



## Chapter One

# *The Book of Mormon: Literal or Literary?*

“Who are the children of Lehi?” and “How can the story of Lehi and his children, as told in the Book of Mormon, be reconciled with modern DNA data?” are questions of interest and significance to many people, especially Latter-day Saints.<sup>1</sup> Some people maintain the aspiration that DNA research will either vindicate or refute the Book of Mormon as a historical record of America’s ancient inhabitants, whether to bolster their own faith, to persuade the nonbeliever, or conversely, to justify their rejection of the document as an ancient historical record.

Our perspective in writing this book is that of faithful Latter-day Saints who view the Book of Mormon as an accurate account of actual historic events. We are also biologists. Jeff is an anthropologist and anatomist. Trent is a developmental biologist and anatomist. Although our primary research interests center on areas other than genetics, our respective backgrounds and training, as well as our teaching responsibilities, include significant components of molecular genetics and population genetics. As scientists, we accept the DNA data published by genetic anthropologists researching Native American origins while recognizing the inherent limitations to sampling the genetics of populations and the challenges of interpreting the raw data. We view those data as clearly and reasonably representing an American-Asian connection for the majority, if not the whole, of the present-day native populations of the New World.

But we also acknowledge that this conclusion does *not* constitute a refutation of the historicity of the Book of Mormon. It is only with a combined understanding of the sometimes-subtle details of the primary Book of Mormon account and the complex nature of inheritance that one can attempt to reconcile the written record of the children of Lehi with the genetic legacy of Native American populations studied to date. We contend that the apparent contradiction stems from imposing simplistic generalizations onto the primary account, placing undue significance on speculations by early Church officials, or failing to recognize the limitations on the interpretation of the genetic legacies of populations.

We became specifically engaged with these questions when we were jointly invited to participate on a panel discussion at the 2001 Sunstone Symposium at Salt Lake City titled “DNA and Lamanite Identity: A Galileo Event?” The moderator and participant, Brent Lee Metcalfe, a technical editor in the computer industry, stated in the symposium abstract, “Genetic research promises to help genealogists define and refine family trees. But this technological blade can cut both ways. What is a benefit to LDS genealogists may be a detriment to Book of Mormon literalists. Initial findings of geneticists have so far failed to link Native American populations to ancient Israelites.”<sup>2</sup> Metcalfe and the fourth panelist, Thomas Murphy, an anthropologist at Edmunds Community College in the state of Washington, adopted a position that modern DNA evidence fails to support the assumption that American Indians are somehow genealogically connected to Israelites or Jews and that the historicity of the Book of Mormon is therefore thrown into question.<sup>3</sup>

We agreed at the time and continue to agree today that genetic findings among Native Americans have failed to link Native American populations to ancient Israelites. We pointed out, however, a number of other considerations that must be included when analyzing and interpreting the data. Those considerations and others are the substance of this book. At the conclusion of the panel discussion, a member of the audience asked (to paraphrase), “Archeologists haven’t found one bit of evidence to support the

Book of Mormon, and now molecular biology has failed to produce any support. When are you just going to accept that the Book of Mormon is a work of fiction from the nineteenth century?" One is certainly at liberty to adopt such an opinion, but the point we made then—and the point we continue to make now—is that one must be very careful in how scientific data are interpreted. Stating that there are no modern genetic connections between Native American and Middle Eastern populations does not justify a statement that no such connections ever existed or that the Book of Mormon is a work of nineteenth-century fiction.

Numerous examples of sweeping generalizations, oversimplifications, and unfounded inferences followed that panel discussion in the popular press and in exchanges on the internet. One comment from an internet discussion illustrates some of the naivete at work: "It looks like scientists, with DNA tools, are well on their way to exhaustively knowing where every group of people came from for at least the last 10,000 years."<sup>4</sup> This is neither an accurate assessment of the present situation nor, in fact, is it ever likely to be the case. The human gene pool as a whole is complexly mixed by cross-currents, eddies, and backwaters. An individual's genes reflect a mere fraction of one's genealogical legacy. Examples repeatedly arise where the phenotype, or outward physical appearance—e.g., skin color, facial features—bear little correspondence to the genotype, or characteristic DNA markers, of an individual. Alternately, recent examples demonstrate that sampled genotypes of populations often reveal little accord with well-documented genealogical records. (See our discussion of the Icelanders in Chapter 9, "Lehi's Footprints.") Many population geneticists have repeatedly reiterated cautionary statements that the complexities of evolutionary genetics make the goal of deciphering population sources and subsequent intermingling of lineages an elusive objective.

