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Abstract This article discusses the possibility that DNA is not dependable evidence either for or against the veracity of the Book of Mormon. It is difficult to ascertain whether Book of Mormon people were literal descendants of Israel and how similar those genetics are with modern Israelites. Therefore, no conclusive statements can be made concerning the DNA of Book of Mormon people.

SWIMMING IN THE GENE POOL: ISRAELITE KINSHIP RELATIONS, GENES, AND GENEALOGY

Matthew Roper

The term *Lamanite*, according to Thomas W. Murphy in his recent article, “is a modern social and political designation that lacks verifiable biological or historical underpinnings linking it to ancient American Indians.”¹ He bases this argument against the Book of Mormon upon recent studies of DNA that, so far, seem to demonstrate an almost exclusively Asiatic genetic background for Native American peoples.² The Book of Mormon claims an ancient Israelite heritage for the American Indian, and since identifiable genetic evidence that might connect contemporary Native Americans with modern Jews is lacking, Murphy asserts that this contradicts the revelations of Joseph Smith and long-held traditional views about the Book of Mormon. Further, Latter-day Saints should abandon their belief that the Book of Mormon is an authentic account of an ancient American people and concede it to be an anachronistic specimen of nineteenth-century racist ideology.³

1. Thomas W. Murphy, “Lamanite Genesis, Genealogy, and Genetics,” in *American Apocrypha: Essays on the Book of Mormon*, ed. Dan Vogel and Brent Lee Metcalfe (Salt Lake City: Signature Books, 2002), 68.

2. These are studies not done by Murphy, but by others whose objectives had nothing to do with the Book of Mormon. See David A. McClellan, “Detecting Lehi’s Genetic Signature: Possible, Probable, or Not?” in this number, pages 35–90.

3. Murphy, “Lamanite Genesis, Genealogy, and Genetics,” 68. For a specific response to this charge, see John Tvedtnes, “The Charge of ‘Racism’ in the Book of Mormon,” in this number, pages 183–97.

Several assumptions underlie these arguments against the Book of Mormon, and these are not always made clear. For example, what do we really know about the hereditary background of Israel and the ancient Near East? Were they a uniform genetic group? What genetic characteristics would distinguish an ancient Israelite population from other Asiatic groups of the same era? Are modern Jewish populations hereditarily the same as ancient Israelite populations? Are modern Asiatic populations hereditarily the same as ancient Asiatic populations? Those who wish to demonstrate on the basis of DNA studies that Native American populations do not have Israelite roots should first establish what an ancient Israelite source population should be like. When one examines the biblical account and later Jewish history, however, it becomes clear that Israel was never a genetically homogeneous entity. Further, examination of the nature of ancient Israel raises similar questions about the genetic heritage of the “people of Lehi” (3 Nephi 4:11) as described in the Book of Mormon. Were all Book of Mormon peoples literally descended from Israel? Are all Amerindians descendants of Laman? Is the term *Lamanite* an exclusively genetic classification? The text of the Book of Mormon makes it clear that Lehiite Israel was not confined to literal descendants, but also included many of other origins who, under different conditions and circumstances, came to be numbered among Israel. Finally, to what extent might the present-day Native American population plausibly have any Israelite genetic heritage? Could one reasonably expect it to be identifiable? Does a lack of genetic evidence negate the possibility of an authentic genealogical descent? In fact, population studies have shown that the notion of Lehi as an ancestor of the majority of the current Amerindian population is not as far-fetched as some may assume.⁴

Who Is an Israelite?

One key assumption made by some recent critics of the Book of Mormon is that ancient Israel was a genetically identifiable group

4. See Brian Stubbs, “Elusive Israel and the Numerical Dynamics of Population Mixing,” in this number, pages 165–82.

with a common set of markers that can still be found in modern Jewish populations. They conclude that it is a simple matter of testing Jewish DNA against Native American DNA to see if there are genetic ties.⁵ But terms like *Israelite* or *Jew* can denote various kinds of identities, including sociocultural and political, as well as genetic relationships. In order to determine who is most likely to be a literal descendant of Israel or of Lehi, one must look in the right places. The Bible and the Book of Mormon are the primary sources of information concerning these people. As we review what these scriptures tell us about the biblical patriarchs and their descendants, we must bear in mind that most of the DNA studies performed using samples from Native Americans have been of *mitochondrial* DNA (mtDNA), which is passed directly from a woman to each of her offspring, with no input from the father.⁶

Before DNA sampling from the Old and New Worlds can be used to argue for or against the historical authenticity of the Book of Mormon, a number of factors must be considered. For example, from whom must DNA samples be taken in order to be relevant? While some Latter-day Saints may have assumed that everyone inhabiting the New World prior to the arrival of European explorers was a descendant of Lehi's party, the Book of Mormon makes no such claim. Indeed, on a number of occasions the Nephite text indicates that others were in the land.⁷ Given the likelihood that some of Lehi's descendants intermarried with indigenous peoples, an interpretation held by many Latter-day Saints, we are faced with the difficulty of identifying who might plausibly be expected to carry Lehi's DNA. The same problem exists with regard to Old World Israelites. Can one merely take DNA samples from people who currently identify themselves as Jewish and expect them to match Nephite or Lamanite DNA?

5. See studies referred to by Murphy, "Lamanite Genesis, Genealogy, and Genetics," 59–61.

6. For a full description of the uses of mitochondrial DNA in genetic identification, see McClellan, "Detecting Lehi's Genetic Signature," in this number, pages 42–43, 69–71.

7. See Matthew Roper, "Nephi's Neighbors: Book of Mormon Peoples and Pre-Columbian Populations," in this number, pages 91–128.

Children of Abraham and of Israel

In order to understand what *Israel* meant anciently in terms of kinship relations, it is necessary to review the history and development of that people as described in the biblical account. Abraham is the first person to be called a “Hebrew” in the Bible (Genesis 14:13), though his grandson Jacob, who lived in Syria for a time, is termed a “Syrian” (Deuteronomy 26:5). The Bible gives us the names of Abraham’s patrilineal male ancestors, but we know nothing about the origin of his mother or his wife Sarah. This poses a problem for a researcher hoping to trace the Abrahamic genetic heritage using mtDNA.

In addition to Sarah’s son, Isaac, Abraham had sons by two other wives: an Egyptian named Hagar, who bore Ishmael (Genesis 16:1, 3; 21:9; 25:12); and a woman of unknown origin named Keturah, who bore six sons (Genesis 25:1–4). Besides his own children and immediate family, Abraham’s house included men and women servants and people he had converted to his faith (Genesis 12:5; Abraham 2:15). Among these were his chief steward, Eliezer (Genesis 15:2), and 318 “trained servants, born in his own house,” who could be mustered for battle (Genesis 14:14). All of these, according to the custom of the time, would have been considered “Hebrews,” though they may have had no biological relationship to Abraham. This presents a second problem for those who hope to use the Bible as documentation of genetic connections.

Abraham’s son Ishmael married an Egyptian woman (Genesis 21:21), while Isaac married his cousin Rebekah. Isaac’s son Esau had two Hittite wives (Genesis 26:34) and another who was a daughter of Ishmael (Genesis 28:8–9). Esau’s brother, Jacob, who came to be known as Israel, fathered twelve sons and one daughter by four wives (Genesis 29:28–35; 30:1–24; 35:15–19). Each of Jacob’s children would have carried the mtDNA of his or her mother. While two of these wives, Leah and Rachel, were Jacob’s cousins, the Bible tells us nothing of the origins and background of the other two, Zilpah and Bilhah.

Likewise, little is known of the women who married the sons of Jacob, though we know that Joseph married an Egyptian, Asenath,

who bore him Manasseh and Ephraim (Genesis 41:45, 50–52).⁸ Joseph’s half-brother Judah had three sons by a Canaanite wife named Shuah and twin sons by Tamar, whose ancestry is unknown (Genesis 38:2–30). Of the half-Canaanite sons, only one (Shelah) lived long enough to have posterity, but his mtDNA would be unlike that of his half-brothers, Pharez and Zarah, unless their mothers were sisters (Genesis 46:12; Numbers 26:19–21). From Pharez descended Salmon, who married the Canaanite woman Rahab, who had been spared with her father’s household during the Israelite destruction of the city of Jericho in Joshua’s day. Their son was Boaz, who married the Moabite Ruth, who became the great-grandmother of King David and, consequently, of all the kings of Judah and of Jesus Christ himself (Ruth 4:18–22; Matthew 1:2–16). While most of the kings of Judah from whom Christ is descended married women of the same tribe or of other Israelite tribes, this is not true of all of them. For example, Rehoboam, son of Solomon, was born of a woman named Naamah, who was an Ammonitess (1 Kings 14:21, 31; 2 Chronicles 12:13). Genesis 40:10 informs us that Simeon had a Canaanite wife, but nothing is said of the other wives of Jacob’s sons or their origins, although it seems likely that they also married outside Abraham’s kin group. The children and grandchildren of Jacob who are mentioned in the biblical account number seventy, but this does not include daughters and granddaughters. Although nothing is specifically said on the matter, it is not unreasonable to assume that Jacob’s people included servants and their families as well.⁹ One thing, however, seems certain: all of Jacob’s grandchildren inherited their mtDNA from their mothers, who were likely non-Israelite.

