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Pinpointing the Magee Mitochondrial Eve



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INTRODUCTION

Mitochondrial DNA (mtDNA) is located in the mitochondrial organelles found within eukaryotic cells. Human mtDNA consists of 16,569 DNA base pairs that encode 37 genes that produce proteins essential in converting the chemical energy stored in food into a form that our cells can use. Millions of years ago the mitochondria were prokaryotic cells (bacteria), capable of implementing oxidative mechanisms (that were not possible for eukaryotic cells) which became endosymbionts; literally living within the eukaryote cell. As extrachromosomal DNA, the mtDNA is only passed from a mother to her offspring and hence it can be used to explore one's maternal ancestral journey. Science has revealed that there are approximately 4,000 known mutations associated with mtDNA. Each mutation (Haplogroup) represents an 'Eve' that the whole of humanity can link back to.

INTERPRETING THE MITOCHONDRIAL DNA RESULTS

In commercial ancestral DNA testing the same golden rule applies; the more genetic markers or mutations that 2 people share the more recent their shared ancestor once lived. Hence the people that one matches upon commercial ancestral mtDNA testing will share a common female ancestor from different locations and time points over potentially many tens of thousands of years. In addition, many of these mtDNA genetic relatives reveal details of earliest known maternal ancestors (surnames and locations). By examining the ancestral detail revealed among one's mtDNA matches, graded according to genetic distance, one can potentially identify an origin for the test subject's maternal Eve.

A Scottish origin for the test subject's K1b2b Eve

The test subject's mtDNA results reveal that her maternal 'Eve' is designated as 'K1b2b,' and that her mtDNA matches all share her K1b2b Haplogroup, see **Figure 1**. Limited scientific findings reveal that the progenitor of K1b2b; 'K1b' is associated with Central and Western Europe. Those results indicate a European origin for K1b2b-Eve within the last 5,000 years; which is confirmed by the ancestral surnames and locations revealed among the test subject's mtDNA matches, see **Figure 2** and **3**. A closer examination of the ancestral surnames recorded by the test subject *closest* mtDNA relatives reveals that Scottish-associated surnames dominate, see **Figure 3**. These findings fit with the test subject's earliest maternal ancestral papertrail which leads back to a 'Margaret Brydie,' born in Muthill parish in Perthshire in the Central Highlands of Scotland in 1787.

| mtDNA Full Sequence Matches | | | | | | | |
|-----------------------------|---------------|--|------------------|------------|--|--|--|
| Genetic Distance | Last Name | Earliest Known Ancestor | mtDNA Haplogroup | Match Date | | | |
| 0 | riley | Elizabeth Summerville B.1835 and d.1905 | K1b2b | 1/9/2020 | | | |
| 0 | Craig | Agnes Wentoun, b. abt. 1624 | K1b2b | 1/9/2020 | | | |
| 0 | Harden | Maud Scott | K1b2b | 1/9/2020 | | | |
| 1 | Hobson | Harriet Eidson | K1b2b | 1/20/2020 | | | |
| 1 | (Epp) Winters | | K1b2b | 1/9/2020 | | | |
| 1 | Laster | | K1b2b | 1/9/2020 | | | |
| 1 | Vizachero | Ruby Gertude Elliott, b. 1874, Illinois, USA | K1b2b | 1/9/2020 | | | |
| 1 | Faux | Mary Brash, res, 1800 Kirkintilloch, Scot. | K1b2b | 1/9/2020 | | | |
| 1 | Phelps | Matilda Craddock, 1810-unknown | K1b2b | 1/9/2020 | | | |
| 1 | Oilschlager | Margery Baker, b. 1494 | K1b2b | 1/9/2020 | | | |
| 1 | Nelson | Carlton Hugo l'oise/bird 1010-1067 | K1b2b | 1/9/2020 | | | |
| 1 | Tompkins | Nancy Hubble, 1817, Ontario, Canada | K1b2b | 1/9/2020 | | | |
| 1 | Lamancusa | Eva Kaszubowska, b.c. 1775 | K1b2b | 1/9/2020 | | | |
| 1 | Paulson | | K1b2b | 1/9/2020 | | | |
| 1 | Demichiei | Dunnett, Gloustr, OH | K1b2b | 1/9/2020 | | | |
| 1 | Hunt | | K1b2b | 1/9/2020 | | | |
| 1 | Tolley | Hazlett | K1b2b | 1/9/2020 | | | |
| 1 | Dudley | Emma Littlefield Hastings | K1b2b | 1/9/2020 | | | |
| 1 | McKenzie | Catherine Campbell, b. 1853 and d. 1902 | K1b2b | 1/9/2020 | | | |
| 1 | Kistner | Amelia Heisler DOB before 1850-Freiburg, germany | K1b2b | 1/9/2020 | | | |
| 1 | Roberts | Matilda Craddock, b. 1810, d. unknown | K1b2b | 1/9/2020 | | | |
| 1 | Innocent | Louisa Turner, b. 1845, d. 1920 | K1b2b | 1/9/2020 | | | |
| 1 | Pihlgren | Maja Greta Samuelsdr b, 6 apr 1826 d. 1 jan 1908 | K1b2b | 1/9/2020 | | | |
| 1 | Parker | | K1b2b | 1/9/2020 | | | |
| 1 | Brannen | Calista Howard b. 1850 | K1b2b | 1/9/2020 | | | |
| 1 | Losi-Sullivan | Huldah Hubbell | K1b2b | 1/9/2020 | | | |

