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Resolving the Paternities of Oliver N. Buell and Mosiah L. Hancock through DNA

Ugo A. Perego, Jayne E. Ekins, and Scott R. Woodward

Introduction

Although it is now generally accepted by scholars of Mormonism that the prophet Joseph Smith introduced and practiced polygamy during his lifetime,[1] a lingering question remains about the identity of any sons or daughters that may have been born of him with women other than his first recorded wife, Emma Hale. The two principal obstacles in verifying any of these alleged paternities using a traditional approach are the relative secrecy under which polygamy was initially carried out by the prophet and his closest associates and the limited and often unclear records that have survived to the present. For these reasons, it is practically impossible to compile a definitive list of Joseph's "other" children, born during his lifetime, or within a year from his death, as most of the sources available are the result of personal interpretations, speculations, anecdotes, or family rumors. Todd Compton's *In Sacred Loneliness*[2], Fawn Brodie's *No Man Knows My History*[3], and Richard Van Wagoner's *Mormon Polygamy*[4] are examples of published works where circumstantial events were subjectively analyzed in an attempt to attribute the paternity of certain children to the prophet (Figure 1).

The present study is the continuation of a previous work where a partial genetic profile (haplotype) for the prophet Joseph Smith was reconstructed for the first time in an attempt to identify the exact British origin of his family's paternal lineage. The original objective was to compare Joseph Smith's genetic signature with that of other Smiths living in the UK in order to bridge a longstanding genealogical gap preventing the complete delineation of his

[1] Richard P. Howard, "The Changing RLDS Response to Mormon Polygamy: A Preliminary Analysis," *The John Whitmer Historical Association Journal* 3 (1983): 14–28.

[2] Todd Compton, *In Sacred Loneliness: The Plural Wives of Joseph Smith* (Salt Lake City: Signature Books, 1998).

[3] Fawn Brodie, *No Man Knows My History: The Life of Joseph Smith, the Mormon Prophet,* 2nd ed., rev. (1945; New York: Alfred A. Knopf, 1971).

[4] Richard S. Van Wagoner, *Mormon Polygamy: A History* (Salt Lake City: Signature Books, 1986).

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CHILD	MOTHER	REFERENCES
Oliver Norman Buell*	Prescindia Huntington	*NMK*
John Reed Hancock	Clarissa Reed	*NMK*
Mosiah Lyman Hancock*	Clarissa Reed	‡
Moroni Llewellyn Pratt†	Mary Ann Frost	*NMK*
Orson Washington Hyde	Nancy Miranda Johnson	*NMK*
Frank Henry Hyde	Nancy Miranda Johnson	*NMK*
Josephine Rosetta Lyon (Fisher)	Sylvia Session	*NMK, ISL, MP*
Josephine Henry (King)	Margaret Creighton	‡
Zebulon Williams Jacobs†	Zina Diantha Huntington	*MP*
Carolyn Delight	Lulu Vermillion	‡
Alleged son or daughter	Hannah Dubois	*MP*
Alleged son or daughter†	Fanny Alger	*ISL*
George Algernon Lightner	Mary Rollins Lightner	*NMK, MP*
Sarah Elizabeth Holmes	Marietta Carter	‡

*Figure 1 — Provisional list of Joseph Smith Jr.'s purported children as being born from women other than Emma Hale. The subjects of this study are marked *, while previously tested lines are marked †. The list was derived from purported children referenced in Fawn Brodie,* No Man Knows My History (NMK), *Todd Compton,* In Sacred Loneliness (ISL), *Michael Van Wagoner,* Mormon Polygamy (MP), *and/or through personal correspondence with the authors* (‡).

ancestry.[5] With this newly available genetic data in hand, it is also possible to investigate questions regarding Joseph's progeny in addition to his ancestry.

In 2005, an original research article in the *Journal of Mormon History* described the application of Joseph Smith's genetic profile in resolving three purported paternity cases. The case studies involved Moroni Pratt (son of Parley P. Pratt and Mary Ann Frost), Zebulon Jacobs (son of Henry B. Jacobs and Zina Diantha Huntington), and Orrison Smith (allegedly attributed to Fanny Alger, Joseph's purported first plural wife).[6] Genetic evidence in all three cases concluded that it was highly unlikely that Joseph Smith fathered any of them.