We know very little about Israelite marriage practices in Egypt during the four-hundred-year sojourn there; however, there is some indication that intermarriage with non-Israelite peoples was not uncommon (see, for example, Leviticus 24:10). Moses married a

8. Lehi was “a descendant of Manasseh” (Alma 10:3), so he had partial Egyptian heritage.

9. The Bible notes that Rebekah’s nurse, Deborah, accompanied Jacob and his family during their return to his homeland (Genesis 35:8).

Midianitess (Exodus 2:21). When the Israelites left Egypt, it is said that a “mixed multitude” went with them (Exodus 12:38; Numbers 11:4).¹⁰ Whatever its size, the exodus group included many who were not descended from Jacob’s original family.¹¹ We have no details about the ancestry of these other people, but we know from Leviticus 24:10 that at least one of the men who fled into the wilderness with Moses had an Israelite mother and an Egyptian father.

Israel in the Promised Land

According to prominent Jewish scholar Raphael Patai, “It seems quite certain that the Israelite tribes which settled in Canaan in the thirteenth century B.C. contained, in addition to the original Aramaean stock of Abraham and his half-sister Sarah, also Amorite and Hittite, as well as Canaanite and Egyptian, racial elements.”¹² Following their war with the Midianites, the Israelites “took all of the women of Midian captives, and their little ones” (Numbers 31:9). When Moses learned of this, he ordered them to slay the males and all the women who were not virgins but allowed his people to marry the virgins (Numbers 31:15–18). This would have had a substantial impact on the mtDNA of the various tribes, yet we know very little or nothing about the genetic inheritance of the Midianites.

Some Bible scholars believe that the Jerahmeelites, Kenizzites, and Calebites associated with the tribe of Judah in the Bible were non-Israelite peoples adopted or absorbed into that tribe.¹³ The Kenites, descendants of Moses’ Midianite father-in-law, assisted the tribe of Judah in conquering the region of Arad during the Israelite invasion of Canaan (Judges 1:16). One of their number, Heber,

10. The term *mixed multitude* denotes non-Israelites in Nehemiah 13:3.

11. John Bright, *A History of Israel*, 3rd ed. (Philadelphia: Westminster, 1981), 134.

12. Raphael Patai, *The Myth of the Jewish Race*, rev. ed. (Detroit: Wayne State University Press, 1989), 94.

13. Roger W. Uitti, “Jerahmeel,” in *The Anchor Bible Dictionary* (New York: Doubleday, 1992), 3:683; J. Kenneth Kuntz, “Kenaz,” in *Anchor Bible Dictionary*, 4:17; Mark J. Fretz and Raphael I. Panitz, “Caleb,” in *Anchor Bible Dictionary*, 1:808–10; and Bright, *History of Israel*, 134. In the Bible, see Judges 4:11 and 1 Samuel 15:6; 27:10; 30:29; cf. Genesis 15:19.

moved to the northern part of the land, where his wife, Jael, slew the Canaanite general Sisera (Judges 4:11–22). Several generations later, Jehonadab, son of Rechab, another Kenite living in the same region, took part in the overthrow of the house of Ahab (2 Kings 10:15–17; 1 Chronicles 2:55). Some of the Rechabites were later taken into the temple in Jerusalem by the prophet Jeremiah, who praised them for their faithfulness (Jeremiah 35). It is likely that there was some intermarriage between Israel and these people. Also during the conquest, the Gibeonites, who controlled four cities, were incorporated into the people of Israel (Joshua 9). Again, we know very little about the background and origin of this people.

The Lord's instruction to the Israelites was to destroy the people of the land of Canaan ("the Hittites, and the Amorites, the Canaanites, and the Perizzites, the Hivites, and the Jebusites") but to make peace with more distant cities when possible. When not possible, they were to slay the men but keep the women and children for themselves (Deuteronomy 20:10–17). Following subsequent wars with the Syrians, Ammonites, Moabites, and Edomites, the Israelites would also have married women of those nations, thus introducing new mtDNA into the Israelite gene pool.

As it turned out, the Israelites did not destroy all the people of the land of Canaan.¹⁴ They were unable to expel the Canaanite residents of Beth-shean, Taanach, Dor, Ibleam, Megiddo, Gezer, Kitron, Nahalol, Accho, Zidon, Ahlab, Achzib, Helbah, Aphik, Rehob, Beth-shemesh, and Beth-anath, among others, all of whom were made to pay tribute and remained among the Israelites (Judges 1:27–36).

After the Israelites settled in Canaan, they intermarried with the indigenous inhabitants of the land. "And the children of Israel dwelt among the Canaanites, Hittites, and Amorites, and Perizzites, and Hivites, and Jebusites: And they took their daughters to be their wives, and gave their daughters to their sons, and served their gods" (Judges 3:5–6). Patai writes:

14. See Judges 1:19, 21, 27–35; 2:1–3, 11–14, 20–23; 3:5–7; 10:6. I noted earlier that the family of Rahab of Jericho was saved.

We know too little about the racial identity of the Israelites and the nations enumerated above in this early period to be able to assess the racial significance of these intermarriages. There can, however, be little doubt that several nations were racially quite different from the Israelites. Thus the Philistines had come, in all probability, from the island of Crete (“Caphtor”). The Hivites, generally identified with the Hurrians, were a non-“Semitic” people whose original home seems to have been in Eastern Anatolia. The Hittites had come from Central Anatolia where they had a powerful empire in the second millennium B.C. The Canaanites and Zidonians seem to have been of a racial stock similar to that of the Israelites. The racial identity of the Amorites, Perizzites, and Jebusites is unknown.¹⁵

Consequently, from the beginning, Israel came to incorporate many non-Israelite peoples into its tribal structure, even though they were originally neither a part of the exodus group nor of the house and family of Abraham, Isaac, and Jacob. The story of Lehi’s own tribe, Manasseh, is typical:

Although the earliest Israelite population of Manasseh was rural, the tribal territory remained under the dominance of a number of towns in its heartland that only gradually became Israelite. Shechem, for instance, was already of importance to the oldest Israelites in the Bronze Age, but in the period of the Judges it still had a predominantly non-Israelite population (Judges 9). Like Tirzah and Hopher, Shechem was ultimately included in the tribal genealogy (Num 26:28–34; Josh 17:2–3). Other former Canaanite towns like Ibleam, Dothan, Beth-shan, Taanach, and Megiddo were more peripheral. Gradually all of these towns became Israelite.¹⁶

15. Patai, *Myth of the Jewish Race*, 96.

16. C. H. J. de Geus, “Manasseh,” in *Anchor Bible Dictionary*, 4:495.

Lehi's genetic heritage, then, is likely to have been as diverse as that of any other descendant of Israel. Indeed, the very fact that Lehi was still in Judah after his tribe had gone into captivity and subsequently disappeared, as well as the fact that he was unaware of his tribal affiliation until he read the brass plates, indicates that genetic relationships were by no means the sole ties binding Israelite society together. And, of course, the mtDNA passed on to Lehi's children would not in any case have been his own.¹⁷

"In a small country such as biblical Israel," observes Patai, "with non-Hebrew ethnic elements interspersed with the Hebrews and surrounding them on all sides within a few miles of their main urban population centers, and with lively commercial, cultural, and often also hostile contacts across the borders (all of which is amply attested in the books of Samuel and Kings), there can be no question but that interbreeding was an everyday occurrence."¹⁸ The ever-increasing genetic complexity of this mixture of interbred peoples can be illustrated using just a few examples from the time of King David, which we can assume were typical of other contemporary Israelite relationships at the time. As noted by Patai,

David had a Hittite officer in his army, Uriah, whose wife was an Israelite woman. Tyrian carpenters and masons lived for years in Jerusalem while they built a palace for David. David himself had numerous concubines, some of whom must have been alien slave girls. His servants, too, had such handmaids. Among his slaves were Moabites. After he smote Hadadezer, king of Zobah in Syria, he brought back thousands of prisoners of war. Part of his own army consisted of Cherethites and Pelethites who were, in all probability, foreign troops. He also had troops from the Philistine city of Gath. Among his servants there was a Cushite;

17. For a brief look at the problem of tracing Lehi's genetic signature through mtDNA or Y-chromosome DNA, see John M. Butler, "A Few Thoughts from a Believing DNA Scientist," *Journal of Book of Mormon Studies* 12/1 (2003): 36–37. For a more extensive look, see McClellan, "Detecting Lehi's Genetic Signature," in this number.