Figure 1: Snapshot of test subject Magee's closest genetic matches as revealed in the mtDNA database. The test subject has 120 genetic relatives with whom she shares a common 'K1b2b' maternal ancestor; some of whom reveal earliest known ancestral surnames and locations.

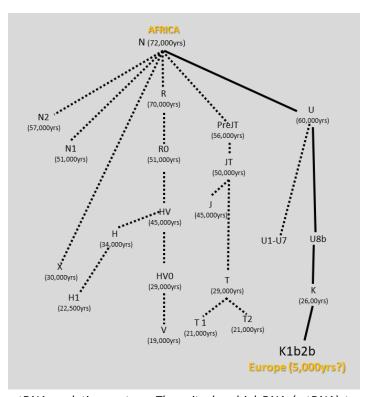


Figure 2: The human mtDNA evolutionary tree. The mitochondrial DNA (mtDNA) tree is a chart of human maternal relatedness showing how everyone's mitochondria stem from an ancient female ancestor (N) in Africa. Since then, her billions of descendants have accumulated novel mutations in their mtDNA. The test subject's **K1b2b** Haplogroup is the result of a relatively new mutation which is overwhelmingly associated with European populations, and hence has a European origin.

| | | mtDNA Full Sequence Matches | | |
|-----------------|--|--|---|--|
| enetic Distance | Last Name | Earliest Known Ancestor | mtDNA Haplogroup | Match Date |
| 0 | Craig | Agnes Wentoun, b. abt. 1624 | K1b2b | 1/9/2020 |
| 0 | riley | Elizabeth Summerville B.1835 and d.1905 | K1b2b | 1/9/2020 |
| 0 | Harden | Maud Scott | K1b2b | 1/9/2020 |
| 1 | Kistner | Amelia Heisler DOB before 1850-Freiburg,germany | K1b2b | 1/9/2020 |
| 1 | Lundström | Annica Jacobsdotter b.1752 and d. 1801 | K1b2b | 1/9/2020 |
| 1 | Brannen | Calista Howard b. 1850 | K1b2b | 1/9/2020 |
| 1 | Nelson | Carlton Hugo l'oise/bird 1010-1067 | K1b2b | 1/9/2020 |
| 1 | McKenzie | Catherine Campbell, b. 1853 and d. 1902 | K1b2b | 1/9/2020 |
| 1 | Sumpter | Christina Petrie, b. ? and died ? | K1b2b | 1/9/2020 |
| 1 | MacLean | Donald Munroe North Uist | K1b2b | 1/9/2020 |
| 1 | Demichiei | Dunnett, Gloustr, OH | K1b2b | 1/9/2020 |
| 1 | Gitkos | Edith Mary Moorehouse, b 1893 | K1b2b | 1/9/2020 |
| 1 | Plunkett | Ellen Cavanagh 1839- 1903 | K1b2b | 1/9/2020 |
| 1 | Dudley | Emma Littlefield Hastings | K1b2b | 1/9/2020 |
| 1 | Lamancusa | Eva Kaszubowska, b.c. 1775 | K1b2b | 1/9/2020 |
| 1 | Johanning | Gabriel Cosand, b.1732 d.1810 | K1b2b | 1/9/2020 |
| 1 | Hobson | Harriet Eidson | K1b2b | 1/20/2020 |
| i | Tolley | Haslett | K1b2b | 1/9/2020 |
| 1 | Losi-Sullivan | Huldah Hubbell | K1b2b | 1/9/2020 |
| 1 | Benzia f Thor | Karen Olsdotter, b. 1722 and d. 1743 | K1626 | 1/9/2020 |
| 1 | Baker | Louisa Maria Grant, b. 1827 - d. 1901 | K1626 K162b | 1/9/2020 |
| | | | 1000000 | \$ 500 PM 0450000 |
| 1 | Innocent | Louisa Turner, b. 1845, d. 1920 | K1b2b | 1/9/2020 |
| 1 | W | Mahala McClain b. 1807 | K1b2b | 1/9/2020 |
| 1 | Pihlgren | Maja Greta Samuelsdr b, 6 apr 1826 d. 1 jan 1908 | K1b2b | 1/9/2020 |
| 1 | Church | Margaret A. Huff, b. 1811 and d. 1890 | K1b2b | 1/9/2020 |
| 1 | Oilschlager | Margery Baker, b. 1494 | K1b2b | 1/9/2020 |
| 1 | Boggs | Mary Ann Gallop, b, 1817 d 1900 | K1b2b | 1/9/2020 |