In the current study, we present evidence to resolve the speculative paternities of Oliver Norman Buell (son of Prescindia Huntington, married to Norman Buell) and Mosiah Lyman Hancock (son of Clarissa Reed, married to Levi Hancock), who are also recorded as possible children of Mormonism's first prophet.

[5] Elaine C. Nichols, "Corrections to Joseph Smith's English Ancestry: The Parentage of Robert Smith of Boxford, Massachusetts," *Genealogical Journal* 19, nos. 3 & 4 (1991): 138–143.

[6] Ugo A. Perego, Natalie M. Myres, and Scott R. Woodward, "Reconstructing the Y-Chromosome of Joseph Smith: Genealogical Applications," *Journal of Mormon History* 31, no. 3 (Fall 2005): 42–60.

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DNA Testing and Genealogy

During the past decade, DNA testing for genealogical and historical studies has gained tremendous popularity among historians, particularly due to the large media coverage it has received.[7] Over two dozen companies offer such tests to the public and it is estimated that nearly five hundred thousand individuals worldwide[8] have contributed a biological sample to learn more about their recent or ancient past. An overwhelming number of Web sites, books, articles, and other media resources are currently available to the layperson with the objective of providing an introduction to the new science of molecular genealogy.[9] Although both genetic data and material to interpret it are readily accessible, such a rapidly burgeoning field requires important education efforts in order for the public to effectively utilize it. With the proper information, individuals can understand the strengths and limitations of genetic testing for genealogical purposes and avoid setting unrealistic expectations or coming to premature conclusions. Proper limitations and alternative explanations, if any, must be carefully taken into account prior to drawing any definitive conclusion on the subject of investigation, even when the genetic data seem to strongly point in a specific direction.

In the current study, we explore the question of the biological paternity of Oliver N. Buell and Mosiah L. Hancock based on historical sources that support a close association between Joseph Smith and the mothers of these two individuals. As in the three cases tested in 2005, we utilized Y chromosome (Ycs) data with the objective of resolving the paternities of Oliver Buell and Mosiah Hancock. The Ycs is one of the 46 nuclear chromosomes and is found in males only. It has the distinguishing characteristic of being inherited almost unchanged from father to son, strictly along the paternal line. If two individuals share a common paternal ancestor, they would also share a nearly identical Ycs profile. These principles are widely employed in exploring paternal lineage questions, as in the high profile 1998 study of the paternity of an alleged child of President Thomas Jefferson born to one of his slaves.[10]

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[7] See as an example ABC's Nightline "Tracing Lineage with DNA," http://www.abcnews.go.com/Nightline/story?id=3951935&page=1 (accessed December 4, 2007).

[8] Howard Wolinsky, "Genetic Genealogy Goes Global," *EMBO reports* 7, no. 11 (2006): 1072–74. Also see Blaine Bettinger, "The Genetic Genealogist: How Big Is the Genetic Genealogy Market?" http://www.thegeneticgenealogist.com/2007/11/06/how-big-is-the-genetic-genealogy-market (accessed January 16, 2008).

[9] Ugo A. Perego, Ann Turner, Jayne E. Ekins, and Scott R. Woodward, "The Science of Molecular Genealogy," *National Genealogical Society Quarterly* 93 (December 2005): 245–59.

[10] Eugene A. Foster, et al., "Jefferson Fathered Slave's Last Child," *Nature* 396 (November 1998): 27–28.

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Oliver N. Buell

Oliver N. Buell has been recorded as an alleged son of Joseph Smith and Prescindia Huntington. Oliver was born on January 31, 1840, in Clay County, Missouri. Prescindia's husband, Norman Buell, apostatized and left the church in 1839, but was later reconciled and reunited with her. In her book *No Man Knows My History*, author Fawn Brodie shares her analysis, offering her conclusion that there is enough evidence to conclude that Joseph fathered Oliver. This was partly based on a comparison of a photograph of Oliver Buell with Joseph and Emma's sons, stating that "physiognomy...seems to weight the balance overwhelmingly on the side of Joseph's paternity."[11]

