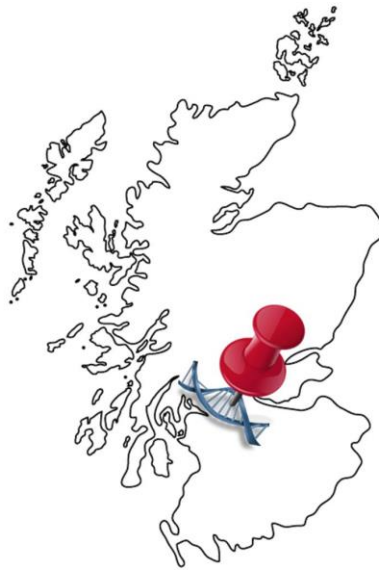


Pinpointing the HAMILTON Scottish Paternal Ancestral Genetic Homeland

A Scottish Case Study

www.scottishorigenes.com



A stylized, handwritten signature in black ink, appearing to read 'Tyrone Bowes'.

**Dr Tyrone Bowes
6th November 2013**

Introduction

A commercial ancestral Y chromosome DNA test will potentially provide one with the names of many hundreds of individuals with whom one shares a common male ancestor, but what often perplexes people is how one can match many individuals with different surnames? The answer is quite simple. Roughly 1,000 years ago one's direct medieval male ancestor, the first for example to call himself 'Hamilton' was living in close proximity to others with whom he was related but who assumed other surnames like Robertson and Douglas. Given that 1,000 years have passed since paternally inherited surnames became common, there will be many descendants of those individuals some of whom will today undergo commercial ancestral Y-DNA testing. Hence the surnames of one's medieval ancestor's neighbours will typically be reflected in today's Y-DNA test results.

Early 19th century census data demonstrates that Scottish surnames could still be found concentrated in the areas from which they originated. In this manner one can examine surname distribution (for the surnames that appear as a Y-DNA match) and pinpoint a '**Paternal Ancestral Genetic Homeland.**' The Genetic Homeland is the small area where one's ancestors lived for hundreds if not thousands of years. It is the area where one's ancestors left their mark in the placenames of that area and in the DNA of its current inhabitants. Since modern science can pinpoint a paternal ancestral genetic homeland it can also be used to confirm it by Y-DNA testing individuals from the identified location.

Notes of caution!

1. In Ireland each of the estimated 1,500 distinct Clans had a single founding ancestor, that's an estimated 1,500 Adam's from whom anyone with Irish ancestry can trace direct descent. But science has demonstrated that only 50% of individuals with a particular Irish surname will be related to the surnames founding ancestor, the other 50% of people will have an association that has arisen as a result of what are called 'non-paternal events' usually a result of adoptions or infidelity. Since Scotland adopted a similar Clan based society these scientific findings can be applied to Scotland and people with Scottish ancestry.
2. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results typically reflect one's ancestor's neighbours from around 1,000 years ago. As a result, if your recent Scottish ancestor was originally an Anglo-Saxon settler, Viking raider, or 12th Century Norman your DNA results will reflect earlier English, Welsh, French, and possibly Scandinavian origin. One must approach this process with an open mind!

Interpreting the Y-DNA test results

To pinpoint a paternal ancestral genetic homeland one must first identify the surnames that reappear as genetic matches. These recurring surnames will reflect the surname of a medieval ancestors neighbour. Results for test subject 'Hamilton' are shown in **Figure 1**.

Test Subject	Haplogroup	67 marker							
		exact	-1	-2	-3	-4	-5	-6	-7
Hamilton	I1	-	-	Hamilton(>50)	Robertson(>15) Williams(x2)	-	Douglas(x2) Smith(x2) McLain ¹	Thompson(x2) ²	-

Figure 1: Recurring surname matches for test subject Hamilton. Surnames appear at the point at which they first occur as a genetic match e.g. the first match to an individual called Hamilton occurs at 65/67 markers although not all Hamiltons may match at that level. Figures in brackets represent the number of individuals with a particular surname who appear as a genetic match. Coloured font denotes the ethnicity associated with each surname; **Scottish**, black font indicates surnames with multiple ethnic origins. Surnames in bold occur 3 times or more. ¹McLain appears as a recurring match at the 25 marker level. ²Members of the same extended family recruited for Y-DNA testing and excluded from analysis.