18. Patai, *Myth of the Jewish Race*, 96.

and among the thirty “mighty men” of David, who seem to have been commanders of elite troops, there were several foreigners. The commander of his camel corps was Obil the Ishmaelite. His flocks were under the control of Jaziz the Hagrite; the Hagriles were, like the Ishmaelites, nomadic, tent-dwelling tribes located east of Gilead in the Syrian Desert. The presence of so many foreign men could not help but lead to interbreeding with the Israelite women.¹⁹

Patai adds that “toward the end of this period, the mixed origin of the Judaites must have been common knowledge.”²⁰

Hiram, the architect of Solomon’s temple, was a resident of the Canaanite city of Tyre; his father was a Tyrian, but his mother was of the Israelite tribe of Naphtali (1 Kings 7:13–14). The king of Tyre, whose name was also Hiram, in payment for his assistance in providing materials and workmen for the temple, received from Solomon control over some twenty Galilean cities (1 Kings 9:11).

Solomon married an Egyptian princess (1 Kings 3:1; 7:8; 9:16, 24). “But king Solomon loved many strange [foreign] women, together with the daughter of Pharaoh, women of the Moabites, Ammonites, Edomites, Zidonians, and Hittites; of the nations concerning which the Lord said unto the children of Israel, Ye shall not go in to them, neither shall they come in unto you: for surely they will turn away your heart after their gods: Solomon clave unto these in love” (1 Kings 11:1–2). A few generations later, Ahab, king of Israel, married Jezebel, daughter of the king of the Canaanite city of Zidon (1 Kings 16:30–31). According to 1 Chronicles 2:34–35, Sheshan, of the tribe of Judah, married his daughter to an Egyptian servant named Jarha. We also know that Samson, of the tribe of Dan, preferred Philistine women (Judges 14:1–3; 16:1–20). So the intermarriage of Israelites with their neighbors is well attested in the Bible and may have been even more widespread than these few examples illustrate. Indeed, through the prophet Ezekiel

19. *Ibid.*, 96–97.

20. *Ibid.*, 97.

the Lord said to the Jewish city of Jerusalem, “Thy birth and thy nativity is of the land of Canaan; thy father was an Amorite, and thy mother an Hittite” (Ezekiel 16:3).

After the time of David and Solomon, ethnic groups within the land came to be included by biblical writers under the label *Israel* even though at one time they had been seen as socially distinct. “By the end of the united monarchy,” notes Ziony Zevit, “they were either wiped out (completely or partially) or they were absorbed into the fabric of the tribal organizations (cf. 1 Sam. 27:8; Deut. 21:10–13; Josh. 9:26–27 [an apologetic etiology]). If absorbed, they were no longer ‘others.’”²¹ They were now simply *Israel*.

In his seminal history of Israel, historian John Bright argues that

we are not to suppose that the entity we call Israel was formed and held together in the face of adversity exclusively, or even primarily, through ties of blood kinship. True, the Bible traces the descent of all the tribes to the ancestor Jacob (Israel), and this might lead one to suppose that Israel was in fact a kinship unit. But kinship terminology is often employed in the Bible to express a social solidarity, a feeling of closeness, that actually arose from other factors. Seldom in all of history has blood kinship, or common racial stock or language, been the determinative factor in the formation and preservation of larger social and political units. What is more to the point, there is abundant evidence that not all Israelites were in fact related one to another by blood. . . . As the Bible itself makes clear, Israel—both those parts of it that had come from the desert and those parts already present in Palestine who entered into its structure—included elements of the most heterogeneous origin who could not possibly have descended from a single family tree. Even the various tribes doubtless represented territorial units, rather than familial

21. Ziony Zevit, *The Religions of Ancient Israel: A Synthesis of Parallactic Approaches* (London: Continuum, 2000), 642.

ones (though, naturally, through intermarriage, ties of real kinship were doubtless strong within the tribes). And, on the other hand, it was never her bloodstream, her racial stock or her language, that set Israel off from her immediate neighbors (Canaanites, Moabites, Ammonites, Edomites, etc.), but rather the tradition (or, if one prefers, the ideology) to which she was committed. Speaking theologically, one might with justice call Israel a family; but from a historical point of view neither her first appearance nor her continued existence can be accounted for in terms of blood kinship.²²

Even in preexilic times, Israel was a mixture of diverse groups, many of whose exact origins are unknown. In addition to actual descendants of Abraham, “Israel” always included many others who became attached to that body in various ways.

By 722 B.C., the northern kingdom of Israel had been carried into captivity by the Assyrians. Assyrian records report that 27,290 inhabitants of Samaria were taken captive by Sargon,²³ but we can assume that previous Assyrian invasions would have taken away many more. Shortly after the fall of Samaria, Sennacherib invaded Judah, conquered many of its cities, and drove out of them 200,150 men, women, and children.²⁴ Assyrian captives were forcibly resettled in northern Mesopotamia, where many would have intermarried with the peoples of that land, eventually losing their identity as Israel and becoming “lost” to history. Other remnants of the northern kingdom remained in the land and intermarried with non-Israelite peoples whom the Assyrians had brought in to replace the Israelites who had been carried away. Given how little we know of the details of such events, it is difficult to measure the genetic effect that such intermarriages had upon subsequent Israelites. Because Lehi and Laban were descendants of the tribes

22. Bright, *History of Israel*, 163.

23. From the Annals of Sargon II, quoted in James B. Pritchard, ed., *The Ancient Near East*, vol. 1, *An Anthology of Texts and Pictures* (Princeton: Princeton University Press, 1958), 195.

24. From the Prism of Sennacherib, quoted in Pritchard, *Ancient Near East*, 200.

of Joseph (1 Nephi 5: 14, 16), whose lands of inheritance were in the kingdom of Israel, it is possible that their ancestors had been displaced during the war with Assyria and had relocated in Judah.²⁵ Did any of Lehi's ancestors marry non-Israelites? What effect would such relationships have had upon Lehi's genetic inheritance? We don't know.

Who Is a Jew?

Although the kingdom of Judah endured for 134 years longer than the kingdom of Israel, it underwent genetic changes as sweeping as those that overwhelmed its brother nation. In addition to the regular intermarriages recorded in the Bible as normal in everyday Judaic life, inhabitants of Judah who refused to heed Jeremiah, Lehi, and their contemporary prophets experienced the Babylonian conquest and captivity, which meant new infusions of DNA from captors and fellow captives. The subsequent conquest of Babylon by the Medes and Persians brought new intermarriages (the most famous of which is chronicled in the biblical book of Esther), as well as the opportunity for Jews to choose whether to remain in Babylon or to return to Judah and rebuild it. Since some chose to leave and others to remain, the genetic heritage of the Jews became divided at that point into many streams of genetic history.

In time, the returned inhabitants of Judah suffered conquest and occupation by first the Greeks and then the Romans, with further intermarriage as the almost inevitable result. The Jews to whom Jesus came to teach his gospel were genetically a very mixed group, and the Savior knew it. His apparent reluctance to heal the Syro-Phoenician woman's daughter (Matthew 15:21–28; Mark 7:24–30) stemmed not from racist feeling but from his sense of mission toward *covenant* Israel; genetically, the woman may have had every right to claim Israelite heritage.

25. See Jeffrey R. Chadwick, "Lehi's House at Jerusalem and the Land of His Inheritance," in *Glimpses of Lehi's Jerusalem* (Provo, Utah: FARMS, 2004), 81–130.

The final great historical blow to the already compromised purity of Jewish DNA came about with the expulsion of the Jews from the land of their inheritance soon after the death and resurrection of Christ. In the Diaspora that followed, Jews spread from Spain to China, separating their genetic heritage into innumerable divergent streams. Depending on the tolerance level of their host cultures, perceived needs for alliances, conversion rates, types of contact in the course of everyday life, and a myriad of other influences, intermarriage has been more or less a factor in Jewish genetic heritage ever since.

