large numbers, and then became extinct, the traditional view implies “American continents again without human inhabitants,” follow-

\(^{22}\) Ibid., 20.

\(^{23}\) Ibid., 32.


ing which "into these second time empty American continents—
empty of human population—we want the evidence of the com-
ing of two small colonies about 600 BC, which shall be the
ancestors of all native American races as we know them."26
Recognizing the difficulties in this, Roberts asked "how shall we
answer the questions that arise from the considerations of
American archaeology? Can we successfully overturn the evi-
dences presented by archaeologists for the great antiquity of man
in America, and his continuous occupancy of it? . . . Can we
successfully maintain the Book of Mormon’s comparatively
recent advent of man in America?"27
Not long after Roberts was making these unpublished
remarks, others began making allowance for “non-Book of
Mormon” populations to have lived in the ancient Americas. By
1927 Janne Sjodahl wrote that “students should be cautioned
against the error of supposing that all the American Indians are
the descendants of Lehi, Mulek, and their companions.”28
Sjodahl believed that the Jaredite population may not have been
completely wiped out, and also that it was “not improbable that
America has received other immigrants from Asia and other parts
of the globe.”29 In 1938 a Church Department of Education
study guide for the Book of Mormon told students that “the
Book of Mormon deals only with the history and expansion of
three small colonies which came to America and it does not deny
or disprove the possibility of other immigrations, which proba-
bly would be unknown to its writers.”30 The study guide further
noted that “all the Book of Mormon text requires” is “Hebrew
origin for at least a part of Indian ancestry.”31
At midcentury Hugh Nibley was saying that other popula-
tions unknown to Book of Mormon peoples could have lived in
the Americas. Thus, “once we have admitted that all pre-
Columbian remains do not have to belong to Book of Mormon
people, . . . the problem of the Book of Mormon archaeologist,
when such appears, will be to find in America things that might

26 Ibid.
27 Ibid.
28 Janne M. Sjodahl, An Introduction to the Study of the Book of
Mormon (Salt Lake City: Deseret News Press, 1927), 435.
29 Ibid., 436.
of the Book of Mormon (Salt Lake City: Department of Education of the
Church of Jesus Christ of Latter-day Saints, 1938), 48.
31 Ibid., 53.
have some bearing on the Book of Mormon, not to prove that anything and everything that turns up is certain evidence for that book.”32 In 1967 Nibley again argued that “the Book of Mormon offers no objections ... to the arrival of whatever other bands may have occupied the hemisphere without its knowledge.”33 In 1980, Nibley was still teaching that it is a “simplistic reading of the book ... [to] assume that the only people in the hemisphere before Columbus were either descendants of Lehi or of Jared and his brother.”34

While Nibley allowed for other populations in the ancient Americas that were not known to the Book of Mormon, John Sorenson has opened the gates even wider. He asks, “when Lehi’s party arrived in the land, did they find others there?” and answers “yes,” arguing that it is “inescapable that there were substantial [non-Book of Mormon] populations in the ‘promised land’ throughout the period of the Nephite record, and probably in the Jaredite era also.”35 Furthermore, Sorenson finds nothing in the Book of Mormon precluding Nephites and Lamanites from interacting with and assimilating other populations, perhaps from among surviving Jaredites or perhaps from indigenous people. He suggests that the term Nephite was a sociopolitical one not restricted to literal descendants of Lehi, that there could have been “lingering” Jaredite populations after the great Jaredite destruction, and that “the early Lamanites had to have included, or to have dominated, other people.”36

Sorenson’s work gets to the crux of the topic of population definitions in the Book of Mormon. Proper pursuit of this subject requires a comprehensive textual analysis of the references


36 Ibid., 11, 19–24, 27.
to various peoples in the book and their possible meanings.37 While awaiting such an analysis, we note that the terms Lamanite and Nephite are used several hundreds of times throughout the text, spanning a thousand years of history. Perusal of the uses made of the term Nephite suggests a number of variant meanings, such as Jacob's use of Nephite to mean all "who are friendly to Nephi [the king of the Nephites]" (Jacob 1:13–14). Later the term describes a religious community including certain converted Lamanites (3 Nephi 2:14). Still later, Nephites means a smaller population emerging from a larger population in which all former "-ites" had apparently mixed together (4 Nephi 1:17, 36). Such variant uses of the term Nephite do not seem to fit into a single definition of Nephite taken to mean only a literal descent group.38 To understand when the term Nephite refers to genealogical descent (e.g., descendants of Nephi, descendants of the Lehi-Mulek parties, etc.) and when it refers to some sociopolitical, religious, or other type of population requires textual analysis and interpretation.

An example of the important contribution critical analysis can make is the case of biblical interpretations attached to the term Israelite or the children of Israel. Taken in a literal and strictly genealogical sense this term could be interpreted to mean that all people identified as Israelites were literal descendants of Jacob. As true as this may have been for some of the Israelites, scholarship in biblical interpretation, biblical history, and even some demographic considerations suggest this view is too narrow to account for all people considered Israelites at all times in biblical history. It is now acknowledged that Israelites consisted of literal descendants of Jacob along with other populations con-

38 Kunich's own use of the terms Nephite and Lamanite also lapses from a strictly genealogical use of the terms since he refers to the joint "Lehi-Mulek" groups as ancestors of the Lamanites and Nephites under the traditional interpretation. Since the Mulekites first encountered and merged with the Nephites some four centuries after both groups arrived in the New World, the original Mulek group hardly qualifies as ancestors of the first fifteen or twenty generations of Nephites even under the traditional interpretation. Nor is it clear how the traditional interpretation implies that Mulekites could have been ancestors of any Lamanites until well after the relatively late, and partial, conversion and assimilation of certain Lamanite peoples by the Nephites. This illustrates how difficult it is to attribute a strictly genealogical view to these terms.
queried or assimilated over time. This may serve as a useful scriptural analogy to a possible diversity of meanings of *Nephite* and *Lamanite* in the Book of Mormon.