The adoption of new scientific techniques and its impact on a discipline has been likened by an anonymous observer to a youth receiving a new telescope for Christmas. "At first, it [the telescope] is enthusiastically turned in all directions, until the owner finds that effective use of the instrument actually requires investing heavily in

an increased study of astronomy and mathematics and a discomfoting exercise of critical judgment in interpreting what is observed. At that point the initial fervor to apply the tool indiscriminately palls, particularly if some new 'toy' comes on the scene to divert attention. The new toy in human biology and anthropology is DNA analysis. Despite cautions from the best scientists about the limits the new findings have for interpreting human history, some enthusiasts without adequate critical acumen claim too much for DNA study."<sup>5</sup>

The existence of the Book of Mormon as a literary document is a fact. Many hypotheses have been advanced to explain its origin. Those who reject the antiquity of the Book of Mormon assign it a nineteenth-century origin, spawned by the fertile imagination of a simple New York farm boy, or perhaps inspired by the piety of a Campbellite preacher, or imitating the fanciful speculations of an aspiring novelist. Each of these hypotheses has been explored at length elsewhere. Some critics esteem the Book of Mormon as containing worthwhile treatises on issues of ethics and morality but deny its historicity, citing a lack of archeological and genetic corroboration and thereby disparaging its ultimate significance and implications.

At least three major hypotheses can be advanced concerning the Book of Mormon and Native American origins:

1. All Native Americans are of Asian origin. This hypothesis has dominated mainstream science since the sixteenth century.

2. All Native Americans are of Middle Eastern origin. This hypothesis is advocated by some who accept the Book of Mormon account as historical.

3. Most Native Americans are of Asian origin, while a small subset is of Middle Eastern origin but intermingled with the indigenous people. This hypothesis is proposed by others who also accept the historicity of the Book of Mormon. This hypothesis has two alternate subsidiary hypotheses.

- a. No genetic evidence of the Middle Eastern influx has been found yet but will eventually be found given more extensive sampling and analysis.



- b. No genetic evidence of the Middle Eastern influx has been found, and probably never will be found.

Hypotheses 1 and 2 would seem to be testable by direct scientific methods. The genetic constitution of the surviving Native American population has been rather extensively tested. The current data help support the first hypothesis: "All Native Americans are of Asian origin." More precisely, no data have refuted this hypothesis. This latter statement is more accurate concerning the testing of scientific data. Because it is impossible to analyze *all* Native American DNA it is also impossible to unequivocally state that "*All* Native Americans are of Asian origin." Another important consideration concerning this hypothesis is that the present Native American population does not necessarily represent the genetic diversity of pre-Columbian Native American populations.

Clearly the current data refute the second hypothesis: "All Native Americans are of Middle Eastern origin." The data do not indicate an affinity of Native American DNA to that of present-day Middle Eastern populations and certainly do not support a sole origin from that source.

On November 8, 2007, Peggy Fletcher Stack, religion editor for the *Salt Lake Tribune*, reported that the Church of Jesus Christ of Latter day Saints had, in October 2006, changed one word in the introduction to the Book of Mormon, then in a second trade edition with Doubleday of New York. Stack stated, "The book's current introduction, added by the late LDS apostle, Bruce R. McConkie in 1981, includes this statement: 'After thousands of years, all were destroyed except the Lamanites, and they are the principal ancestors of the American Indians.' The new version, seen first in Doubleday's revised edition, reads, 'After thousands of years, all were destroyed except the Lamanites, and they are among the ancestors of the American Indians.'"<sup>6</sup>

We see this wording change as welcome in light of the fact that some who interpret the DNA data as challenging the Book of Mormon's historicity have pointed to this phrase as evidence of factual inaccuracy. They could not use any text in the book itself as the

focus of their comments since the Book of Mormon text has never made such a sweeping claim. This change in the introduction now simply provides a better match between the text itself, the introduction, and the genetic evidence to date.

The third hypothesis, which proposes that a small influx to the Native American population was of Middle Eastern origin, specifically ancient Israelite, is more problematic and indeed may not be testable. Why? Because the genetic trace of the remnant of a small population introduced into a much larger population may or may not be detectable, let alone identifiable. Detection of such a link would depend on whether any identifiable distinct genetic markers of the immigrant population were transferred to the much larger resident population and have remained in the surviving population in sufficient frequency to be detected.