Later Criteria for Jewishness

To whom, then, does the term *Jewish* refer? In ancient Israel, one was considered a member of one's father's tribe and clan. This changed in postbiblical Judaism, when it was decided that one born of a Jewish mother is Jewish, while one born of a gentile mother is not Jewish, even if the father is (Babylonian Talmud *Kiddushin* 68b). While this would seem to make easier the task of tracing genetic background through mtDNA, there is no evidence of what the mtDNA of a "typical" Jewish woman was like at the time this criterion developed in the second and third centuries A.D. This fact, combined with the certainty of new mtDNA introduction due to intermarriages and conversions before and since, means that the problem remains as it began in Abraham's day, with no known, distinctive strain of mtDNA from which to begin.

Certain lineages continue to be designated through the father, such as the *cohanim*, or priests, who are descended from Aaron's tribe. The Y chromosome passes from father to son virtually intact,²⁶ and there is indeed a distinctive *haplotype* (genetic complex) on the Y chromosome of *cohanim* that sets them apart; more will be said about this below. Even in these cases, though, for the tribal association to count in modern Judaism, one's mother must still be Jewish. However, since Judaism accepts converts, the Jewishness of one's mother is not

26. See McClellan, "Detecting Lehi's Genetic Signature," in this number.

necessarily traceable to one of the ancient tribes of Israel. In the tenth century A.D., for example, the king of the Khazars, a group living in Central Asia, converted to Judaism and was followed by his people. So an entire nation with no Israelite genetic inheritance suddenly became “Jews.” At least one Jewish researcher, Arthur Koestler, suggests that the Ashkenazi (European) Jews are descended from the Khazars rather than from ancient Israel, though it is likely that they have intermarried with other Jews over the centuries.²⁷

These and other factors have led Patai to conclude that there have been

substantial modifications in the racial identity of the original biblical Children of Israel, which itself is still overshadowed by a great question mark. The Jewish sojourn in a constantly expanding global Diaspora for some two and a half millennia resulted in an increasing diversification that, by the outgoing Middle Ages, reached a stage at which the Jewish people, whatever their historical antecedents and the power of their cultural and religious traditions that sustained them, could no longer be considered members of a single race. In a word: to be a Jew has for long not been a question of genes, but of a mind-set.²⁸

It is important to remember that most Jews today represent that part of Israel that has retained a knowledge of its identity, while the greater part of the tribes of ancient Israel, as indicated above, have lost a knowledge of who they once were as they were scattered among all nations. In light of the above observations, it is clear that the identity of an “Israelite” or a “Jew” in genetic terms is far more complex than is often appreciated.

The Lord promised Abraham that he would have posterity as numerous “as the stars of the heaven, and as the sand which is upon

27. Arthur Koestler, *The Thirteenth Tribe: The Khazar Empire and Its Heritage* (London: Hutchinson, 1976).

28. Patai, *Myth of the Jewish Race*, xiv.

the sea shore” (Genesis 22:17). Among modern peoples who claim descent from Abraham are more than thirteen million Jews worldwide²⁹ and hundreds of millions of Arabs. Because of intermarriage, however, none of these can claim exclusive Abrahamic ancestry. During the nearly two millennia since the Romans expelled them from Jerusalem, Jews have intermarried with non-Jews on every continent. Following expansion out of the Arabian peninsula in the seventh century A.D. and since then, Arabs have similarly integrated with people from the Middle East all across North Africa and into other parts of the world in more recent times. So one can safely say that most, if not all, of Abraham’s descendants have mixed ancestry.

The Lemba and the Lehites

If mtDNA is not a promising avenue for tracing Israelite heritage among Native Americans, there is at least the possibility of seeking out another distinctive genetic trait and testing specifically for it among Native American populations. One such candidate is the Y-chromosome haplotype that uniquely identifies the heritage of a Jewish *cohen* (priest). In arguing that scientists should be able to find evidence of Israelite DNA among Native Americans if the Book of Mormon is true, critics note the example of the African Lemba tribe, which claims Jewish origins. Several recent studies of Lemba Y-chromosome DNA have found evidence supporting a Jewish origin, indicating that many Lemba carry the distinctive *cohen* haplotype found among some Jews, especially among those claiming to be *cohanim*—that is, descendants of Moses’ brother, Aaron, of the tribe of Levi.³⁰ Some researchers “date

29. Estimates of the Jewish Agency from “Map of Jewish Population Worldwide,” posted at www.jfed.org/jewishmap.htm (accessed 14 October 2003).

30. Karl Skorecki et al., “Y Chromosomes of Jewish Priests,” *Nature*, 2 January 1997, 32; James S. Boster et al., “High Paternity Certainties of Jewish Priests,” *American Anthropologist* 100/4 (1998): 967–71; Mark G. Thomas et al., “Origins of Old Testament Priests,” *Nature*, 9 July 1998, 138–39; Tudor Parfitt, *Journey to the Vanished City: The Search for a Lost Tribe of Israel* (New York: Vintage, 1999); Amanda B. Spurdle and Trefor Jenkins, “The Origins of the Lemba ‘Black Jews’ of Southern Africa: Evidence from p12F2 and Other Y-Chromosome Markers,” *American Journal of Human Genetics* 59 (1996):

the origin of the Cohen haplotype to 2,100 to 3,250 years ago, putting it within the historical range of the alleged Lehite and Mulekite migrations to the New World.”³¹ Presumably, if the Book of Mormon is historical, it should be possible to find similar evidence in Native American DNA, but “DNA tests of the Lemba yielded a strikingly different outcome than for Native Americans.”³²

There are, however, several problems with this line of reasoning. The assumption that researchers should be able to find the *cohen* marker in Amerindian populations, if any Native Americans were truly Israelite, fails because there is no indication in the Book of Mormon that the Nephites had Levites among them. Lehi was from the tribe of Joseph (1 Nephi 5:14; Alma 10:3). The priesthood mentioned in the Book of Mormon is the Melchizedek Priesthood (Alma 13).³³ With no record of *cohanim* or even Levites among pre-Columbian Americans, researchers are currently at a loss to know what Y-chromosome DNA markers to use in determining whether or not a Native American is a descendant of Israel. Second, it is not certain that the *cohen* haplotype was even present in preexilic Israelites, although that is possible. Third, the Lemba retained a memory of their connection with the Jews, which is why researchers were interested in studying them in the first place. In contrast to the Lemba, however, the people of Lehi, like the lost tribes, did not retain a

1126–33; Mark G. Thomas et al., “Y Chromosomes Traveling South: The Cohen Modal Haplotype and the Origins of the Lemba—the ‘Black Jews of Southern Africa,’” *American Journal of Human Genetics* 66 (2000): 674–86; Avshalom Zoossmann-Diskin, “Are Today’s Jewish Priests Descended from the Old Ones?” *HOMO: Journal of Comparative Human Biology/Zeitschrift für vergleichende Biologie des Menschen* 51/2–3 (2000): 156–62.

Although Lemba folklore indicates an ancient Israelite migration to southern Africa, researchers are not agreed that the presence of the *cohen* haplotype alone is sufficient evidence to verify the legend; some of those listed above believe that the marker was introduced into the region by Jews serving on Portuguese ships that frequented the area in the sixteenth century A.D.

31. Murphy, “Lamanite Genesis, Genealogy, and Genetics,” 60. See Neil Bradman, Mark Thomas, and David Goldstein, “The Genetic Origins of Old Testament Priests,” in *America Past, America Present: Genes and Languages in the Americas and Beyond*, ed. Colin Renfrew (Cambridge: McDonald Institute for Archaeological Research, 2000), 31–44.

32. Murphy, “Lamanite Genesis, Genealogy, and Genetics,” 61.

33. See Joseph Fielding Smith, “The Priesthood of the Nephites,” in *Answers to Gospel Questions* (Salt Lake City: Deseret Book, 1957), 1:123–26.

memory of Israelite origins after Moroni had buried the plates. With no living tradition of an Israelite connection to direct his choice of a study group, a modern researcher is left with the daunting prospect of testing all Amerindian groups for a marker that may never have been manifested among the Book of Mormon peoples and, indeed, may not even have existed at the time of their separation from the rest of Israel.

Jewish Diseases

Considering the problems attendant on mtDNA and Y-chromosome studies of Native Americans that might reveal Israelite genetic connections, the question remains of what other marker a researcher could use. Some critics have asserted that other biological characteristics found in modern Jews and passed down genetically should be used as markers with which to compare modern Native Americans.³⁴ Various hereditary ailments such as Tay-Sachs disease occur rarely in the general population but are common among some groups of Jews. Since these particular diseases are not currently found in Native American populations, critics suggest that this disproves the idea that Native Americans may have Israelite ancestry.