### Population Growth in the Past

Historical demography tells us some very general things and some very specific things about populations in the past. Perhaps the most general thing is that populations in the past experienced high mortality, meaning that people died at relatively younger ages than we are used to in the modern world. Demographers summarize the average length of life with the so-called "expectation of life at birth" or "life expectancy" which is simply the number of years a newborn child will live, on average, in a population. Before the eighteenth century, life expectancy was generally well below forty years in most populations, and was sometimes as low as twenty-five or thirty years. By way of contrast, life expectancies today generally range from the high sixties into the seventies. Although the chances of death were overall higher for everyone in the past, the main reason life expectancy was so much lower than today was severe infant mortality. In many historical populations between a fourth and a third of newborn infants died in their first year of life (compared with one to three percent today).

Estimating the life expectancy of specific historical populations is difficult, but enough evidence has accrued to permit life expectancies to be estimated for a wide range of human populations from prehistoric, to ancient, to modern times. A wide

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range of this human mortality experience is conveniently summarized in what demographers call model life tables. These tables present a numerical picture of chances of death and life expectancy under different levels of mortality.41 Using model life tables we find that in a population with a female life expectancy of twenty-five years about thirty percent of newborn infants will die in their first year of life. And in this population a female at age fifteen has a fifty percent chance of living to see her fiftieth birthday.

Because of high overall mortality and high infant mortality, populations in the past required high fertility to keep their total numbers from dwindling. For example, in a population with a female life expectancy of twenty-five years, women surviving to age fifty needed to have had about 5.1 live births on average in order to keep the population at level numbers.42 But as high as this number is by modern standards, it is well below the level of fertility which human populations can and have achieved in the past.43 Thus we see that even under the conditions of high mortality that prevailed in the past, populations not only had high fertility to maintain their numbers, but they also had room for even higher fertility which, if actualized, could cause the population to increase. In our example, if average fertility increased from 5.1 to 5.8 live births, the population would grow at the high rate of 0.5 percent per year, causing it to double in size every 140 years. Increasing the fertility by one additional birth on average to 6.8 would yield a very high growth rate of 1 percent per year for a doubling time of about seventy years. Given the capacity of these attainable levels of human fertility to cause rapid population growth, demographers do not agree with

41 The concept and use of life tables and associated stable populations are found in most demography texts, such as A. H. Pollard et al., *Demographic Techniques*, 2d ed. (Sydney: Pergamon, 1981). Various sets of model life tables are available, but the most commonly used are the "Princeton" model life tables presented in A. Coale and P. Demeny, *Regional Model Life Tables and Stable Populations* (New York: Academic Press, 1983). All model life table and stable population figures cited in this paper are from this source, Model West series.

42 Coale and Demeny, *Life Tables and Stable Populations*, 57.

Kunich that mortality factors like famine, war, or disease were the dominant factors limiting population growth in the past. To the contrary, historical demographers expect to see periods and places where fertility overcame mortality, leading to periods of significant population growth in the past.

Basic textbook diagrams often show a long flat line representing world population size for thousands of years followed by a rapidly increasing exponential curve for the last three centuries. But this highly schematic view of population history is heavily colored by our "contemporary glasses" as we look at the past from the present, and with these glasses on we can be led by such overly simplified diagrams to Kunich's erroneous view that population growth in the past was "flat with an imperceptible upward slant for the vast majority of humankind's existence" (p. 241). An understanding of historical demography removes these contemporary glasses and reveals that patterns of population change in the past were complex, sometimes involving rapid growth and sometimes precipitous decline, with the general rule being change and fluctuation rather than "an overall context of smooth, sluggish growth" (p. 241).

In the earliest prehistoric times, archaeological demography finds that there were periods of rapid world population growth. But these "intervals of rapid growth were infrequent and . . . stand out sharply against a background of very slow growth." Even so, in reviewing evidence from paleodemography (skeletal remains) from Neanderthal to medieval times, Henneberg concludes that, although we see "acute mortality conditions disadvantageous for reproduction, . . . it is obvious that in prehistoric and early historic times many populations with a great reproductive capacity were present." In the Neolithic period, it appears that a "slight relaxation of the controls damping fertility" led to population growth, and for the archaic period in the

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44 Ironically, Kunich introduces his essay with the idea that today's Book of Mormon readers have a "penchant for viewing the long ago through contemporary glasses" (p. 231).
45 Hassan, *Demographic Archaeology*, 143.
47 Hassan, *Demographic Archaeology*, 223-24.
New World, Feidel argues that it was increased fertility that brought on population growth.48

During the past few millennia, for which population estimates are somewhat more reliable, world population grew at times and declined at other times, creating an overall pattern that is anything but smooth and sluggish. Figure 1 shows historical change in world population size along with a smooth growth curve that fits the beginning and ending points and assumes a uniform growth rate in between. This figure makes it obvious

48 S. Feidel, *Prehistory of the Americas* (Cambridge: Cambridge University Press, 1992), 99. Feidel’s reasoning, admittedly speculative as is most paleodemography, is: “How would sedentary life encourage population growth? If camps were less frequently moved, women would not have to carry their dependent infants about with them; so, there would be less reason to avoid overlapping of newborn and weaned infants. The birth rate would increase as the time between births decreased. . . . Only a lengthening of the reproductive period of women would lead to population expansion; and since present evidence does not indicate that Archaic women were living any longer than before, we must conclude that if sedentism did have any effect on the rate of population growth, it was through the reduction of spacing between births.”
how poorly a smooth growth curve assuming a constant growth rate represents the actual course of world population growth.