Upon commercial ancestral Y-DNA testing Mr Hamilton matched others called Hamilton, some of whom tested independently of him which indicates that he has retained the surname of a 'Hamilton-Adam' who lived approximately 1000 years ago when paternally inherited surnames became common, see **Figure 1**. Since Mr Hamilton's closest most frequent genetic matches are to Scottish surnames like Robertson, Douglas, and McLain, and to surnames found in Scotland like Thompson(Thomson) and Smith (the highest density of Smiths in the UK is in Aberdeenshire), this would indicate that Mr Hamilton's most recent paternal ancestral link as revealed by the Y-DNA results is associated with Scotland.

Surname distribution mapping reveals that the Hamilton surname is associated overwhelmingly with the western lowland central belt area of Scotland, see **Figure 2**. In contrast Robertson which appears as a prominent genetic match is associated with the Highlands, see **Figure 2**. There appears to be no clear common area of association among the Hamilton and Robertson surnames and hence a closer inspection of the distribution of these surnames throughout Scotland from earlier census data is required.

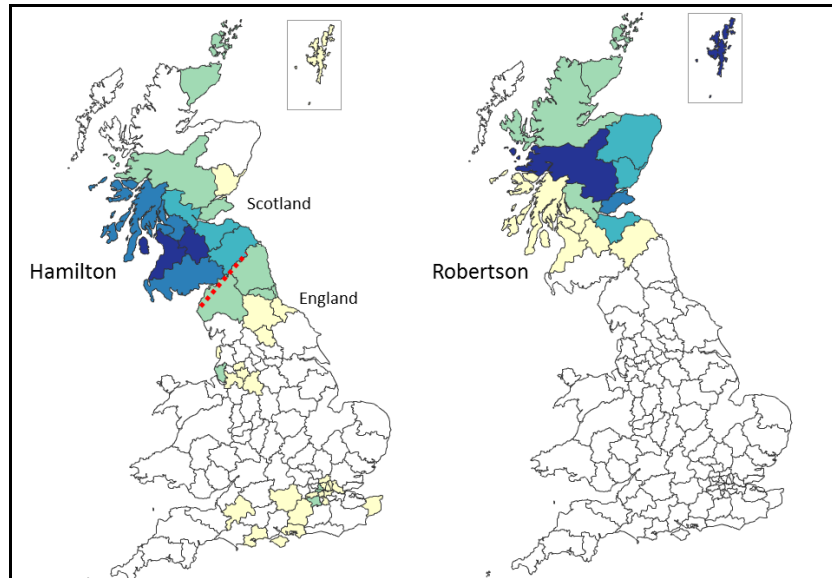


Figure 2: The Hamilton and Robertson surnames in Britain. Surname distribution mapping reveals that the Hamilton and Robertson surnames are associated almost exclusively with Scotland. However within Scotland the Hamilton surname is associated with the lowlands being found concentrated in Scottish southwest while Robertson is associated with the Highlands and Islands.

The method of using recurring surname matches as revealed by commercial ancestral Y-DNA testing to pinpoint a paternal ancestral genetic homeland works by exploiting the link between the Y chromosome, surname, and land, which are typically passed from father to son through the generations. In the absence of a link to the land the process becomes more challenging. One must therefore determine whether the Scottish Hamiltons had a link to the land by examining where farmers with this surname were found. The earlier in time that a link can be established the better as over time (particularly in the UK due to the industrial revolution) the link with the land is lost. An examination of the 1841 census reveals that the largest cluster of Hamilton farmers was found within Lanarkshire, followed by Buteshire on the west coast, with a tiny population in Caithness in the far north, see **Figure 3**. In contrast the Robertson farmers are associated with Perthshire in the Highlands, followed by the Shetland Islands, and interestingly there is a significant cluster of Robertsons recorded in Buteshire, see **Figure 3**. Buteshire where both the Hamiltons and Robertsons are prevalent in early census data was one of the smallest Counties in 1841 Scotland and it encompassed an area that spanned both the Lowlands and the Highlands of Scotland.