This argument faces two major hurdles when applied to the Book of Mormon. First, before making such comparisons, one would need to establish whether such diseases were common among preexilic Israelites. As noted above, ancient Israel was genetically diverse and may have differed in significant ways from modern Jewish populations. It needs to be established that such characteristics are representative of the people from which Lehi and Mulek and their companions came before one can compare them with Amerindian populations, ancient or modern. Some scientists believe that Tay-Sachs disease could be a relatively recent ailment among Jews “that may have resulted from only a single mutation hundreds of years ago.”³⁵ Before one could use this disease as a biological marker, it

34. See, for example, *DNA vs. the Book of Mormon*, videocassette (Brigham City, Utah: Living Hope Ministries, 2003).

35. Patai, *Myth of the Jewish Race*, 231.

would be necessary, at the very least, to establish the presence of this malady in the ancient Judaic population from which Lehi and his companions came.

Second, the argument assumes that these rare diseases are common to all Jews, but this is not the case. Tay-Sachs disease, for example, tends to be common among Ashkenazi Jews but is as rare in Jews of non-Ashkenazi descent as it is among non-Jews. Similarly, other diseases that may be found in one Jewish group tend to be rare or absent in another. After reviewing the literature relating to Jewish diseases, Patai concludes, “When certain diseases appear to be more or less common in Jews than non-Jews, closer inspection usually reveals that the high or low incidence of the disease is in fact a feature of only one group of Jews. The group may consist of Middle Eastern Jews, Sephardic Jews, or even Ashkenazi Jews originating from a small area in Eastern Europe. None of the diseases described is characteristic of Jews in general.”³⁶ Consequently, “the distribution of particular diseases cannot be used to differentiate Jews in general from non-Jews.”³⁷ The bottom line is that scientists currently do not have an ancient Israelite marker of any kind with which to compare Native American populations.

Who Are Lehites? Lineage-Related Terms in the Book of Mormon Text

If their arguments are to have any validity, critics of the Book of Mormon must assume that lineage-related terms in the Book of Mormon—such as *descendant*, *seed*, *children*, *Nephite*, and *Lamanite*—are exclusively genetic in their meaning. As noted already, however, the term *house of Israel* as used in the Bible has always included both literal descendants and others who became part of the family through intermarriage, alliance, conversion, or other means. The same was apparently true for Lehite Israel—while familial terms in the Book of

36. Ibid., 325. For an extended discussion of Jewish diseases, see *ibid.*, 295–326.

37. Ibid., 326.

Mormon include a genetic component, the more common usage of such terms in the text is ideological, social, and political. Just as the concept of *Israel* embraced many who were not actual descendants of Jacob, the concepts of *Nephite* and *Lamanite* included within those designations both literal descendants and others who were adopted in. An examination of how these terms are used in the scriptural texts of Latter-day Saints is revealing.

Descendant. The number of appearances of the term *descendant* is impressive in itself. Apparently, among the Book of Mormon peoples, being the descendant of some notable figure was considered meaningful enough to be recorded and invoked for its prestige through the centuries. Some examples of these usages follow.

- Jaredite descendants were mentioned in Ether's genealogy (Ether 1:6, 16, 23; 10:1, 8–9; 11:11).
- Lehi discovered that he was a descendant of Joseph (1 Nephi 5:14; 6:2; 2 Nephi 3:4).
- Ammon and the Nephite dissenter Coriantumr were both said to be descendants of Zarahemla (Mosiah 7:3, 13; Helaman 1:15), who was a descendant of Mulek (Mosiah 25:2).
- Descendants of Nephi were not as numerous as the people of Zarahemla (Mosiah 25:2).
- The elder Alma was a descendant of Nephi (Mosiah 17:2).
- Those who kept the Nephite record were also descendants of Nephi (Mormon's introduction to 3 Nephi), and the kingdom was conferred only upon descendants of Nephi (Mosiah 25:13).
- The Nephite dissenter Ammoron, who became a Lamanite king, was a descendant of Zoram (Alma 54:23).
- Another Lamanite king was a descendant of Ishmael (Alma 17:21).
- Lamanites included descendants of the priests of Noah and other dissenters from the Nephites (Alma 43:13).
- Actual descendants of Laman and Lemuel and Ishmael joined the church through the ministry of the sons of Mosiah (Alma 24:29; 17:21).

- Amulek emphasized his descent from Nephi in order to persuade the people of Ammonihah to listen to Alma's teachings (Alma 10:2–3).
- Helaman's army of two thousand were said to have been descendants of Laman, son of Lehi (Alma 56:3).
- Moroni had to search among his men to find one who was a descendant of Laman (Alma 55:4).
- At one time the Gadianton robbers included "real descendants of the Lamanites" (Helaman 11:24).
- Mormon described himself as a descendant of Nephi (Mormon 1:5; 8:13) and "a pure descendant of Lehi" (3 Nephi 5:20).

While it seems that something genetic was often implied by the use of the term *descendant*, such references usually occur in a context in which this is thought to be noteworthy or exceptional. Such distinctions would be meaningless if all or a large part of the total population could claim the same genetic heritage.

Seed. One might assume that the term *seed* refers to literal descendants of Israel or Lehi. While some passages seem to refer to literal descendants, that usage is not exclusive and can include other groups as well. In this context, Abinadi's discussion of Christ is noteworthy.

And now what say ye? And who shall be his seed? Behold I say unto you, that whosoever has heard the words of the prophets, yea, all the holy prophets who have prophesied concerning the coming of the Lord—I say unto you, that all those who have hearkened unto their words, and believed that the Lord would redeem his people, and have looked forward to that day for a remission of their sins, I say unto you, that these are his seed, or they are the heirs of the kingdom of God. For these are they whose sins he has borne; these are they for whom he has died, to redeem them from their transgressions. And now, are they not his seed? Yea, and are not the prophets, every one that has opened his mouth to prophesy, that has not fallen into transgression, I mean all the holy prophets ever since the world began? I say unto you that they are his seed. (Mosiah 15:10–13)

Abinadi, then, defines the *seed of Christ* as the prophets and everyone else who hears their words, hearkens to them, believes in and looks forward to Christ's redemption, and has not subsequently fallen away. In this passage, *seed* refers to a covenantal relationship rather than a genetic one. They are considered the seed or children of Christ, and he becomes their covenant father. The Abrahamic covenant is based upon this same concept. The Lord promised Abraham:

And I will make of thee a great nation, and I will bless thee above measure, and make thy name great among all nations, and thou shalt be a blessing unto thy seed after thee, that in their hands they shall bear this ministry and Priesthood unto all nations; And I will bless them through thy name; for *as many as receive this Gospel shall be called after thy name, and shall be accounted thy seed, and shall rise up and bless thee, as their father.* (Abraham 2:9–10)

Abraham's "seed," then, includes not only his literal descendants, but also all those who enter the covenant or receive the gospel. In terms of blessings, there appears to be no difference between the two. Through the covenant all may become Abraham's seed, and he becomes their father.

Similarly, the Lord told Lehi's family, "Wherefore, I will consecrate this land unto thy seed, *and them who shall be numbered among thy seed*, forever, for the land of their inheritance; for it is a choice land, saith God unto me, above all other lands, wherefore I will have all men that dwell thereon that they shall worship me, saith God" (2 Nephi 10:19). Mormon noted that "whosoever did mingle his seed with that of the Lamanites did bring the same curse upon his seed. Therefore, *whosoever suffered himself to be led away by the Lamanites was called under that head*"—that is, *Lamanites* (Alma 3:9–10). Also, "whosoever *would not believe* in the tradition of the Lamanites, but *believed* those records which were brought out of the land of Jerusalem, and also in the tradition of their fathers, which were correct, who believed in the commandments of God and kept them, were *called* the Nephites, or the people of Nephi, from that

time forth” (Alma 3:11). Those who rejected Nephite traditions and intermarried with unbelieving Lamanites, those who fought against the Nephites, and those who departed from the Nephites were *called* Lamanites, just as those who accepted Nephite teachings were *called* Nephites. “I will bless thee, and *whomsoever shall be called thy seed, henceforth and forever*; and these were the promises of the Lord unto Nephi and to his seed” (Alma 3:17). The Nephites were “destroyed” not by being genetically extinguished but by ceasing to exist as an identifiable cultural group; those Nephites who elected to abandon their cultural ties—including both literal descendants of Nephi and other people who had once been called Nephites—were thereafter numbered with the Lamanites.