Looking at population trends at the regional level also reveals uneven patterns of population growth and decline, as shown in figure 2. The European region shows an especially dramatic roller-coaster pattern of population growth and decline throughout its history. As historical demographer Massimo Livi-Bacci explains: "The tripling of population between the birth of Christ and the eighteenth century did not occur gradually, but was the result of successive waves of expansion and crisis: crisis during the late Roman Empire and the Justinian era as a result of barbarian invasions and disease; expansion in the twelfth and thirteenth centuries; crisis again as a result of recurring and devastating

Figure 2. World Regional Populations, 400 B.C. to A.D. 1600, in M. Livi-Bacci, A Concise History of World Population (Oxford: Blackwell, 1992), 31.

bouts of the plague beginning in the midfifteenth to the end of the sixteenth century; and crisis or stagnation until the beginning of the eighteenth century.\textsuperscript{50}

More localized regions also manifest jagged patterns of population growth, leveling, and decline. For example, figure 3 shows what Santley calls the sawtooth pattern of population growth and decline in the Valley of Oaxaca, along with a similar but moderated pattern for the Basin of Mexico.\textsuperscript{51} Moving down to smaller and more localized areas or villages, populations in the past also experienced ups and downs, sometimes growing rapidly and sometimes declining precipitously. In these smaller and more localized populations, migration (in or out) as well as mortality and fertility played a major part in determining population change.

\begin{center}
\includegraphics[width=\textwidth]{figure3.png}
\end{center}

Figure 3. Highland Mexico Populations, redrawn from R. S. Santley, “Demographic Archaeology in the Maya Lowlands,” in T. S. Culbert and D. S. Rice, \textit{Precolumbian Population History in the Maya Lowlands} (Albuquerque: University of New Mexico Press, 1990), 341.

\textsuperscript{50} Livi-Bacci, \textit{A Concise History of World Population}, 34.

\textsuperscript{51} R. Santley, “Demographic Archaeology in the Maya Lowlands,” in \textit{Precolumbian Population History}, 325–44.
In his review of historical demography, Kunich makes passing reference to possible variations in population growth patterns in the past, noting that under favorable conditions “human numbers increased at a faster rate than the global average. Conversely, areas stricken disproportionately with these natural disasters, pestilence, famine, plague, or war suffered a loss of population or experienced a much lower growth rate” (p. 241). Although this statement repeats the erroneous idea that “natural disasters” were the primary control over population growth in the past, it does admit the possibility that some historical populations might have grown at a relatively rapid rate. However, Kunich argues that Book of Mormon populations had a “long, virtually uninterrupted record of costly, destructive, devastating wars” (p. 257), which he believes precluded any chance of rapid growth in these populations. But the simple demographic fact is that a population can thrive over long periods of time (as the Book of Mormon populations evidently did) and yet engage in recurring wars (which they also did), if that population experiences periods of growth at least sufficient to replenish its numbers between wars.

The ancient Greeks, who were no strangers to protracted warfare, were well aware of their population’s tendency to grow. Plato realized that to maintain ideal city-state populations at 5,040 citizens would require fertility control through infanticide, exposure, abortion, and also colonization to siphon off excess population.52 For the Greeks, these were not just utopian speculations. In the seventh century B.C., “in Argos and especially in Athens there appears to have been a population explosion.”53 In Corinth, Pheido found it necessary to limit population growth between wars when it increased rapidly, and “the Cretans considered it a necessity to hold population in check by law.”54 In ancient Athens during peacetime “population naturally increased rapidly [and] when population increased too rapidly the ordinary recourse was to colonization.”55 Sometimes the Athenian population grew despite colonization: “We are reason-

55 Ibid., 21.
ably sure of a considerable increase in the citizen-population between 480 and 430 [B.C.], in spite of much emigration, and of some increase in the fourth century till 320.” In short, “the Greeks were perfectly familiar with the idea of growth of population.” Yet “nothing that we know... would suggest that the death-rate would be low by modern standards,” leaving only “a comparatively high birth rate” to explain the increase.

Thus the actual course of population history involves complex patterns of growth and decline, all occurring against a background of mortality that is high by modern standards, but also with high fertility and sufficient fertility potential to sometimes grow rapidly. Unless we imagine that Book of Mormon populations were exceptional, they too probably experienced boom and bust cycles of population change, and they too had the capacity for growth. While ongoing wars may have contributed to their periods of slow growth, or even periods of population decline, the successful continuation and expansion of these populations reported in the Book of Mormon suggests periods of population growth that at least compensated for losses due to wars. Historical demography clearly shows that human populations in the past had the potential for significant growth, and sometimes they realized this potential.

**Limits to Growth**

Given the capacity for historical populations to increase in numbers, historical demography asks why it is that these populations so often did not sustain long-term rapid population growth. What were the limits to population growth? One simple theory, sometimes (and somewhat unfairly) called “Malthusian,” is that the tendency toward high fertility (Malthus’ “passion between the sexes”) was constant and tended to increase population numbers until they bumped up against resource limits, principally the food supply. In meeting and passing resource limits, growing populations would experience famine, war, or disease, thus curtailing population growth and perhaps even reducing population numbers through mortality.

Research in historical demography has demonstrated that such simple “limits to growth” models of population dynamics

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57 Ibid., 79.
may be useful in some extreme cases but that they do not adequately explain human population dynamics for most populations most of the time. As Kingsley Davis puts it, the "tendency to view mortality as the chief mechanism by which human numbers are adjusted to resources" is one of a number of "unwarranted and largely unconscious assumptions concerning the nature of demographic change." This is not to say that populations in the past did not have resource limits, which they did, or that they did not experience periodic severe mortality due to famine, war, or disease, which they sometimes did. But in the face of these limits and against a background of generally high mortality, human populations in the past, even those called "primitive," largely avoided Malthusian mortality crises through fertility regulation.

Louis Henry's classic study published in 1956 (which many say marked the birth of modern historical demography) showed that in a preindustrial population married couples without modern methods of birth control adjusted their fertility both downward and upward to adapt to changing economic and social conditions. Henry's findings were soon replicated elsewhere, thus bringing about a revolution in our understanding of populations in the past. The traditional assumption that these populations had more-or-less constant, high "natural fertility" turned out to be a gross oversimplification. While populations in the past did have generally high fertility, historical demographers discovered it was far from constant, and its upward and downward variations were controlled by individuals who, as best they could, attempted to manage their demographic fate.