| 1 | Faux | Mary Brash, res, 1800 Kirkintilloch, Scot. | K1b2b | 1/9/2020 |
| 1 | Otto | Mary EJenkins b. KY and d. MO | K1b2b | 1/9/2020 |
| 1 | Grudgings | Mary Walmstey married 1715 in Staldburn Yorkshire | K1b2b | 1/9/2020 |
| 1 | Phelps | Matilda Craddock, 1819-unknown | K1b2b | 1/9/2020 |
| 1 | Roberts | Matilda Craddock, b. 1810, d. unknown | K1b2b | 1/9/2020 |
| 1 | Smith | Nancy Ann Burgess b 1790 and d, 1860 | K1b2b | 1/9/2020 |
| 1 | Tompkins | Nancy Hubble, 1817, Ontario, Canada | K1b2b | 1/9/2020 |
| 1 | Vizachero | Ruby Gertude Elliott, b. 1874, Illinois, USA | K1b2b | 1/9/2020 |
| 2 | Svensson | | K1626 | 10.000000000000000000000000000000000000 |
| | 100 TA 10 | Amalia Fredrika Hansson f1842 d1922 Brastad (O) | 14/19/19/19 | 1/9/2020 |
| 2 | Nelson | Elizabeth Jaycox, b. abt 1784 and d. after 1850 | K1b2b | 1/9/2020 |
| 2 | Strachan | Elizabeth Kelly, b. 1862 | K1b2b | 1/9/2020 |
| 2 | Lusignan | Françoise Bigot, b. 1631 and d. 1706 | K1b2b | 1/9/2020 |
| 2 | Wester | Gustava Charlotta Westerberg, 1833-1914 | K1b2b | 1/9/2020 |
| 2 | Hall | Joseph Dando | K1b2b | 1/9/2020 |
| 2 | de Steiguer | Margaret Storm/Stone , b. 1814 | K1b2b | 1/9/2020 |
| 2 | Ljungström | Maria Magdalena Moberg, b. 1791 and d. 1835 Stockh | K1b2b | 1/9/2020 |
| 2 | McCulloch GM T1 | Martin Luther Nix | K1b2b | 1/9/2020 |
| 2 | Mikel | Rebecca Davidson, b 1768 and d 1844 | K1b2b | 1/9/2020 |
| 2 | Frechette | Thomine Chastel | K1b2b | 1/9/2020 |
| 2 | Riezebos | Thomine Chastel 1600 AUTHEUIL (61190) - France | K1b2b | 1/9/2020 |
| 2 | Robichaud | Thomine CHASTEL 1600 - ? | K1b2b | 1/9/2020 |
| 2 | Choppin | Thomine Chastel, b. 1600 | K1b2b | 1/9/2020 |
| 2 | Enman | Thomine Chastel, b.1600 Normandie, France | K1b2b | 1/9/2020 |
| 2 | Gagnon | Thomine Chastel, c.1600 Perche | K1b2b | 1/9/2020 |
| 3 | Christensen | | K1b2b | 100 CT 100 |
| 3 | | Mary wife of Reynold Johnson,ca1739-1813,MA, US | K1020 K1b2b | 1/9/2020 |
| | Kelly | Alvira Smith, b. abt 1825 and died abt 1852 | CONTRACTOR OF THE PARTY OF THE | 1/9/2020 |
| 3 | Lotocky | Anna Haraszmuk, b. 1906 and d. 1963 | K1b2b | 1/9/2020 |
| 3 | Williams | Anna Robinson, b. 1754 - 1840 | K1b2b | 1/9/2020 |
| 3 | Frist | Bessie Lane | K1b2b | 1/9/2020 |
| 3 | Mataoanu | Doina Avram | K1b2b | 1/9/2020 |
| 3 | Fursov | Ekaterina Reshetova | K1b2b | 1/9/2020 |
| 3 | Tomova | Elenka-1907-1972, Zakoniza, Vratza reg. | K1b2b | 1/9/2020 |
| 3 | Hill | Elizabeth Emerson | K1b2b | 1/9/2020 |
| 3 | Worden | Elizabeth Runyon Springer 1824-1877 | K1b2b | 1/9/2020 |
| 3 | Ogne | Halmina Potratz b.1851 Pommern, Germany | K1b2b | 1/9/2020 |
| 3 | Roe Yuhasz | Martha Ann McKinney Jennings | K1b2b | 1/9/2020 |
| 3 | HILL | Mary Emily Izell b. 1851 d. 1928 | K1b2b | 1/9/2020 |
| 3 | Branstead | Nancy Gilmore 1765-1833 | K1b2b | 1/9/2020 |