And when that great day cometh, behold, the time very soon cometh that those who are now, or the seed of those who are now *numbered among* the people of Nephi, shall no more be *numbered among* the people of Nephi. But who-soever remaineth, and is not destroyed in that great and dreadful day, shall be *numbered among* the Lamanites, and shall become like unto them, all, save it be a few who shall be called the disciples of the Lord; and them shall the Lamanites pursue even until they shall become extinct. And now, because of iniquity, this prophecy shall be fulfilled. (Alma 45:13–14)

Children. One can see a similar pattern in the usage of the term *children*. Men and women become the children of Christ through covenant. “And now, because of the covenant which ye have made ye shall be called the children of Christ, his sons, and his daughters; for behold, this day he hath spiritually begotten you; for ye say that your hearts are changed through faith on his name; therefore, ye are born of him and have become his sons and his daughters” (Mosiah 5:7; see also 4 Nephi 1:17; Ether 3:14). This can also be seen in the example of the children of Amulon: “And it came to pass that those who were the children of Amulon and his brethren, who had taken to wife the daughters of the Lamanites, were displeased with the

conduct of their fathers, and they would no longer be called by the names of their fathers, therefore they took upon themselves the name of Nephi, that they might be called the children of Nephi and be numbered among those who were called Nephites” (Mosiah 25:12). The Book of Mormon text plainly indicates that the terms *seed* and *children* did not apply exclusively to genetic descendants but also included those who were called *or* numbered among such descendants. Similarly, Christ, Abraham, Nephi, Laman, or anybody else could be called someone’s father even if the relationship was not a literal one.

Accordingly, non-Israelites who receive gospel covenants are numbered among not only the children of Israel, but also the children of Lehi. As the angel of the Lord explained to Nephi, in the last days the Gentiles who repent “and harden not their hearts against the Lamb of God . . . shall be numbered among the seed of thy father; yea, they shall be numbered among the house of Israel; and they shall be a blessed people upon the promised land forever” (1 Nephi 14:1–2). Repentant Gentiles become children of Lehi and Israel. Nephi further explained, “For behold, I say unto you that as many of the Gentiles as will repent are the covenant people of the Lord; and as many of the Jews [among which he includes his own people] as will not repent shall be cast off; for the Lord covenanteth with none save it be with them that repent and believe in his Son, who is the Holy One of Israel” (2 Nephi 30:2). The Lamanites also must repent and come to a knowledge of the “great and true shepherd, and be *numbered* among his sheep” (Helaman 15:13).

Nephite. While the term *Nephite*, as it appears in the Book of Mormon, can refer to actual descendants of Nephi, the son of Lehi (Mormon 1:5; 8:13), it is more commonly used in a political and ideological sense to mean anybody under the rule of Nephi or his descendants. It can also include those of at least partial Israelite origin, like the Mulekites, who united with the Nephites (Mosiah 25:1–4); those originally of some other name who took upon themselves the name of Nephi and were called Nephites (Mosiah 25:12); those friendly to Nephi or the Nephites (Jacob 1:14); those numbered with the Nephites (Alma 3:17); those who kept the commandments of God and believed in the records and tradition of the Nephites (Alma

3:11); and those who accepted and sought to follow the teachings of Christ (4 Nephi 1:36). Throughout the Nephites' thousand-year history as a people, many of their literal descendants defected to, intermarried with, or were numbered among the Lamanites. Modern revelation indicates that among Native American peoples today are some, yet to be revealed, who are descendants of the Nephites, Jacobites, Josephites, and Zoramites and that one day they will receive a knowledge of the gospel (D&C 3:16–17).

Lamanite. Like the term *Nephite*, the term *Lamanite* has a number of different meanings in scripture.³⁸ It can refer to the following:

- Actual descendants of Laman, Lemuel, and the sons of Ishmael who followed Laman's leadership after the death of Lehi (2 Nephi 5:1–6). Modern revelation indicates that among Lamanites today are some, yet to be revealed, who are descendants of Laman, Lemuel, and the sons of Ishmael and that they will one day receive a knowledge of the gospel (D&C 3:18).
- Those who did not believe in the warnings and revelations of God through Nephi (2 Nephi 5:6).
- Those not friendly to Nephi or the Nephites (2 Nephi 5:14; Jacob 1:13–14).
- Those who rejected and did not believe in the records and traditions of the Nephites (Alma 3:11).
- Those who intermarried with the Lamanites (Alma 3:9, 15).
- Those who fought against the Nephites (Alma 3:16).
- Any who dissented from the Nephites (Alma 3:17).
- Any led away by the Lamanites (Alma 3:10).
- Those who rejected the teachings of Christ, together with their children and ideological sympathizers (4 Nephi 1:38).
- After the destruction of the Nephites as a cohesive group, the seed of anyone who at any time had once been numbered with the "people of Nephi" (Alma 45:13; cf. 45:14).

38. See John L. Sorenson and Matthew Roper, "Before DNA," *Journal of Book of Mormon Studies* 12/1 (2003): 11; D. Jeffrey Meldrum and Trent D. Stephens, "Who Are the Children of Lehi?" *Journal of Book of Mormon Studies* 12/1 (2003): 38–51.

From the perspective of the “record of the Nephites,” one could justifiably consider any pre-Columbian unbelievers whose ancestors were once blessed on the land to be Lamanites (2 Nephi 10:10–11, 18–19). Whether one is a literal descendant of Lehi or not, the Book of Mormon clarifies that being numbered among the covenant people of God is of primary importance to one’s identity (2 Nephi 30:2).

After the appearance of Jesus in the New World, the conversion of the people ushered in an era of peace. In describing this time, the prophet Mormon said: “And they were married, and given in marriage, and were blessed according to the multitude of the promises which the Lord had made unto them. . . . There were no robbers, nor murderers, neither were there Lamanites, nor any manner of -ites; but they were in one, the children of Christ, and heirs to the kingdom of God” (4 Nephi 1:11, 17). Previous tribal and ethnic distinctions—including, apparently, prohibitions against intermarriage—were abolished until some time between 110 and 194 years after Christ, at which time “a small part of the people . . . had revolted from the church and *taken upon them the name of Lamanites*; therefore there began to be Lamanites again in the land” (4 Nephi 1:20). In about the year 231 after Christ’s birth, Mormon described a great division among the people:

And it came to pass that in this year there arose a people who were *called* the Nephites, and they were true believers in Christ; and among them there were those who were *called* by the Lamanites—Jacobites, and Josephites, and Zoramites; therefore the true believers in Christ, and the true worshippers of Christ, . . . were *called* Nephites, and Jacobites, and Josephites, and Zoramites. And it came to pass that they who rejected the gospel were *called* Lamanites, and Lemuelites, and Ishmaelites; and they did not dwindle in unbelief, but they did wilfully rebel against the gospel of Christ; and they did teach their children that they should not believe, even as their fathers, from the beginning, did dwindle. And it was because of the wickedness and abomination of their fathers, even as it was in the beginning. And they were taught to hate the chil-

dren of God, even as the Lamanites were taught to hate the children of Nephi from the beginning. (4 Nephi 1:36–39)

This language is important in understanding the term *Lamanite* as it is used thereafter. Those who became Lamanites were *called* Lamanites whether they were actually descended from Laman or not. One's standing in relationship to the gospel covenant became the primary distinction between a Nephite and a Lamanite, not one's genetic heritage. While it is likely that there was a hereditary component to these tribal identifications, they were, like Israelite identity, primarily ideological, describing how these groups viewed themselves in relation to each other and using the names of Nephi and Laman as proclamations of allegiance rather than kinship. This complicates the work of anyone who might wish to use contemporary genetic studies to prove or disprove Native American ancestral affiliation with Lehi.

Early revelations to the Prophet Joseph Smith found in the Doctrine and Covenants associate Native American groups with the Lamanites of the Book of Mormon. In Doctrine and Covenants 3:17–20 we read that the Book of Mormon is intended to bring the Nephites, Jacobites, Josephites, Zoramites, Lamanites, Lemuelites, and Ishmaelites “to the knowledge of their fathers” (v. 20). Similar ideas are found in Doctrine and Covenants 10:45–51 and 19:27. The Lord instructed Oliver Cowdery and others to “go unto the Lamanites” and teach them (D&C 28:8–9; see D&C 28:14; 30:6; 32:2) and told Newel Knight and others to “take [their] journey into the regions westward, unto the land of Missouri, unto the borders of the Lamanites” (D&C 54:8; see also 28:9). The land west of Missouri was then known as the “Indian Territories,” so the passage connects at least some Native Americans of that region to the Lamanites. However, the nature of this association is not entirely clear, since the term *Lamanite* is, as demonstrated, not exclusively genetic in its meaning. It is certainly possible that North American Indian groups visited by early Latter-day Saint missionaries included within their number at least some who

were actual descendants of Book of Mormon peoples.³⁹ There is archaeological evidence that in pre-Columbian times some Mesoamerican peoples interacted with those in the Mississippi and Ohio River valleys and the American Southwest, settling among and perhaps intermarrying with people who were already in those regions, and that others migrated from Mesoamerica into parts of South America.⁴⁰ It is reasonable to suppose that at least some of these migrants were actual descendants of Lehi or Mulek, but their modern descendants—“Lamanites,” in our terms—would likely have had many other ancestors in their genealogy who would not necessarily have been Israelite; consequently, it could be very difficult to detect evidence for a few Israelite ancestors in the DNA of individual Native Americans today.