Fertility control in past populations took numerous forms, including intentional infanticide and abortion, late marriage age,

low proportions marrying, abstinence within marriage, and the effects of breastfeeding or other postpartum practices on birth spacing. The discovery that historical populations did regulate their fertility (upward or downward) has introduced a new perspective into our understanding of the past. For example, referring to the findings of Louis Henry and other historical demographers, behavioral ecologists now recognize that there are "many diverse patterns of fertility—of starting, stopping, and spacing children... as well-tuned adaptive responses to environmental conditions that vary among societies and across time."61 In a survey of population regulation in societies reaching back to "early human foragers" and up to today's developing nations, anthropologists Marvin Harris and Eric Ross recognize that "during the past two decades archaeological, historical, and ethnological studies of population phenomena indicate that preindustrial cultural means of regulating population growth exerted a more powerful effect on the balance of mortality and fertility rates than was previously credited."62

The most comprehensive attempt to date to reconstruct the history of a preindustrial population and understand its regulating processes in social context is found in Wrigley and Schofield's *Population History of England*. Their research has shown that the interrelations between population and economies in a preindustrial social system involved significant levels of fertility regulation and temporal changes in this fertility regulation as part of a complex sociodemographic process of population regulation. The simplistic Malthusian notion of a constant passion between the sexes that drives population growth up to resource limits, thus precipitating mortality crises, could not be more wrong in view of what historical demographers have discovered in this and other studies.63

62 Harris and Ross, *Death, Sex, and Fertility*, 1.
Considering what research in modern historical demography has revealed about fluctuations in population growth in the past, including the important role of fertility and fertility regulation in historical population dynamics, and the inadequacy of simple notions that famine, disease, and war were the primary factors limiting population growth in the past, historical demographers cannot agree with Kunich that, “based on our knowledge of the time and place in which a people lived, the type of society they had, their degree of exposure to disease, famine, and war, and their level of technological advancement, we are prepared to estimate their growth rate with a reasonable degree of precision” (p. 246). Population dynamics in the past were far more complex and varied than this, and historical demographers know that the only way to reliably examine the history of a population is to observe it from historical data.

A Demographic Setting for the Book of Mormon

The historical demographer’s requirement for data concerning Book of Mormon populations presents a daunting challenge. The book presents no demographic description of any of its populations—not even a total population size. Since the Book of Mormon proclaims authorship “by the spirit of prophecy and of revelation” (Title Page) and has overtly religious purposes, it is not tenable to assume its author(s) wrote according to the ideal of a demographic historian who wants numerical facts presented with scientific objectivity and completeness. The Book of Mormon is much more like the New Testament Gospels, where “we have come to a realization that none of the Gospels are histories or biographies in the modern sense” and to recognize that the Gospels are historical is still “something quite different from stating that the Gospels were intended as scientific histories.”64 In other words, “something can be historical without being a history”65 in the modern sense of the term. Thus the challenge is to try to pick up fragments of demographic information from the

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65 Ibid., n. 11.
text of the Book of Mormon, realizing that the text of the book is the primary source of data on this subject, however incomplete and fragmentary the data in the text may be.

Historical demographers have long recognized that for any period prior to the nineteenth century they must "rely on the use of sources not collected with the demographer in mind." When doing so, caution must be exercised to avoid treating the text (or other data source) as if it were a modern scientific accounting of population. In facing the difficult task of piecing together fragmentary textual data on ancient Roman populations, Tim Parkin advises that "we cannot believe precisely everything an ancient author tells us about population sizes and trends," but, on the other hand, it is too "subjective and arbitrary" to be "picking and choosing among the literary references to find one that 'sounds about right'." What is required is reliance upon "both the critical use of the sources and on a certain degree of demographic sense, to decide what is plausible or improbable." In doing this, Parkin advises historians to give up the goal of finding precise statistics in the ancient sources, and to turn their attention instead to developing an "awareness of the way populations work" so that they are prepared to interpret the often partial, unreliable, and contradictory data of ancient texts. In this endeavor, Parkin recommends that historians use demographic models to make "conjectural calculations—or, better, plausible conjectures—based on what is demographically probable."

Parkin's recommendation concerning how to approach ancient demography is consistent with Sorenson's approach to Book of Mormon history in An Ancient American Setting for the Book of Mormon. Sorenson aims to develop "contextual knowledge," a "realistic setting," and a "plausible model" for Book of Mormon history rather than "somehow 'proving' that those events did happen." His approach bears striking resemblance to the concept of the "new" biblical archaeology promulgated by William Dever, himself a prominent critic of traditional biblical

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68 Ibid., 135.
69 Ibid., 68.
70 Ibid., 90, 136.
71 Sorenson, An Ancient American Setting, xvi.
“proof” archaeology. Dever argues that archaeology cannot "prove" the Bible in any sense—either by demonstrating that the events ... actually happened, much less by validating the theological inferences that are drawn from these events." But what archaeology does give is "a knowledge of the larger context in which the Bible emerged, both physical and cultural, without which it cannot be fully understood" and "this provides the background against which the Bible can be portrayed so as to give it a credibility—an immediate, vivid, flesh and blood reality—that it cannot possibly have when read solely as Scripture, or as a long-lost literature isolated from its origins." The following section suggests some aspects of flesh-and-blood demographic reality concerning Book of Mormon populations. In doing this, an objective is to remain consistent with the text of the Book of Mormon and to remain aware of how populations work according to historical demography and demographic models.

Approaching the Text

The Book of Mormon reports three migrations from the Old World to the New. The first was led by Jared and his brother at the time of the dispersion from Babel. Many centuries later, in about 600 B.C., Lehi’s party left Jerusalem. A few years later, Mulek, whom the Book of Mormon identifies as a son of king Zedekiah and who apparently did not know about Lehi, led his small group toward the New World. While none of these three small migrating groups knew of each other in the Old World, their histories eventually connected in the New World.