Although the principle of parsimony in science states that the simplest explanation is preferred, the simplest explanation is not of necessity the correct one. The simplest explanation is, however, the explanation accepted by science until additional data refute or at least modify it. The DNA data collected to date simply connect Native American populations to specific Asian populations. Therefore, the most parsimonious explanation is an Asian origin for modern Native American peoples. However, when considered in the context of the principles and limitations of population genetics, the data do not exclude the possibility of other gene sources which are not yet detected (or which are simply undetectable) by the limited sampling of currently extant populations. One or more relatively small populations, now extinct or genetically overwhelmed in the gene pool of the Western Hemisphere, could have existed but are no longer evident. The limitations on the potential for data collection and detection mean that some hypotheses of Native American origins simply cannot be tested by DNA research, although other avenues of investigation such as linguistics and archeology may contribute insights. Given the assumptions of a small immigrant colony living in a limited geographical area among a large indigenous population, the necessary tests, based on DNA research, manifestly cannot be designed that would refute the historicity of the

Book of Mormon. Therefore, as stated in Hypothesis 3b, genetic evidence will probably never be discovered that would reveal a small influx of Middle Easterners to Native Americans or that any Native Americans today carry genes that could be linked to such ancestry.

If Hypothesis 1 appears to be corroborated and Hypothesis 2 is clearly refuted, as the current data suggest, then is there any need for additional discussion? What is to be done with Hypothesis 3? We maintain that additional discussion is warranted even though such a hypothesis may be virtually untestable by current scientific means. Our objective in this book is to examine the merits of this third hypothesis, the logical inferences upon which it rests, and its implications for claims about DNA and the Book of Mormon. We intend to examine the genetic and molecular data and explore the recognized limitations to these data, especially the challenge of detecting the infusion of a mere drop of DNA into the extensive gene pool of the ancient Western Hemisphere. We will further discuss the interpretive challenges of population genetics posed by such concepts as bottlenecks, founder effects, genetic drift, and admixture—especially as they relate to Native American populations and the implications for identifying the “children of Lehi,” that is, the descendants of peoples mentioned in the Book of Mormon.

Furthermore, we wish to emphasize that, to Latter-day Saints, the ultimate significance of the claims of the Book of Mormon pivots upon the Abrahamic covenant, which states that through Abraham all the nations of the earth will be blessed (Abr. 2:11). This promise extends to the people of the Western Hemisphere through the children of Lehi in essentially the same manner that it applied to the Eastern Hemisphere through the children of Israel generally. The house of Israel has been likened to the leaven of the bread. The leaven is only a small ingredient in the bread, not the bread itself. The children of Lehi can be seen as a spiritual leaven in the same sense that the Abrahamic covenant extended to Israel, leavening the bread that represents the millions of former inhabitants of the New World.<sup>7</sup> Just as the scattering of Israel throughout the Old World has left few or no genetic footprints on the world



population, it seems very unlikely that the genetic trace of that leaven will be identified in the New World, let alone detected by DNA research, although its spiritual effects may be very real.

In the final analysis, it is our opinion that the Book of Mormon, like the Bible, is a book of faith. If God proved, without doubt, every whit of the sacred record, then faith, a vital principle, would lose its effect. Hence, our perspective and our motivation for exploring these issues stem mutually from our pursuit of scientific knowledge and understanding as biologists and anthropologists, from our rejection of any over-reaching of interpretation—scientific or scriptural—and from our acceptance of the principle of rational faith in the Book of Mormon.

## Notes

<sup>1</sup>D. J. Meldrum and T. D. Stephens, “Who Are the Children of Lehi?” *Journal of Book of Mormon Studies* 12 (2003): 38–51. That paper is an abbreviation of this book, drawing especially on chapter 10.

<sup>2</sup>Sunstone Symposium, Final Program, Salt Lake City, August 2001, 44.

<sup>3</sup>Murphy has since published his manuscript as “Lamanite Genesis, Genealogy, and Genetics,” in *American Apocrypha: Essays on the Book of Mormon*, edited by Dan Vogel and Brent Lee Metcalfe (Salt Lake City: Signature Books, 2002), 47–77.

<sup>4</sup>This quotation was taken from an internet exchange that occurred in 1999. We copied the response but without identifying information that would allow retrieval from an archive.

<sup>5</sup>Anonymous, “The Problematic Role of DNA Testing in Unraveling Human History,” *Book of Mormon Studies* 9 (2000): 66–74.

<sup>6</sup>Peggy Fletcher Stack, “Minor Edit Stirs Major Ruckus,” *Salt Lake Tribune*, A1, A14.

<sup>7</sup>Or as Galatians 3:14 puts it: “That the blessing of Abraham might come on the Gentiles through Jesus Christ; that we might receive the promise of the Spirit through faith.”