Figure 3: Scottish surnames and locations dominate among the ancestral detail recorded by the test subject's closest mtDNA genetic relatives. Of the 120 mtDNA genetic relatives, 65 record surnames (and locations) associated with their earliest maternal ancestors. Those surnames are NOT RANDOM; the closest matches are dominated by Scottish-associated surnames, with at least one close genetic relative recording a precise ancestral location within Scotland. Highlighted font indicates each surnames associated ethnicity; Scottish/Scotland, English/England, Irish/Ireland, Welsh/Wales, Mainland European.

The Brydies of Perthshire

Surnames arose in an agrarian society, and as a result farmers with each surname still concentrate in the area where their ancestor lived when he first took his surname, or in the area where ones ancestors first settled. An examination of the distribution of Scottish farmers named 'Brydie' in early census data reveals that they are exclusive to Perthshire in Central Scotland, see **Figure 4**. Although the Brydies still concentrate in Muthill parish where the test subject's earliest maternal ancestor is recorded, an examination of the surrounding surnames failed to reveal any that appeared among the ancestral detail recorded by the test subject's closest maternal genetic relatives, see **Figure 5**. These results indicate that the test subject's maternal ancestors were recent arrivals within Muthill parish.

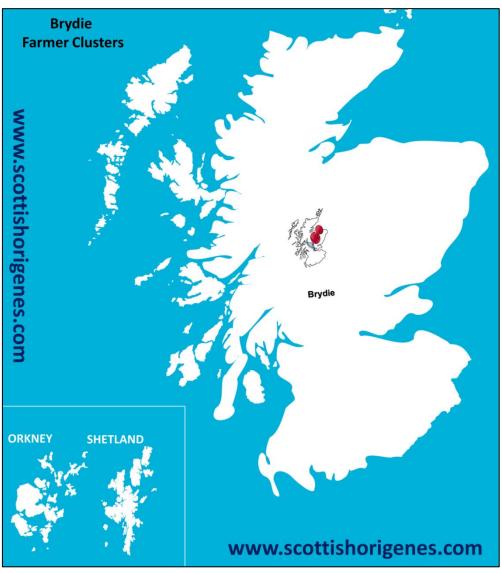


Figure 4: The Scottish Brydie farming community. Farmers with each surname still concentrate in the area where their ancestor lived when he first acquired his surname. Distribution mapping of Scottish farmers named Brydie reveals that they are exclusive to Perthshire in Central Scotland. Each surname is positioned in the parish where farmers with that surname concentrate in early census data. The most common spelling is detailed in each location.