The Book of Mormon begins with an unabridged record taken from the "small plates" made by Lehi’s son Nephi, followed by his brother Jacob, with brief additions by others. Covering the years from 600 to 130 B.C., these small plates were added by Mormon without abridgment to his own plates, resulting in the first 144 pages of Joseph Smith’s translation. Written primarily as a religious rather than a historical record, these pages emphasize the first half-century of history from Lehi down to the death of Nephi’s younger brother Jacob. Only the

73 Ibid.
last nine pages deal with the three centuries from Jacob’s death down to 130 B.C.

At this point Mormon’s abridgment of the historical record on the large plates of Nephi picks up and continues down to Mormon’s own time in the early fourth century. Occupying about 320 pages in today’s text, Mormon’s abridgment is not a simple chronicle giving equal attention to each year. More than three-fourths of its text focuses on the period from 130 B.C. to the birth of Christ, and half of the remaining text deals with the brief ministry of Christ in about A.D. 34. Then, in a mere four pages, Mormon presents a sweeping summary of the next three centuries of history down to his own time. Finishing off the book are a few pages (about 12) of Mormon’s original writings describing his own day. These are continued by Moroni, who also added the brief abridged Jaredite record and some short doctrinal writings.

From this summary it is apparent that the Book of Mormon concentrates on certain specific and relatively brief historical “epochs”: the first from 600 to 550 B.C., involving Lehi and his two sons Nephi and Jacob; the second from 130 B.C. to A.D. 34, reporting Nephite history from the days of king Benjamin through the ministry of Christ; and the third covering the destruction of Nephite civilization in the fourth century A.D. Altogether, the text devoted to these three brief historical epochs makes up ninety percent of Mormon’s work, covering a total of only three hundred years, or thirty percent of the full thousand-year span of the record.74

Given this historical structure of the Book of Mormon text, we should fully expect some big gaps in the information it presents between the historical epochs on which it focuses. It would be naive to think we could correctly assume or guess at the missing information to fill in these gaps. As an analogy, consider a modern book containing a hundred-page chapter about some events in the tenth century, a chapter of three hundred pages on the history of certain peoples in the sixteenth and

74 It is also noteworthy that Kunich’s list of 54 possible population size references has 43 in what I have called the second epoch, with a few references in first and last epochs. Even controlling for the variable lengths of the texts covering the epochs, this represents a disproportionate number of references in the second epoch, and is consistent with the Book of Mormon’s claim that the Large Plates were concerned with historical reporting whereas the Small Plates (first epoch) emphasized religious teachings.
early seventeenth centuries, and finally a few pages about the twentieth century since World War I. If we had such a book, we surely would be cautious about trying to infer too much about the historical periods between these widely disparate historical eras. Our discussion of populations in the Book of Mormon will attempt to recognize the historical structure of the book by focusing some brief interpretive comments about its populations on each of the book’s three epochs, giving due recognition to the sparse text linking these epochs.

First Epoch. Three families were represented in Lehi’s group as it fled Jerusalem. Lehi and Ishmael took their immediate families, and Zoram went as a servant who later married a daughter of Ishmael. Sometime between 588 and 570 B.C., Lehi died (2 Nephi 4:12) and his son Nephi fled with four other named individuals and their families (Zoram, Sam, Jacob, Joseph), his sisters, “and all those who would go with me” into the wilderness (2 Nephi 5:5–6). According to the Book of Mormon, “all those who would go with me” consisted of religious believers who accepted the word of God through Nephi (2 Nephi 5:6). Calling their new homeland “Nephi” and calling themselves “the people of Nephi” (2 Nephi 5:8–9), Nephi’s followers began to prosper materially, “to multiply in the land” (2 Nephi 5:13), and to prepare to defend themselves against “the people who were now called Lamanites” (2 Nephi 5:14). One reading of the latter phrase is that “Lamanites” is a new name for the family and followers of Laman, the brother-enemy from whom Nephi fled. Another possible reading is that some people not previously called Lamanites were now so called, presumably because of Laman’s affiliation with them.

Although it is unclear exactly when Nephi departed for the wilderness with his followers, it was sometime before 569 B.C. (2 Nephi 5:28–32). When creating his record on the small plates in this year, Nephi emphasizes that “we had already had wars and contentions with our brethren” (2 Nephi 5:34), presumably meaning the Lamanites. For another fifteen years Nephi ruled his people, finally anointing a king to succeed him. After Nephi’s death the term Nephite appears for the first time in the historical record. Whatever previous meanings the term had, Jacob decides to define it this way: “now the people which were

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75 The term Nephite appears earlier in the Book of Mormon, but only in Nephi’s prophetic writings (2 Nephi 29:12–13).
not Lamanites were Nephites” (Jacob 1:13). He remarks somewhat ambiguously that “they” (Lamanites and Nephites?) “were called Nephites, Jacobites, Josephites, Zoramites, Lamanites, Lemuelites, and Ishmaelites” (Jacob 1:13), but Jacob’s intent is to refer to these various peoples (tribes?) according to a simple we-them, friend-enemy scheme. He will “call them Lamanites who seek to destroy the people of Nephi” and “those who are friendly to [king?] Nephi I shall call Nephites, or the people of Nephi, according to the reigns of the kings” (Jacob 1:14). Jacob’s mention of various “-ites” and his mention of a Nephite king, a temple, significant wealth, and the Nephite penchant for polygyny (Jacob 1:9–18), may suggest to the casual reader a fairly large population living in a fairly complex society. But there is a hint that this may not be the case when Jacob reports that the Nephites have only two “priests and teachers” (Jacob 1:18). Some demographic considerations also raise questions about how large the Nephite population in Jacob’s day could have been.

