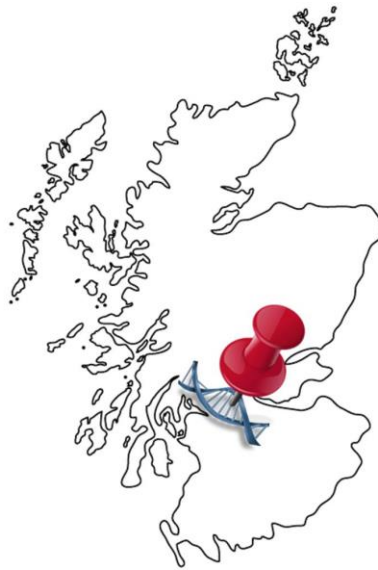


Pinpointing the HENDERSON Scottish Paternal Ancestral Genetic Homeland

A Scottish Case Study

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Introduction

A simple 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 'Henderson' was living in close proximity to others with whom he was related but who assumed other surnames like Williamson, Lyle and Wilson. Given that 1,000 years have passed since paternally inherited surnames were first adopted, 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 be revealed in today's Y-DNA test results.

In Scotland surnames can still be found concentrated in the area where they first appeared or in the area where ones ancestors first settled. One can therefore use census data to determine the origin of the surnames that appear in one's Y-DNA results, identifying an area common to all, and revealing a '**Paternal Ancestral Genetic Homeland.**' The paternal ancestral genetic homeland is the small area (usually within a 5 mile radius) where one's ancestors lived for hundreds if not thousands of years. It is the area where one's ancestor first picked his surname surrounded by relatives who picked others. It is the area where ones ancestors left their mark in its placenames, its history, 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 DNA testing individuals from the pinpointed area.

Notes of caution!

1. In Ireland each of the estimated 1,500 unique 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 descended from 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 'Henderson' are shown in **Figure 1**.

Test subject	Y-DNA test results													Y-search.org			
	Haplogroup	67						37					Surname	Markers compared	Genetic Distance	Number	
Henderson	I	exact	-2	-3	-4	-5		exact	-1	-2	-3	-4	Liles/Lyles ²	37	5	6	
		-	-	-	-	Henderson(x5)	-	-	Williamson(x6)	-	-	Wilson(x2) ¹	Olsen	37	5	2	
													Fowler	31	6	2	
													scott	30	5	2	

Figure 1: Recurring surname matches for test subject Henderson. Surnames appear at the point at which they first occur as a genetic match e.g. the first match to another individual called Henderson occurs at 62/67 markers although not all Hendersons 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**, **Scandinavian**, black font indicates surnames with multiple ethnic origins. Surnames in **bold** occur 3 times or more. ¹Wilson appears as a recurring genetic match in the y-search.org database. ²Lyle, Liles, and Lyles appear multiple times as a genetic match at the 25 marker level. ³Liles and Lyles are variations of Scottish Lyle.

Upon commercial ancestral Y-DNA testing Mr Henderson matched others called Henderson, some of whom tested independently of him which indicates that he has retained the surname of a 'Henderson-Adam;' the first to take that surname who lived approximately 1000 years ago when paternally inherited surnames became common, see **Figure 1**. Since Mr Henderson's closest most frequent genetic matches are to the Scottish surnames Williamson, Scott, Lyle, and Wilson, and to surnames associated with Scotland like Fowler and Olsen this indicates that Mr Henderson's most recent paternal ancestry as revealed by the Y-DNA results is associated with Scotland.

Census data reveals that Henderson is a common surname, and that it is associated with multiple locations within Scotland; indicating a number of unrelated Henderson-Adams living approximately 1000 years ago in different parts of Scotland when paternally inherited surnames became common. The test subject is descended from any one of these Henderson-Adams. However, Mr Henderson's genetically recurring surname matches as a snapshot of his Henderson-Adam's medieval neighbours should exhibit a common area of association within Scotland and reveal where his Henderson founding ancestor lived.

The method of using genetically 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 Hendersons 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.