Recently, some critics, lacking support for their arguments in the Book of Mormon text, have taken to quoting the introduction to the current edition of the Book of Mormon, which describes the Lamanites as “the principal ancestors of the American Indians.”⁴¹ These words first appeared in the 1981 edition and were not found in any previous edition, but these critics tend to cite them as if they are, and always have been, of scriptural stature. Such an argument reflects a misunderstanding of Latter-day Saint beliefs about scripture and revelation. Simply put, chapter headings, introductions, and footnotes do not carry any canonical authority. The term *principal ancestors* is not scriptural, nor does such language appear to have ever been used by Joseph Smith, who never detailed or quantified the nature of the

39. See Stubbs, “Elusive Israel,” in this number.

40. Sorenson and Roper, “Before DNA,” 8–9. For a discussion of northward migrations of Mesoamerican peoples, see John L. Sorenson, “Mesoamericans in Pre-Columbian North America,” in *Reexploring the Book of Mormon*, ed. John W. Welch (Salt Lake City: Deseret Book and FARMS, 1992), 218–20. In the same volume, see his “Mesoamericans in Pre-Spanish South America,” 215–17. See Sorenson’s footnotes for references to inter-cultural studies performed by such non-Latter-day Saint archaeologists as Michael Coe, Allison C. Paulsen, Charles R. Wicke, and James B. Griffin.

41. See Murphy, “Lamanite Genesis, Genealogy, and Genetics,” 53, who refers to Michael Crawford, *The Origins of Native Americans: Evidence from Anthropological Genetics* (New York: Cambridge University Press, 1998), 3–4.

Native Americans' Israelite heritage.⁴² Though written in good faith, study helps like these are supplemental to scripture and can neither replace nor override it. The fact that some Latter-day Saints may have *assumed* a uniquely or predominantly Israelite heritage for Native Americans is irrelevant, since tradition and popular assumption are not revelation.⁴³ Elder Bruce R. McConkie explained this view as follows: "The books, writings, explanations, expositions, views, and

42. See Roper, "Nephi's Neighbors," in this number. A legitimate question is what we should understand by the term *principal*. Does this mean "chief" or "primary," "most important," or "most significant"? Is this to be taken in a numerical sense, or does it refer to some other noteworthy attribute of the subject in question? In his letter to John Wentworth, Joseph Smith briefly summarized the Book of Mormon account by noting the destruction of the Jaredites, who were then followed by Israelites who came from Jerusalem. Interestingly, he described the Nephites as "the principal nation" of that second group. *The Papers of Joseph Smith*, ed. Dean C. Jessee (Salt Lake City: Deseret Book, 1989), 1:432. Since the Nephites, we are told, were clearly less numerous than the Lamanites (Mosiah 25:1–3), a condition that prevailed throughout most of the Book of Mormon narrative, it is difficult to see how the term *principal* can be taken in this instance to mean the most numerous group. In this context, the term seems best to refer to that which was the most important to the Book of Mormon writers. One can with some justification interpret "principal ancestors" in the 1981 introduction as referring to Lamanite importance in relation to the Book of Mormon and the covenants described there, rather than to the size of their genetic contribution to the Native American gene pool.

43. President Harold B. Lee stated this clearly on at least two occasions: "If anyone, regardless of his position in the Church, were to advance a doctrine that is not substantiated by the standard Church works, meaning the Bible, the Book of Mormon, the Doctrine and Covenants, and the Pearl of Great Price, you may know that his statement is merely his private opinion. The only one authorized to bring forth any new doctrine is the President of the Church, who, when he does, will declare it as a revelation from God, and it will be so accepted by the Council of the Twelve and sustained by the body of the Church. And if any man speak a doctrine which contradicts what is in the standard Church works, you may know by that same token that it is false and you are not bound to accept it as truth." Harold B. Lee, "Measure Truth by Standard Works," in *The First Area General Conference of The Church of Jesus Christ of Latter-day Saints for Germany, Austria, Holland, Italy, Switzerland, France, Belgium, and Spain* [held in Munich, Germany, 24–26 August 1973] (Salt Lake City: The Church of Jesus Christ of Latter-day Saints, 1974), 70–71. Elsewhere he said: "If it is not in the standard works, you may well assume that it is speculation. It is man's own personal opinion, to put it another way; and if it contradicts what is in the scriptures, you may know by that same token that it is not true. This is the standard by which you measure all truth. But if you do not know the standards, you have no adequate measure of truth." Clyde J. Williams, ed., *Teachings of Harold B. Lee, Eleventh President of The Church of Jesus Christ of Latter-day Saints* (Salt Lake City: Bookcraft, 1996), 149.

theories of even the wisest and greatest men, either in or out of the Church, do not rank with the standard works. Even the writings, teachings, and opinions of the prophets of God are acceptable only to the extent that they are in harmony with what God has revealed and what is recorded in the standard works.”⁴⁴ Elder Charles W. Penrose of the Quorum of the Twelve Apostles explained, “The Saints believe in divine revelation to-day. At the head of this Church stands a man who is a Prophet, Seer and Revelator, sustained in that position by the vote of the whole body of its members. When the Lord wishes to speak to His Church, as a body, He does so through that individual, His servant.”⁴⁵ Elder Penrose further observed that the president of the church “is a man of wisdom and experience, and we respect and venerate him; but we do not believe his personal views or utterances are revelations from God.” Of course, Latter-day Saints are always open to additional revelation through appointed channels, but even then, “when ‘Thus saith the Lord’ comes from him [the president of the church], the Saints investigate it; they do not shut their eyes and take it down like a pill. When he brings forth light they want to comprehend it.”⁴⁶ If the ordained prophet’s words are open to investigation, certainly the words of the 1981 introduction to the Book of Mormon are as well.

Although the idea of Lamanites being “the principal ancestors of the American Indians” is not scriptural, it may still be helpful, for the sake of clarity, to note what the current introduction actually says and does not say. While it specifically mentions the Jaredite and Lehite migrations, the statement does not say that these colonists were the only pre-Columbian peoples that ever came to the Americas.⁴⁷ Second, the statement does not say that the Nephites and Lamanites in the Book of Mormon consisted *only* of people descended from Lehi. This is an

44. Bruce R. McConkie, *Mormon Doctrine* (Salt Lake City: Bookcraft, 1973), 765.

45. Charles W. Penrose, “The Doctrine of Revelation,” *Millennial Star*, 21 March 1892, 191.

46. *Ibid.*

47. For example, the introduction makes no mention of the Mulekites, who are said in the Book of Mormon to have been more numerous than the Nephites (Mosiah 25:2). The very notion of principal ancestors inescapably implies *secondary* ones.

important point, since the Book of Mormon allows for the presence of people in the Americas other than those descended from the Jaredite, Lehite, and Mulekite colonies.⁴⁸ The covenants concerning the land of promise in the Book of Mormon were always open-ended, allowing other peoples and groups to be numbered with Lehi's family and partake of all the blessings of the land. As already shown, once so numbered, they *became* Israel, regardless of their genetic origin.

Alma prophesied that the Lamanites who remained in the land after the Nephites were destroyed would be a composite of all those who had once been numbered with both the Lamanites and the people of Nephi; anyone who remained in the land after the Nephite destruction was to be numbered—from the Nephite perspective, at least—with the Lamanites (Alma 45:13–14). Even if Latter-day Saints were to accept the assertion that these Lamanites are the “principal ancestors of American Indians,” there is no way to know which Native Americans are literal descendants of Lehi and which descend from those who were once *numbered* with Lehi's people. We cannot know whether all or even most Native Americans would even carry any of Lehi's genes, even if one could determine what marker could be used to identify a gene as “Lehite.”