Since the founding families of Nephites who followed Nephi into the wilderness are at least partially enumerated in the text, we can roughly estimate how many descendants this founding group might have produced over time. For this purpose we use the Camsim demographic simulation model76 to estimate the number of living descendants a group of five founding families might produce at sixty years from the births of the founders. The simulation assumes a nearly zero overall population growth rate of .01 percent and allows for realistic levels of chance variation (stochasticity) in fertility and mortality among individuals and families. We choose sixty years from the births of the founders as the target date for measuring the size of the population

because Nephi probably was born sometime a decade or so before 600 B.C., making it sixty years from his birth to the time he hands over the plates to Jacob around 550 B.C. Other founders were probably born later and earlier than Nephi, so we are supposing that on average they were about the same age as Nephi when the founding group was formed. Figure 4 presents the results of the demographic simulation. It is evident that there is a range of possible population sizes just as one would expect in a small population subject to random fluctuations in their growth. As the figure shows, the greatest chances are that there were between twenty-five and thirty-five descendants of the founding group alive near the time of Nephi’s death. But we also note that there is a reasonably high probability (about a five

percent probability) that the number of descendants could have been greater, say between fifty and sixty-five people. To give perspective on this probability, a five percent probability is about the same chance that a family of four children today will have all four children of the same sex—not an entirely commonplace event, but one that is not terribly surprising or improbable either.

With these demographic results we see that the Nephite population at the time of Nephi’s death and during Jacob’s ministry would have been small. The key demographic assumptions in this exercise are that the Nephites lived under conditions of generally zero population growth, that the founders were born pretty much around 610 B.C., and that there were about five founding families. Since these are conservative assumptions, they can be questioned and modified to yield larger numbers of Nephites in the simulation. However, it would take very large and probably unrealistic changes in these assumptions to make much difference in the order of magnitude of the resulting population sizes. For, even if the simulations were low by a factor of five, we would only end up computing a few hundred Nephites rather than a few dozen in about 550 B.C. Our demographic exercise strongly suggests that the various “-ites” enumerated by Jacob were small familial and tribal groups rather than full-scale populations and societies. Perhaps Jacob saw it as splitting hairs to continually refer to such small groups individually, and perhaps that is one reason he wanted to talk of his people as one—the people of Nephi, or simply “Nephites.”

By about 400 B.C., or two hundred years after Lehi left Jerusalem, the recorder Jarom writes that the people of Nephi had “multiplied exceedingly, and spread upon the face of the land” (Jarom 1:5, 8). Along with Nephites, the Lamanites also were “scattered upon much of the face of the land” but they were “exceedingly more numerous” than the Nephites (Jarom 1:6). How many descendants might our founding group have had at this two hundred year mark? Camsim simulation results are presented in figure 5 showing that the greatest chances were in the one thousand (or a little more) range. However, there are substantial chances that the population could be smaller or larger than this, with about a ten percent chance that there were more than 2,000 Nephite descendants at this point. Whether this constitutes “multiplying exceedingly,” or whether it is enough people to “scatter upon much of the face of the land” is a matter
of interpretation that might be illuminated by textual-historical analysis beyond what we can do here.

Figure 5. Simulated Descent Group Size: Five Founders, After 200 Years, Camsim computer simulation model.

The population numbers we have put forward—perhaps dozens of Nephites in about 550 B.C., and perhaps hundreds or a couple of thousand at 400 B.C.—are conjectures based on a demographic model under various assumptions. Assumptions could be changed to assume that the Nephites intentionally experienced higher fertility rates, and our earlier review of historical demography allows that this could happen in historical populations. Or, there might well have been more founding families than the five we conservatively assume for Nephi’s group. But even changing these or other assumptions, we can anticipate that the order-of-magnitude size of early Nephite populations in the first epoch of Book of Mormon history was unlikely to have exceeded a few thousand people who descended from Nephi’s original founding group.

Second Epoch. The second historical epoch in the Book of Mormon begins in about 130 B.C. By this time there had been a
major change in the situation of the Nephites. Sometime in the third or second century B.C. a Nephitc named Mosiah fled from his people with “as many as would hearken unto the voice of the Lord” (Omni 1:12). His party discovered the land of Zarahemla, ruled by king Zarahemla, who was a descendant of the same Mulek who left Jerusalem after Lehi (Mosiah 25:2). The people of Zarahemla were “exceedingly numerous” (Omni 1:17) and they apparently willingly accepted Mosiah the Nephite as their next king. The Book of Mormon reports many fewer Nephites than people of Zarahemla, and many fewer Nephites and people of Zarahemla combined than there were Lamanites (Mosiah 25:3–6). With their new Nephite king, the people of Zarahemla became known as Nephites, and the kingship passed down Mosiah's lineage to his son Benjamin, and then to his grandson Mosiah.

It was upon the death of the latter Mosiah that a new form of government with judges came into existence, and soon thereafter the Amlicite insurrection yields precise numerical data concerning battle casualties. During a civil war battle in about 87 B.C. between the Amlicite and the loyalist armies, 12,572 Amlicites and 6,562 loyalists were killed. We can start to estimate population numbers from these counts using a stable population model. The stable population model allows features of a population's age structure to be calculated given an assumed mortality level and population growth rate. The calculations are complex, but their results are presented in published reference tables. Using these tables we find that a population having high mortality and a zero population growth rate would have about twenty-five percent of its numbers in the ages between fifteen and thirty. Thus, if we know the number of fifteen- to thirty-year-olds in such a population, we can multiply by four to estimate the total population size.

One conjecture would be that the battle casualties during the Amlicite insurrection were heavy, perhaps accounting for fifty percent of the fighting men. A much lower casualty rate, say ten percent, could be taken as the other conjectured extreme. Under the heavy casualty assumption, the 19,000 combined Amlicite-

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78 These are the first such precise data occurring in the text. Later in the text (Mosiah 9:18–19), but referring to an earlier chronological date (about 187 B.C.), there is a report of battle casualties in Zeniff’s encounter with the Lamanites.