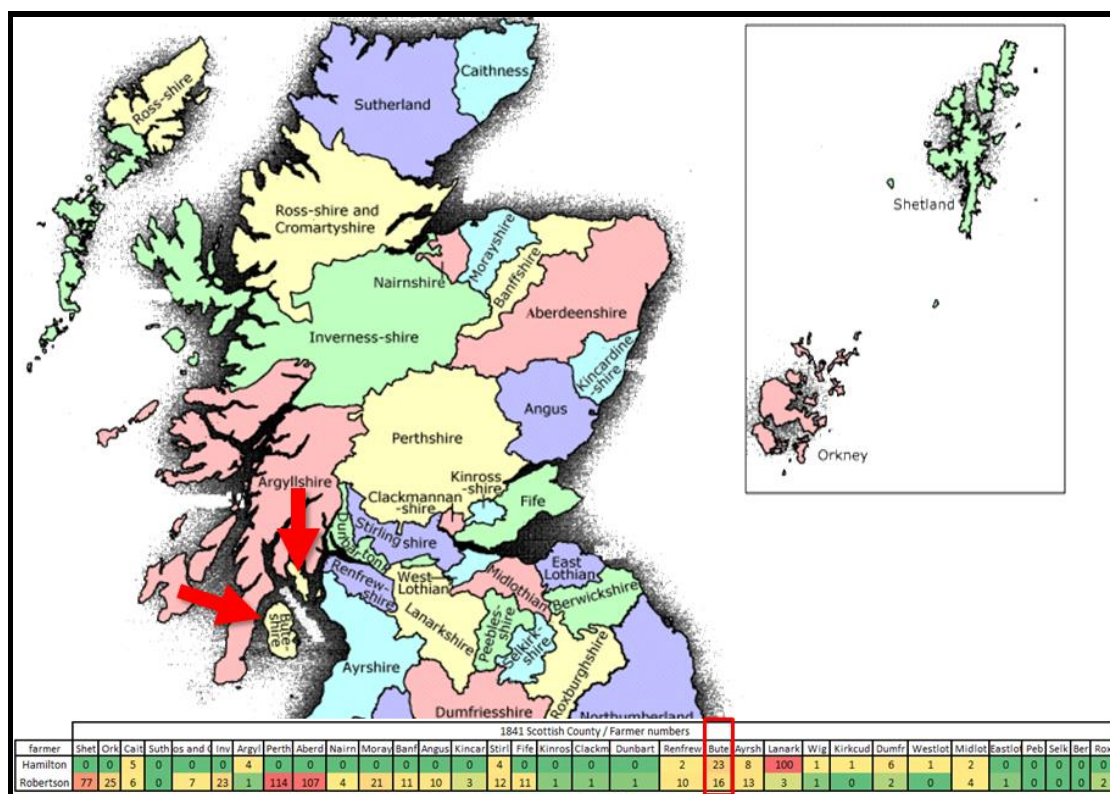


Figure 3: The farming communities associated with Mr Hamilton's closest and most frequent genetically recurring surname matches reveal a paternal ancestral link with Buteshire. Although Hamilton and Robertson farmers are common within Scotland the only area where these farmers are found together in large numbers is in the 1841 county of Buteshire (red box/red arrows).

Clan Hamilton

The Lowlander Scottish Hamiltons claim descent from a Walter fitzgilbert of Hambledon (Hamilton in Leicester) who is first mentioned in a charter to the Monastery of Paisley in about 1249AD. Presumably Walter was of Norman ancestry but given the lack of Norman-associated surnames throughout the test subjects Y-DNA results this casts doubt on the Norman origin of his Hamilton founding ancestor. It is far more likely given the exclusive nature of the Scottish-associated surnames that the Hamiltons were descended from the pre-historic people who inhabited the Lowland area of Scotland. Regardless of their earlier origin the Hamiltons have dominated Lowland Scotland since their first appearance in the 13th Century. The family acquired larges areas throughout the Lowlands including the Isle of Arran in 1470AD. Clan Hamilton have left their mark particularly in the western lowlands of Scotland in its many castles and placenames, see **Figure 4**.



Figure 4: Castles and placenames associated with Lowlander Clan Hamilton. The Lowlander Hamilton family dominated much of the western central belt area of Scotland. Their territory extended in 1470AD to the Isle of Arran where one finds Hamilton Isle and Brodick castle which was occupied by the Hamiltons.