In short, the critics' reliance on the term *principal ancestors* really amounts to a nonargument. Latter-day Saints are not bound by unscriptural assumptions, and many readers of the Book of Mormon—including many Latter-day Saint leaders—have suggested that Native American ancestry was not confined to Book of Mormon peoples and may have been quite diverse.

Genetics and Population Studies

The Book of Mormon, then, does not require the view that all Native Americans must be literal descendants of Lehi, although all could still be quite properly considered “Lamanite.” Is it possible,

48. See, for example, Roper, “Nephi's Neighbors,” in this number. For an overview of archaeological and other scientific evidence for Old World peoples in the pre-Columbian New World, see Sorenson and Roper, “Before DNA,” 18–23.

however, that all or most Native Americans *could* be literal descendants of Lehi? Surprisingly enough, it is. In 1999, Joseph T. Chang, a statistician at Yale University, published a study in which he demonstrated the statistical likelihood that all human beings are descended from common ancestors in the not-so-distant past.⁴⁹ His findings were restated three years later by Steve Olson in an *Atlantic Monthly* article aimed at a popular audience. In summarizing Chang's study, Olson reports that

the most recent common ancestor of every European today (except for recent immigrants to the Continent) was someone who lived in Europe in the surprisingly recent past—only about 600 years ago. In other words, all Europeans alive today have among their ancestors the same man or woman who lived around 1400. Before that date, according to Chang's model, the number of ancestors common to all Europeans today increased, until, about a thousand years ago, a peculiar situation prevailed: 20 percent of the adult Europeans alive in 1000 would turn out to be the ancestors of no one living today (that is, they had no children or all their descendants eventually died childless); each of the remaining 80 percent would turn out to be a direct ancestor of every European living today.⁵⁰

While Chang's statistical analysis holds, there would be exceptions because of endogamy (in-group marriage) in some societies. For example, Arabs have traditionally preferred to marry a first parallel cousin, meaning that a man would marry the daughter of a paternal uncle. But even in endogamous societies, the rule is not so strict as to prevent mat-

49. Joseph T. Chang, "Recent Common Ancestors of All Present-Day Individuals," *Advanced Applied Probability* 31 (1999): 1002–26. For a simpler, more specialized, independently derived numerical study that supports Chang's hypothesis, see Stubbs, "Elusive Israel," in this number. For the scientific approach to population studies, see McClellan, "Detecting Lehi's Genetic Signature," in this number; Michael F. Whiting, "DNA and the Book of Mormon: A Phylogenetic Perspective," *Journal of Book of Mormon Studies* 12/1 (2003): 24–35.

50. Steve Olson, "The Royal We," *Atlantic Monthly*, May 2002, 63–64.

ing, if not marriage, with outsiders. (Neither conquerors nor slaves always married the women with whom they had sexual relations.) Other scientists, in evaluating Chang's work, note: "In the real world, the selection of parents . . . is, of course, not random. Geography, race, religion and class have always played strong roles in biasing mate selection. Even so, the models are telling us something important: In subpopulations where random mating can take place, a common ancestor pool emerges with startling rapidity, in hundreds rather than hundreds of thousands of years."⁵¹

In the modern era, with improved transportation and the breaking down of "racial" barriers, Olson remarks:

Chang's model has even more dramatic implications. Because people are always migrating from continent to continent, networks of descent quickly interconnect. This means that the most recent common ancestor of all six billion people on earth today probably lived just a couple of thousand years ago. And not long before that the majority of the people on the planet were the direct ancestors of everyone alive today. Confucius, Nefertiti, and just about any other ancient historical figure who was even moderately prolific must today be counted among everyone's ancestors.⁵²

Chang showed that everyone alive today would be descended, not just from one ancestor, but from an entire ancestral population. In reference to Chang's study, Olson observes: "If a historical figure who lived more than 1,600 years ago had children who themselves had children, that person is almost certainly among our ancestors. . . . One need go back only a couple of millennia to connect everyone alive today to a common pool of ancestors." However, "being descended from someone doesn't necessarily mean that you have any DNA from that person." For example, "The amount of DNA each of us gets from any

51. Susanna C. Manrubia, Bernard Derrida, and Damián H. Zanette, "Genealogy in the Era of Genomics," *American Scientist* 91/2 (2003): 164.

52. Olson, "Royal We," 64.

one of our 1,024 ancestors ten generations back is minuscule—and we might not get any DNA from that person, given the way the chromosomes rearrange themselves every generation.”⁵³ So the reality of one’s descent from any given notable historical figure is not at all unlikely, but proving the ancestral connection in one’s own genealogy—or through analysis of one’s own genetic code—is another matter entirely.

Mitochondrial DNA is a powerful tool because it cuts through this thicket and highlights a single vine—but for the very same reason, it misrepresents the complexity of our past. To understand the full story of human ancestry, the way that genes and lineages evolve over tens and hundreds of generations, we have to use mathematical models and computer simulations, because we do not have genealogical records that extend so far back into the past. These *biparental* models show that mitochondrial DNA actually underestimates how quickly human populations become homogeneous in ancestry.⁵⁴

In short, contemporary scientific studies in genetics at present permit only a very finite peek at the panoramic mosaic of an individual’s ancestry.

The analysis of mitochondrial DNA has allowed scientists to obtain many spectacular results regarding human evolution. MtDNA represents a small, though essential, piece of our whole genome. Its relevance to the origin of and relationships among human groups lies in its peculiar mode of transmission through the maternal line, analogous to surnames. However, our genetic ancestry is much broader. . . . Our surname, like mtDNA, is only one small piece of information about our origins.

53. Steve Olson, *Mapping Human History: Genes, Race, and Our Common Origins* (Boston: Houghton Mifflin, 2002), 47.

54. Manrubia, Derrida, and Zanette, “Genealogy in the Era of Genomics,” 158, 160.

Mitochondrial genes contain information largely about energy production. But most of the information that characterizes us as human beings resides in our so-called nuclear genes, which constitute more than 99.99 percent of the human genome. . . .

The next time you hear someone boasting of being descended from royalty, take heart: There is a very good probability that you have noble ancestors too. The rapid mixing of genealogical branches, within only a few tens of generations, almost guarantees it. The real doubt is how much “royal blood” your friend (or you) still carry in your genes. Genealogy does not mean genes. And how similar we are genetically remains an issue of current research.⁵⁵

A Universal Covenant

The Lord told Abraham, “And in thy seed shall *all* the nations of the earth be blessed” (Genesis 22:18, emphasis added). A similar promise was made to Isaac: “In thy seed shall *all* the nations of the earth be blessed” (Genesis 26:4, emphasis added). To Jacob he said: “And thy seed shall be as the dust of the earth, and thou shalt spread abroad to the west, and to the east, and to the north, and to the south: and in thee and in thy seed shall *all* the *families* of the earth be blessed” (Genesis 28:14, emphasis added). Chang’s model suggests that Abraham, Isaac, and Jacob could indeed be ancestors of everybody now living. “The forces of genetic mixing are so powerful that everyone in the world has Jewish ancestors, though the amount of DNA from those ancestors in a given individual may be small. In

55. Ibid., 165. Some of that current research was announced early in 2003. A survey of 2,123 males from the Caucasus to China suggested that the Y chromosomes of up to 8 percent of all men living within the area formerly controlled by the Mongol empire indicated their descent from the ruling house of the Mongols; this means that about 16 million men—about 1 in 200 of the world’s total male population—are probably descendants of Genghis Khan. Chris Tyler-Smith et al., “The Genetic Legacy of the Mongols,” *American Journal of Human Genetics* 72 (March 2003): 717–21.

fact, everyone on earth is by now a descendant of Abraham, Moses, and Aaron—if indeed they existed.”⁵⁶

Of course, contemporary scientists are unable to verify or refute definitively such distant genealogical connections. Abraham was not our only ancestor, but one among a multiplicity of others, and any distinctive markers from his DNA signature may have long been lost to time. The same could be said of Lehi. However, the loss of genetic evidence readily identifiable through current scientific tools does not affect the connection between these men and their *seed*, using that term in its scriptural sense as explained above. Latter-day Saints understand both Abraham and Lehi to be real, historical personages and ancient prophets of God, and both number among their descendants millions of literal progeny and millions whose affiliation was or is ideological or sociocultural rather than genetic. Nevertheless, they are all heirs of the covenant as it was made with their fathers, or the men they choose as their fathers. The scriptures remind us that ultimately, whom we *choose* to follow tells more about who we are than our genes do (Matthew 3:9; John 8:53–59). Abraham, Lehi, and others made and kept their covenants with God, and all who follow in their footsteps are their seed. That is a heritage worth knowing.

56. Olson, *Mapping Human History*, 114.