79 Coale and Demeny, *Life Tables and Stable Populations*. 
Nephite casualties would imply an army size of 38,000. If all fifteen- to thirty-year-old males were enlisted in the army, the male population size would be 38,000 times 4, or about 152,000. This implies a total male and female population of about 300,000 Nephites. Under the assumption of a ten percent battle casualty rate, this method of calculation estimates a total population of about 1.5 million Nephites. As with the earlier simulation model, the assumptions underlying this demographic model can be questioned from a number of angles. But probably the biggest source of uncertainty is the assumed casualty rate. Since fighting continued after this particular battle, it is unlikely that the decimation of either army was near complete. However, the decimation of the Amlicites may have been greater than that of the Nephite loyalists. Soon after the great battle, the Amlicites joined up with the much larger Lamanite forces, perhaps indicating their need to retreat and to search for a strengthening alliance. If we assume that half the Amlicite army and only ten percent of the Nephite army were killed, the estimated total Nephite (including Amlicite) population is about 720,000. So we end up with three speculative and divergent estimates for the total Nephite population in 87 B.C. The three estimates are: 300,000; 720,000; and 1.5 million. Such a wide-range of estimates is to be expected from such limited textual data that only counts battle casualties. With further textual analysis, additional historical interpretation, or refined demographic methodology, the estimates might be narrowed, but this is beyond our current purpose.

With Nephite population totals in 400 B.C. in the range of several hundred to about 2,000 people, and with population totals in 87 B.C. between 300,000 and 1.5 million people, what are we to make of Nephite population history between these two years? First, we must remember that the definitions of Nephite in 400 B.C. and that in 87 B.C. were different. At the earlier time Nephites may have been only descendants of the founding group, whereas in the later time Nephites were those who went with Mosiah combined with the people of Zarahemla whom they joined, and who were at least doubly numerous. Thus, an appropriate way to compute population growth among the original Nephites is to compare the 2,000 estimated Nephites for 400 B.C. and the 100,000 Nephites implied by a total population of 300,000 in Zarahemla, or with 500,000 Nephites in Zarahemla if the total population of that place was 1.5 million.
For the Nephite population to have grown from 2,000 to 100,000 people between 400 and 87 B.C. would imply an average annual growth rate of about 1.25 percent. With an expectation of life of 25 years this rate of growth would require Nephite fertility to be at the level of 7.2 live births on average for women completing their fertility. This is an improbably high, but not impossible, fertility level, being higher than most observed natural fertility levels. However, a reasonable but higher life expectancy of 30 years combined with a fertility level of about 6.0 births would achieve a 1.25 percent growth rate. Thus a possible scenario for Nephite population change between 400 and 87 B.C. would be that the population of 2,000 Nephites had high fertility generating population growth at the level of 1.25 percent per year, thus producing 100,000 Nephites in Zarahemla who were descendants of Nephi’s founding group.

Extreme caution is needed before positing this or any other scenario as a historical reality. The information in the Book of Mormon is sparse; our interpretations of the text are tentative; and the assumptions underlying the demographic calculations are so far untested. In light of this, the term “plausible conjecture” best describes our results, and we are in the company of other historical demographers of the ancient world when we produce such conjectures to set a demographic context for the historical record. It also should be emphasized that our conjectures require the Nephite population to maintain high fertility for three centuries. In this regard, it may be that comments in the Book of Mormon about multiplying exceedingly and filling the land are indicative that Nephite fertility was indeed high, at levels perhaps similar to that of other preindustrial high-fertility groups like the historical Hutterites, Amish, or Mormons. Again, we need not take our interpretations and conjectures as complete or final until more consideration can be given them. There remains the possibility that they will prove wrong, but also the possibility that in refining them they will prove plausible. Among the unanswered issues that will eventually need consideration are the questions of the origin and numbers of the people of Zarahemla (does our assumption of 200,000 “Mulekites” make sense?), and the question of who the Lamanites really were, and why they are identified by Book of Mormon writers as racially different from the Nephites. These topics in Book of Mormon population studies await our serious attention. The critical study of ancient scripture promises no quick and easy answers.
Third Epoch. Mormon himself recounts the brief and tragic history of the Nephites in the fourth century. As a military leader who fights and strategizes to keep his people alive, Mormon, not surprisingly, records several details about the size of Nephite armies. But who were these Nephites whose armies Mormon led? Mormon makes the point that he is a literal descendant of Nephi and that he has been given the ancient Nephite records, indicating his strong sense of continuity with the original founding group of Nephites and with Nephi, son of Lehi, himself. But it would be far too simplistic, and not supported by the text of the Book of Mormon, to assume that this implies that all those called Nephites in Mormon’s day were literal descendants of the ancient Nephi or his founding group. As we have seen, there were many more people of Zarahemla than Nephites, and subsequent history reveals Lamanite conversions and consolidation with the Nephites in large numbers. Ultimately, in the first and second centuries A.D. there was a mixing of peoples in which “-ites” were not distinguished, and it was from this consolidated body that Nephites, Lamanites and other “-ites” emerged again in the early third century (4 Nephi 1:17, 20, 25, 35–36). This complex social, political, economic, and perhaps demographic mixing of populations is only mentioned briefly but tantalizingly in Mormon’s four-page summary of the three centuries of history from Christ to his own day.

From a demographic perspective it is not hard to imagine a significant population of Nephites in Mormon’s day even under the narrow assumptions that all of Mormon’s Nephites were literal descendants of the population of Zarahemla. With a moderately positive population growth rate of .1 percent per year, a population of 300,000 in Zarahemla in 87 B.C. would produce 450,000 in Mormon’s day. This is a highly schematic estimate. But proceeding forward with this line of reasoning, the stable population model reveals that about 28 percent of this population would be 15 to 30 years old. This, in turn, implies about 63,000 males of these ages (450,000 x .28 x .5 to get males only), presumably being the male population from which the armies were drawn. Mormon reports armies of 40,000 (Mormon 2:9) and 30,000 (Mormon 2:25) troops in the years A.D. 331 and 346, numbers easily attainable according to our demographic speculations.

It may be, as Hugh Nibley has suggested, that Mormon’s armies represented only a part of the Nephite population for
which Mormon was the military commander. This may account for the fact that a much larger army of 230,000 is reported at the final battle of Cumorah in the later fourth century. If this large army included all of the 15-to-30-year-old males in the Nephite population, the total population size would have been about 1.6 million people. Since we have favored the 300,000 number for Zarahemla in 87 B.C., and these 300,000 could not realistically have grown to 1.6 million by Mormon’s day, where could all the additional people have come from? Again, there is a lot of Nephite history involving changing population definitions and possible population assimilation and mixture during three centuries before Mormon. One view would be that these processes resulted in large numbers of people besides literal descendants of the Zarahemla population being incorporated under the political, social, or geographical rubric Nephite.