In order to resolve Oliver's paternity, it was necessary to reconstruct his Ycs profile and compare it to Joseph's haplotype. As explained in the 2005 study, biological samples from at least two living male individuals on separate descendant lineages are required in order to confidently infer the Ycs profile of their most recent common ancestor (MRCA). Scarcity of records and a limited number of surviving offspring narrowed the candidate field to just two descendants of his grandson Owen Frederick Buell (Figure 2).[12] Because Owen F. Buell is the MRCA of the two individuals tested, the resulting haplotype can be confidently inferred only for Owen. However, we could not exclude the possibility of a non-paternity event (NPE) in the generations separating Owen and his grandfather Oliver Buell, the focus subject of this study. In the event of an NPE in the two generations separating Oliver and Owen, the obtained haplotype would not be applicable to Oliver. To exclude the possibility of an NPE and infer Oliver's Ycs profile with greater confidence, we used the reconstructed haplotype for Owen F. Buell to query the large online Sorenson Molecular Genealogy Foundation (SMGF) Y chromosome database.[13] Among the resulting records was an individual named Buell with a nearly identical Ycs haplotype (Figure 3). The documentation of a common ancestor (Samuel W. Buell, born in Windsor, Connecticut, on September 2, 1641) between Oliver Buell and the independent Buell records in the SMGF database, together with a nearly identical Ycs haplotype shared between the two lineages, indicates that the likelihood of an NPE in the generations separating Oliver and Owen is very low, and that the haplotype inferred for Owen can also be applied to Oliver with confidence. Additionally, the time to the most recent common ancestor between the two compared Ycs haplotypes is approximately 12 generations,

[11] Brodie, *No Man Knows My History*, portrait facing 299, 301–02, 345–46, 460–62.

[12] Names of participants in this study have been withheld to protect their privacy.

[13] Sorenson Molecular Genealogy Foundation, "Sorenson Y Chromosome Database," http://www.smgf.org/pages/ydatabase.jspx (accessed January 1, 2008).

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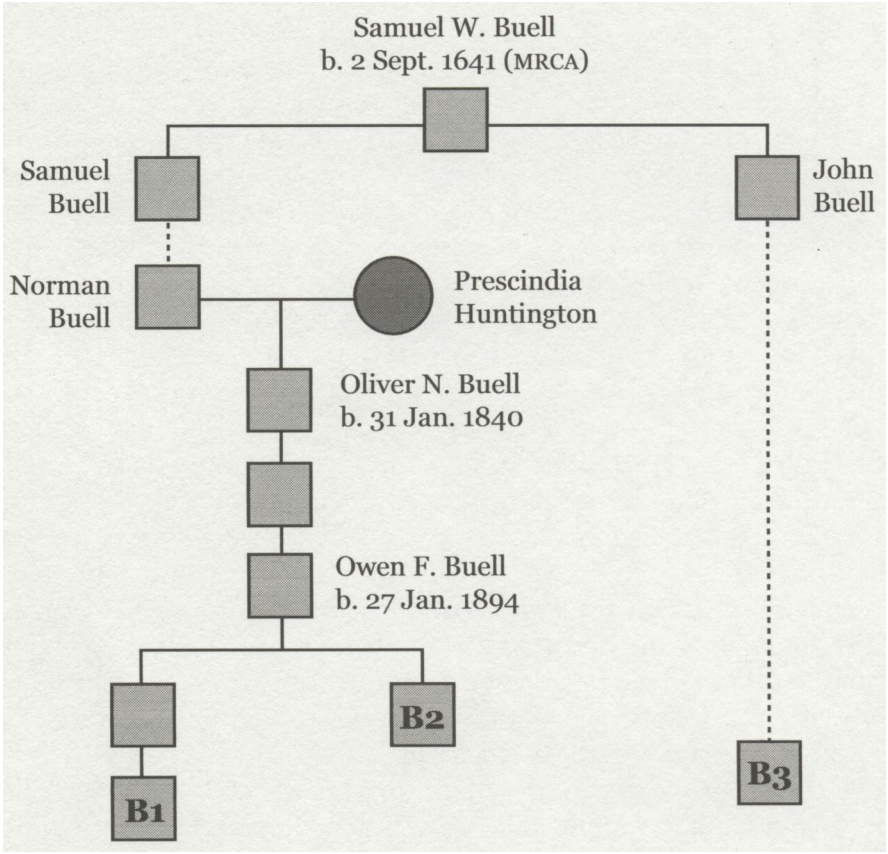

Figure 2 — Simplified family tree for the Buell paternal ancestry showing the relationship between the two descendants (B1 and B2) who donated a DNA sample for the current study and the individual from the Sorenson Molecular Genealogy Foundation database (B3). The most recent common paternal ancestor (MRCA) for these three lineages is Samuel W. Buell born in 1641.

or around 372 years,[14, 15] which is consistent with the documented genealogical records for the individuals tested.