Mr Hamilton's Paternal Ancestral Genetic Homeland

Within Buteshire the Hamilton and Robertson farmers are only recorded on the Isle of Arran. Hamilton farmers are overwhelmingly associated with Kilbride parish that surrounds Brodick castle, the seat of the Dukes of Hamilton since 1470AD, while the Robertsons although found in Kilbride parish, are found mainly in neighbouring Kilmory parish on the west coast of Arran, **Figure 5, Panel A**. Mr Hamiltons paternal ancestral genetic Homeland surrounds Brodick Castle on the eastern side of the Isle of Arran, **Figure 5, Panel B** and **Figure 6**. It was here that his Hamilton ancestors settled in about 1470AD when the Hamiltons acquired the island. They may have been accompanied by their genetic relatives the Robertsons, or the Robertson surname may have subsequently arisen among descendants of the Hamiltons on the Isle of Arran. The Clan system in Scotland has been extensively recorded and documented and is beautifully illustrated in Bartholomew's 30 year old Clan map. This map features the lands, or the areas of influence of the most prominent Clans and Families in Scotland from around 500 years ago. This map reveals that the Hamiltons shared the land of the Isle of Arran with another prominent lowlander family known as Hunter, see **Figure 5, Panel C**. Although they were not genetic relatives there is evidence of intermarriage between these neighbours in Mr Hamiltons Y-DNA results with one DNA match listing his surname as Hunter-Hamilton. There is also tentative evidence in the matches to Douglas, Smith, and Thompson to support an earlier ancestral link with mainland lowland Scotland. Clan Douglas in particular was a prominent Clan and neighbour of the Lanarkshire Hamiltons.

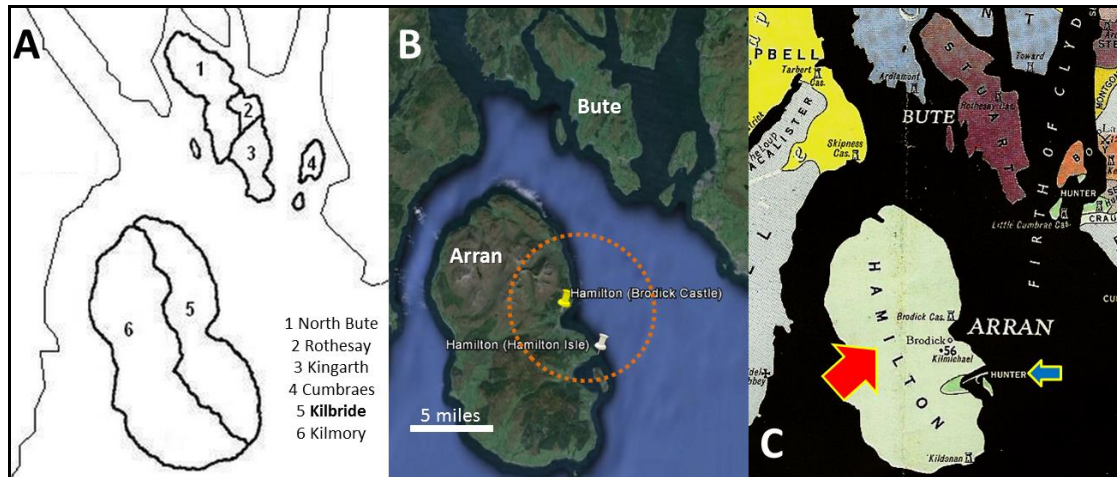


Figure 5: Mr Hamiltons Paternal Ancestral Genetic Homeland on the eastern shore of the Isle of Arran. In 1841 Hamilton and Robertson farmers were found in Kilbride parish on the eastern coast of the Isle of Arran (Panel A). It is on the eastern shore of the Isle of Arran that Mr Hamilton's paternal ancestral genetic homeland (Panel B, **orange broken circle**) is to be found. The Hamiltons acquired the Isle of Arran in 1470AD and their seat was Brodict castle, to the south of this lies Hamilton Isle. The Isle of Arran appears as Hamilton and Hunter territory (**blue arrow**) in Bartholomews Clan Map of Scotland (Panel C **red arrow**).



Figure 6: Brodict Castle on the Isle of Arran. Clan Hamilton acquired the Isle of Arran in 1470AD. Much of the present Brodict castle dates from this time.

How to confirm the Hamilton Genetic Homeland

Confirmation of the Scottish paternal ancestral genetic homeland will require the commercial ancestral Y-DNA testing of Hamilton farmers on the Isle of Arran.