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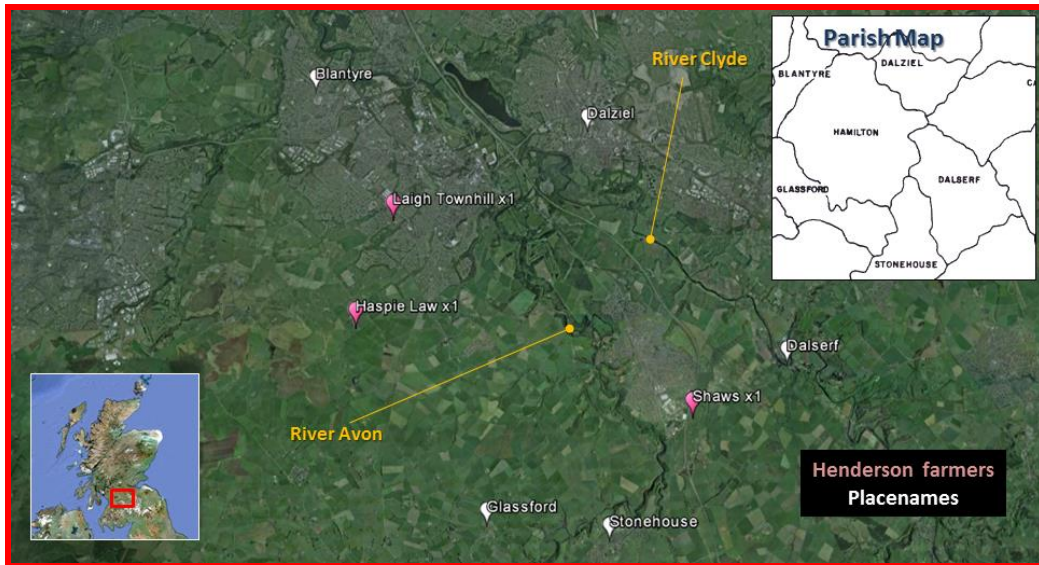


Figure 3: The 1841 Lanarkshire-Henderson farming community. In 1841 the Lanarkshire-Henderson farming community was found within the bordering parishes of Hamilton and Dalsersf (inset). Of the 6 Henderson farmers recorded in 1841 only three can be placed on a modern map, and they are situated along the course of the river Avon (a tributary of the River Clyde).

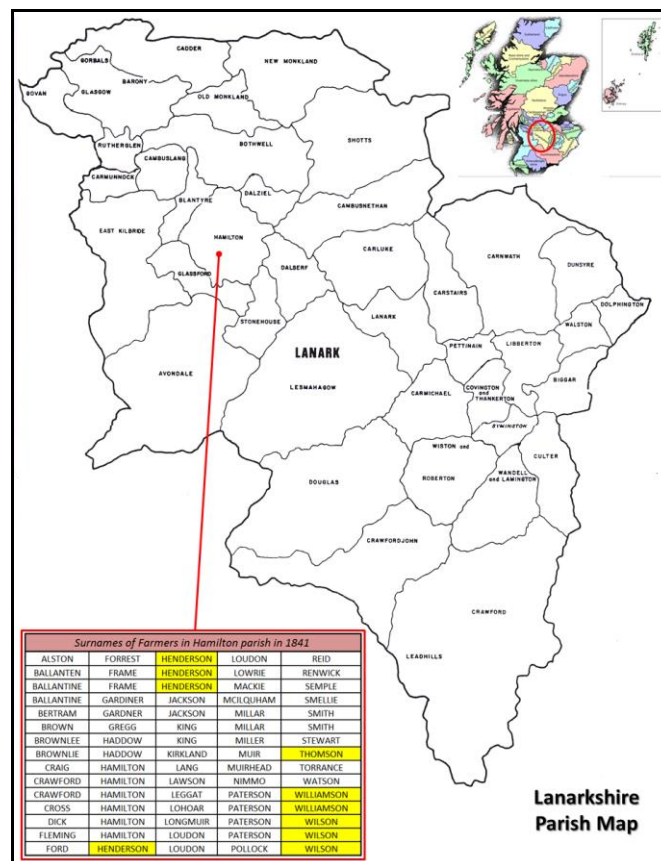


Figure 4: Parish map of Lanarkshire. In 1841 the majority of Lanarkshire Henderson farmers were located within Hamilton parish. An inspection of the surnames of the farmers that are recorded in Hamilton parish reveals Williamsons, Wilsons, and Thomsons, all of which appear as Mr Henderson’s closest genetic matches.

Lowlander Clan Henderson

By examining the locations of the castles and towerhouses that are historically associated with a particular surname, it reveals that medieval Scotland was a patchwork of territories dominated by notable Clans and Families. Remarkably almost everyone with Scottish paternal ancestry will be genetically related to at least one of these prominent Clans or families that once ruled over one's paternal ancestral genetic homeland.