Of the 24 markers queried in the SMGF database, there was a single mismatch between the haplotype inferred for Owen and the independent Buell record in the database. At locus DYS385,[16] the two descendants of Owen F. Buell have a value of 12–16, while the individual in the SMGF database has a value of 15–16. The difference between the two values for the marker is the

[14] Mark A. Jobling, "In the Name of the Father: Surnames and Genetics," *Trends in Genetics* 17, no. 6 (June 2001): 353–57.

[15] Bruce Walsh, "Estimating the Time to Most Recent Common Ancestor for the Y Chromosome or Mitochondrial DNA for a Pair of Individuals," *Genetics* 158 (June 2001): 897–912.

[16] A *locus* is a specific location of a genetic marker on a chromosome. *DYS* is an acronym for "DNAY chromosome Segment.

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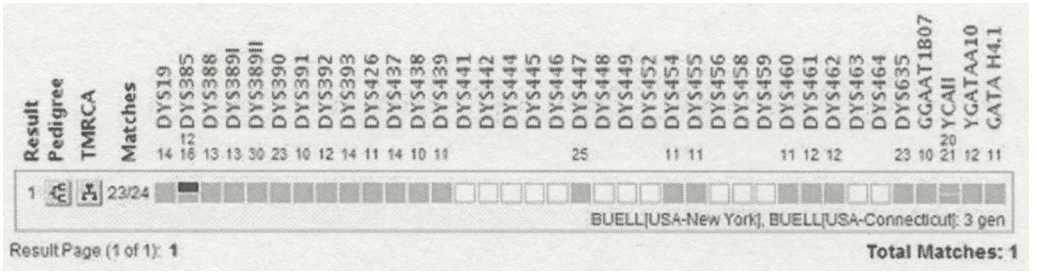

Figure 3 — Search result for the Buell surname and Ycs haplotypes from the SMGF database (www.SMGF.org). This individual shares 23 out of 24 Ycs markers with the two descendants from the Owen F./Oliver N. Buell line.

likely result of a random mutation that took place in the generations separating the individuals tested. Because of these mismatched values, we are currently unable to confidently infer a value for Oliver for DYS385, thus leaving 23 markers available for comparison with the Joseph Smith haplotype published in 2005.

Only 9 of the 23 genetic markers match when comparing the inferred Oliver Buell haplotype to that of Joseph Smith (Figure 4). Such a low degree of correlation between the two haplotypes provides strong evidence that they belong to two unrelated paternal lineages, thus excluding with high likelihood Joseph Smith Jr. as the biological father of Oliver N. Buell. Further weight is given to this observation by the close match of the inferred haplotype of Owen F. Buell to the independent Buell record in the SMGF database, which genetic relationship dates back prior to Joseph Smith's era. Additionally, the two genetic profiles were run through a haplogroup predictor algorithm that assigned the Smith haplotypes to a cluster known as R1b and the cluster for the Buell's haplotypes to I1b2a,[17] two deeply divergent clades that separated anciently, thus providing further evidence that the Oliver Buell and Joseph Smith lineages are not closely related.

Mosiah L. Hancock

Mosiah Lyman Hancock (Figure 5) was born on April 9, 1834, in Kirtland, Ohio, from Clarissa Reed and Levi Hancock. (Levi met Clarissa through the prophet Joseph Smith and married her in the Spring of 1833.) Rumors that Mosiah was a possible son of Joseph Smith have been perpetuated for generations among his descendants. Mosiah's daughter, Emily Hancock,

[17] Whit Athey, "Haplogroup Predictor," https://home.comcast.net/~hapest5/index.html (accessed January 3, 2008). Haplogroup R1b is typically found in Northern and Western Europe, particularly in the British Isles and in the Iberian Peninsula, while haplogroup I1b2a is found at its highest frequencies in Northwest Germany, the Netherlands, Denmark, Southern Sweden, and Norway.