It is also interesting to consider an alternative to this interpretation. A half century prior to Cumorah, Mormon attempted to gather the Nephite people together “in one body” for self-preservation (Mormon 2:7, 20–21), leading to an eventual treaty with the Lamanites that removed the Nephites from their southern lands (Mormon 2:28–29), and gathered them toward the north. Thus, fifty years later, when Mormon promised the Lamanite king he would “gather together our people unto the land of Cumorah, by a hill which was called Cumorah” (Mormon 6:2), he was only continuing a strategy that had been exercised before. Mormon notes that the gathering to Cumorah included “all the remainder of our people” and that it “gathered in all our people in one” (Mormon 6:5–6) into a land of many waters, rivers, and fountains around the hill Cumorah (Mormon 6:4). As the Lamanite armies advanced on these gathered Nephites, the wives and children were filled with “awful fear,” and as the battle began every Nephite soul was “filled with terror” (Mormon 6:7–8). As the slaughter progressed, Mormon notes that his men, meaning presumably his cohort of ten thousand soldiers, were slain (Mormon 6:10). Later he elaborates that some people (soldiers?) escaped southward, and a few deserted to the Lamanites, and he recounts that except for these “all my people,

81 To do so would require a long-term average growth rate of .4 percent which is improbably high, but not totally impossible.
save it were those twenty and four who were with me” were killed (Mormon 6:15).

The account of the gathering of all the Nephite people in the lands around Cumorah, and the way Mormon refers to his women and children, men, and people, somewhat interchangeably, introduces some ambiguity into his account. Could it have been that in their last-ditch effort at survival, preparing as they were for a prearranged great battle, Mormon and the 22 other leaders divided the whole Nephite people, rather than just the armies, into contingents of ten thousand each? If so, the victims of the slaughter at Cumorah were 230,000 men, women, and children, all of the Nephites who had gathered around Cumorah. If 230,000 were the size of the total Nephite population at this time, what would have been the army size at the battle of Cumorah? Our stable population model, which places 28 percent of the population in the ages 15 to 30, shows 32,200 men in these age groups from a total population of 230,000 (i.e., 230,000 x .5 to get males, x .28 to get 15–30-year-olds, resulting in 32,200.) This is strikingly similar to the number of Nephite troops Mormon reported leading a half-century earlier. Perhaps, then, a total Nephite population of 230,000 with an available army of 32,000, is a consistent estimate of the Nephite demographic situation at the last great battle, with perhaps higher numbers in the decades of wars preceding Cumorah during which the Nephites may have begun slipping into demographic decline. This interpretation does not sit entirely well with the report of warfare at Cumorah: cohorts of ten thousand certainly sound like army cohorts. But a total Nephite population of about a quarter million people, with armies in the tens of thousands, also sounds reasonable in light of our growing realization that demographic analysis seems often to suggest that descendants of Nephi’s founding group may have been a relatively small population in a sea of other peoples.

Whatever the ultimate outcome of our conjectures in Book of Mormon demography, so far it appears that we can work within the bounds of demographic science to explore the text of the Book of Mormon as an ancient historical record. Over time, serious study of the Book of Mormon from interdisciplinary and critical perspectives may begin to replace artifactual and “proof” arguments for the Book. If so, perhaps further attention to historical demography will help to illuminate its historical dimensions.
Conclusion

Modern biblical scholarship accepts the historical study and interpretation of scripture as one of many approaches to understanding scripture. It has been recognized for many years that the Bible is a complex written work and that no single scheme of interpretation, whether historical, theological, legal, or literary, can milk all of its meanings or satisfy all future thirst. Moreover, Morgan and Barton have shown that the use of critical methodologies for scriptural interpretation cannot be separated from the wider interests and aims of those doing the interpretation, and that no interpreter’s aims are completely free of theological underpinnings despite sincerest efforts to be strictly “objective.” In matters of scriptural interpretation where the wider interests and aims of interpreters may not be apparent, and where the technical merits of an argument can be difficult to evaluate, our best guiding principle for examining so-called “cutting edge research” may be: *caveat emptor.*

John Kunich suggests that we should “bring to our study of the scriptures all of our abilities . . . we routinely bring to our occupations and avocations” so that we can avoid “superficiality more akin to idolatry than to reverence” as we study the Book of Mormon (p. 265). In today’s world of massive literatures on almost any specialized subject, avoiding superficiality can be a difficult challenge. I am reminded of anthropologist Kathleen Gough’s venture into some demographic aspects of ancient Greece which appeared in a volume edited by the prominent Cambridge anthropologist Jack Goody. Her work drew the following commentary from the distinguished Cambridge ancient historian Sir Moses Finley:

She first takes figures for the population of fifth-century B.C. Athens from . . . a derivative source with no standing in the matter, adds in a note an “estimate” by Talcott Parsons which is simply preposterous, then asserts that a majority of the women were illiterate and implies the same for slaves for those she inaccurately terms “disfranchised foreigners,” none of which is correct, and on that foundation, which I cannot even call sand, [she] concludes . . .

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Miss Gough, "side-stepping tedious historical chores," has made no effort to consult any of the available research. It would not be difficult to imagine her reaction were a classical historian to treat her subject matter in so cavalier, I might say contemptuous, a manner.\textsuperscript{83}

The Book of Mormon, with its various literary, linguistic, and historical dimensions, deserves serious study that does not sidestep the tedious chores of research. It is the hope of scholarship that ongoing serious study of the scriptural record will ultimately help to illuminate its religious and historical truth. Meanwhile, if modern scholarship, including modern biblical criticism, has taught us anything, it is that our conclusions about what we think we know ought to be tempered by a sincere recognition that we do not know it all.