The Lowlander Hendersons of Lanarkshire lived in what would have been the territory of Clan Hamilton, one of the most notable lowlander Scottish families who gave their name to the town and parish where the Lanarkshire Hendersons farmed in 1841, see **Figure 5**. A single Hamilton appears as a genetic match to Mr Henderson at the 25 marker level, which could represent a distant non-paternal event between these neighbours. In addition the Lowlander Scotts who appears as a recurring genetic match can be found to the east Hamilton town, see **Figure 5**.

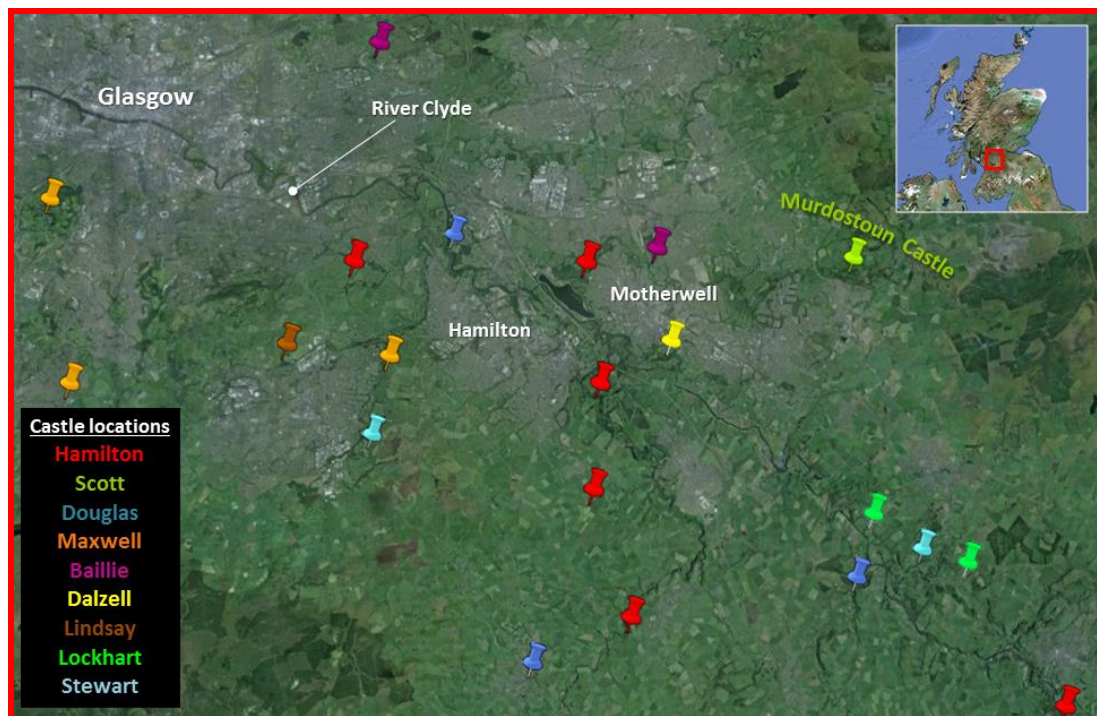


Figure 5: The Clan Territories of Lanarkshire. In 1841 the Lanarkshire Henderson farming community clustered in what was the medieval territory of Clan Hamilton, a surname that appears as a singular match at the 25 marker level. To the east one finds the territory of Clan Scott which surrounded Murdostoun castle. The Scotts appear as a recurring match to Mr Henderson.

Mr Henderson's Paternal Ancestral Genetic Homeland

Mr Henderson's paternal ancestral genetic homeland lies just south of Hamilton town, see **Figure 6**. It was here an estimated 1000 years ago that his direct male ancestor first took the Henderson surname. His founding ancestor lived surrounded by male relatives who picked other surname like Williamson, Lyle, Scott and Wilson. Unfortunately many of the placenames in the surrounding area have disappeared due to the expansion of the many towns and villages that are found all along the

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course of the rivers Avon and Clyde. The only historical evidence in the surrounding area occurs in the form of castles and towerhouses associated with Clans Hamilton and Scott, see **Figure 6**. In 1841 the Hendersons could still be found farming the hills to the south of Hamilton town towards Larkhall, see **Figure 7**. Most of the evidence of the Hendersons presence in this area will be found in the DNA of the remaining Henderson, Williamson, and Wilson farming community.