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Locus	*Oliver N. Buell Inferred Ycs Haplotype*	*Joseph Smith Jr. Inferred Ycs Haplotype*
DYS19	14	14
DYS385	*ND*	11,13
DYS388	13	12
DYS389I	13	14
DYS389II	30	30
DYS390	23	24
DYS391	10	11
DYS392	12	14
DYS393	14	13
DYS426	11	12
DYS437	14	15
DYS438	10	12
DYS439	11	12
DYS447	25	25
DYS454	11	11
DYS455	11	11
DYS460	11	11
DYS461	12	11
DYS462	12	11
GGAAT1B07	10	10
YCAII	20,21	19,23
Y-GATA-A10	12	13
Y-GATA-C4	23	23
Y-GATA-H4	11	12

Figure 4 — Comparison between the inferred Ycs haplotypes for Oliver N. Buell and Joseph Smith Jr. Locus DYS385 could not be determined for the Buell lineage. However, out of the remaining 23 markers compared, 14 were a mismatch thus excluding a possible father/son relationship.

recorded in her voice journal that soon after Mosiah was born, he became very ill and his mother Clarissa called for the prophet Joseph Smith stating that "*our* Mosiah is dying."[18]

A 12-marker haplotype was already available for a paternal descendant of Mosiah Hancock, generated by an independent commercial laboratory. A comparison of the 12 markers to the shortened Joseph Smith haplotype

[18] Emily Hancock's grandson, email to Ugo Perego, May 9, 2007. Emphasis added.

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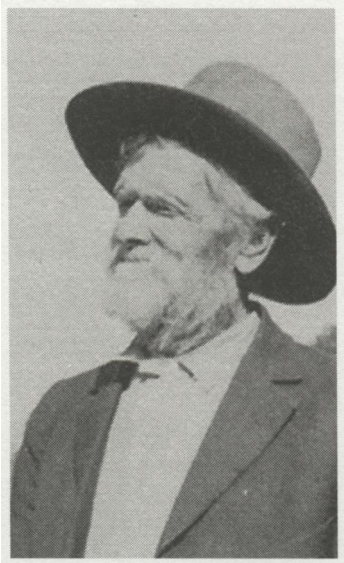
Locus	*Mosiah L. Hancock Inferred Ycs Haplotype*	*Joseph Smith Jr. Inferred Ycs Haplotype*
DYS19	14	15
DYS385a	17	11
DYS385b	19	13
DYS388	12	12
DYS389I	14	14
DYS389II	31	30
DYS390	24	24
DYS391	11	11
DYS392	11	14
DYS393	14	13
DYS426	11	12
DYS439	11	11

Figure 5 — Comparison between the inferred Ycs haplotypes for Joseph Smith Jr. and Mosiah L. Hancock. Although only 12 markers were available for comparison, the genetic data was sufficient to exclude a possible father/son relationship.



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Mosiah Lyman Hancock.

showed only 5 matches, indicating a low likelihood of a biological relationship between Mosiah and Joseph (Figure 5). Additionally, we queried the SMGF database with the 12 Ycs Hancock markers. Six independent records returned matching at all 12 markers, all having the surname Hancock with documented connections to Mosiah's grandfather Thomas Hancock III. The overwhelming bulk of the evidence excludes Joseph Smith as the biological father of Mosiah Hancock.

Conclusions

As in the 2005 study,[19] the combined use of traditional historical and genealogical information, together with previously unavailable genetic data, work together in concert to resolve longstanding paternity questions of two additional alleged children recorded as being born of Joseph Smith through polygamous relationships. A novel approach presented in this study was the employment of online resources that further augments the available genetic tools for investigating the two case studies here. The genetic data collected from descendants of Oliver N. Buell and Mosiah L. Hancock and the genetic profiles

[19] Perego, Myres, and Woodward, "Reconstructing the Y-Chromosome of Joseph Smith."

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available in the searchable Sorenson Molecular Genealogy Foundation Ycs database revealed that it is highly unlikely that the prophet Joseph Smith was the biological father of either Oliver Buell or Mosiah Hancock. Furthermore, the genetic evidence seems to confirm that both individuals were born from the man that has been recorded as their father (Norman Buell and Levi Hancock respectively).

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