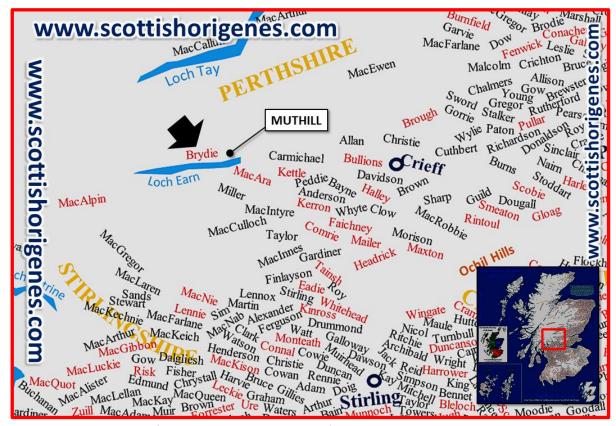


Figure 5: The Surnames of Perthshire. An examination of Perthshire as it appears on the Scottish Origenes Surnames and DNA map reveals the test subject's maternal Brydie surname (black arrow) in Muthill parish where her earliest maternal ancestor is recorded. An examination of the surrounding surnames reveals that they are overwhelmingly of Scots Gaelic origin; none of which are recorded among the ancestral detail listed by her closest maternal genetic relatives (Figure 2). These results indicate that her maternal ancestors had migrated to Perthshire from another Scottish location. Each surname is positioned in the location where farmers with each surname concentrate in early census data. Surnames in red font (like Brydie) are associated exclusively with a single location within Scotland.

A Maternal origin within New Monkland Parish in Lanarkshire

One of the test subject's closest maternal genetic relatives records their 'Brash' maternal ancestor in 'Kirkintilloch' in Central Scotland, see **Figure 1** and **2**. Similar to the Brydie surname, the 'Brash' surname is associated with a single Scottish location; situated within West Lothian in Southern Scotland which lies just east of Kirkintilloch, see **Figure 6**. Strikingly, in the surrounding area one finds a number of other surnames (Gilmour and Somerville) that are also exclusive to Central Scotland and which also appear among the earliest ancestral surnames recorded by the test subject's earliest maternal genetic relatives, see **Figure 2** and **6**. At the centre of this cluster of recorded ancestral surnames (and location) lies Old Monkland parish; and it is within that parish that the test subject's Scottish 'K1b2b' maternal Eve resided, see **Figure 6**.

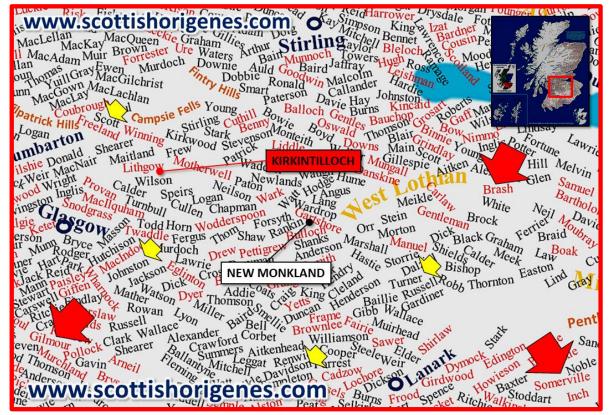


Figure 6: The Surnames of the Lanarkshire and West Lothian Borderlands. The Brash, Somerville and Gilmour surnames (red arrows) are related through mtDNA testing; being revealed among the earliest maternal surnames recorded by the test subject's closest mtDNA genetic relatives. Those surnames arose among a group of related females living in a specific part of Scotland. An examination of the surnames of the Lanarkshire and West Lothian borderlands as it appears on the Scottish Origenes surnames maps reveals that those surnames (and solitary recorded Scottish ancestral location; Kirkintilloch) surround New Monkland parish; and it is there that the test subject's earliest Scottish K1b2b Eve resided. Each surname is positioned in the location where farmers with each surname concentrate in early census data. Surnames in red font (like Brash, Gilmour and Somerville) are associated exclusively with a single location within Scotland. Note: Yellow arrows indicate more common Scottish surnames that also appear among those recorded by the test subject's closest mtDNA genetic relatives (Figure 2).

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