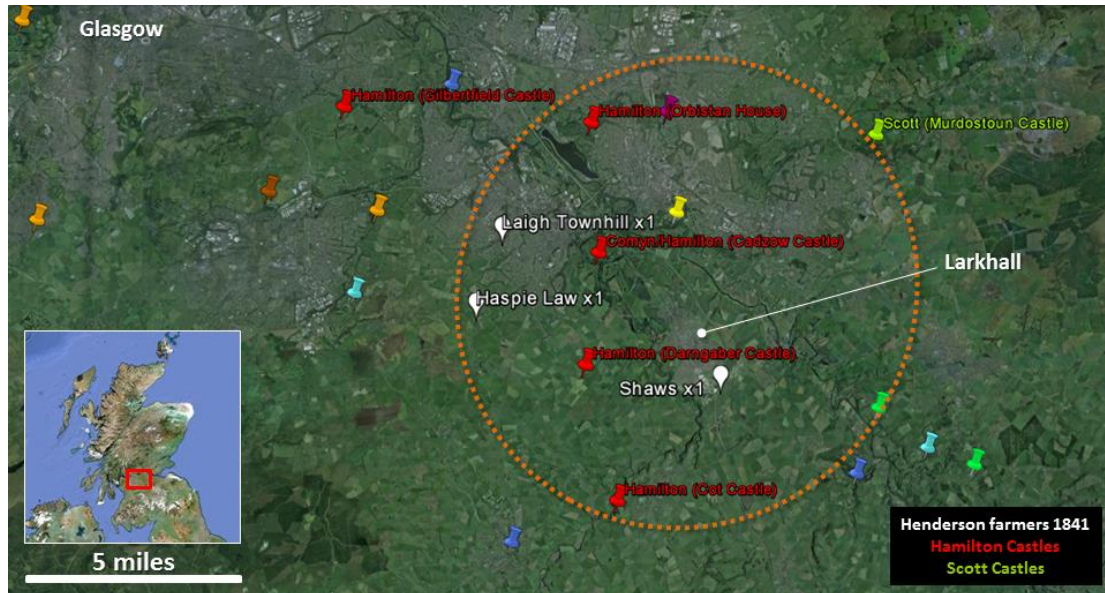


Figure 6: Mr Henderson's Paternal Ancestral Genetic Homeland. Mr Henderson's paternal ancestral genetic homeland (orange broken circle) is found in the area surrounding the town of Larkhall in Lanarkshire. His Henderson-Adam lived surrounded by relatives who picked surnames like Williamson and Wilson. The area was dominated in medieval times by the Hamiltons and Scotts who appear as a close singular match.



Figure 7: View from Hepsey (Haspie) Law (rounded hill) towards Hamilton town. The Hendersons farmed the heights that surround the southern edge of Hamilton town. Much of the farmland has been consumed by the growth of towns all along the course of the rivers Avon and Clyde.

The Lanarkshire Hendersons Viking descendants?

Mr Henderson's Y-DNA result revealed that he belongs to haplogroup I which is rare in Britain but common in Scandinavia. This raises the question as to how and when Mr Henderson's paternal ancestor arrived in Scotland. The Angles, Saxons, Jutes, Vikings, and Normans have ancestral links with Scandinavia and his ancestors could have arrived in Britain with one of these groups. There are clues to his pre-Scotland ancestral origin in his distant genetic matches. It is at the 25 and 12 marker level that one begins to see the appearance of distinctive Scandinavian surnames that typically end in '-son' or '-sen,' like Olsen, Svensson, and Holgersen. The timeframe for the shared ancestry with these Scandinavian individuals precedes the appearance of paternally inherited surnames (so pre-1000AD) and would indicate that Mr Henderson's paternal ancestors were of Viking origin. In addition Mr Henderson's surname matches; **Henderson**, **Williamson**, **Wilson**, and **Thompson** resemble the common patrilineal form of Scandinavian surnames. An examination of Hamilton parish reveals more of these typical Scandinavian-type surnames with **Paterson**, **Jackson**, **Lawson**, and **Watson** all recorded.

It would appear based on the Y-DNA evidence that Mr Henderson is descended from a group of 9th or 10th Century Vikings who settled at the confluence of the Avon and Clyde rivers near the present town of Hamilton. The descendants of these Vikings gave rise to the Hendersons, Williamsons, Wilsons, Patersons, Jacksons, Lawsons, and Watsons who could still be found in this area in 1841.

How to confirm the Henderson Genetic Homeland

Confirmation of the paternal ancestral genetic homeland will require the commercial ancestral Y-DNA testing of Henderson, Williamson, or Wilson farmers in the area surrounding Hamilton town. This may prove challenging given the urbanization of the surrounding area.