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on your Y-DNA results

PART I

Pinpointing the BARR Scottish Paternal Ancestral Genetic Homeland

A Scottish Case Study

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

Dr Tyrone Bowes
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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 'Barr' was living in close proximity to others with whom he was related but who assumed other surnames like Dunbar, Leckie, and Peden. 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 be revealed 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. 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 thus revealing a '**Paternal Ancestral Genetic Homeland.**' The paternal 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 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 'Barr' are shown in **Figure 1**.

Test Subject	haplogroup	Y-DNA test results												
		67 marker							37 marker					
		exact	-1	-2	-3	-4	-5	-6	-7	exact	-1	-2	-3	-4
Barr	R1b	-	Barr(x7)	Dubar(x2)	-	Lackie/Lackey(x2) Paden(x2) ¹	Gillespie(x1) ¹	-	-	Spence(x2) ²	Henry(x3) ¹	Jones(x2) ¹	Enderton(x2)	Donahue(x4) Enright(x3) Johnson(x2) ¹ White(x1) ¹

Figure 1: Recurring surname matches for test subject Barr. Surnames appear at the point at which they first occur as a genetic match e.g. the first match to another individual called Barr occurs at 66/67 markers although not all Barrs 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**, **Welsh**, **Irish**, black font indicates surnames with multiple ethnic origins. ¹These surnames also appear as genetic matches in the y-search.org database. ²Multiple members of the same extended family recruited for Y-DNA testing and excluded from further analysis.

Upon commercial ancestral Y-DNA testing Mr Barr was a genetic match to others called Barr who tested independently of him which indicates that he is among the 50% of males who after an estimated 1,000 years (or since paternally inherited surnames first appeared) are directly descended from an Barr-Adam (the first to take that surname), see **Figure 1**. The Barr surname is associated almost exclusively with Scotland where it is a common surname; indicating that there were potentially a number of different Barr Clans, each founded by a distinct (and unrelated) 'Barr-Adam;' anyone of whom the test subject may be descended from. Mr Barr's closest genetically recurring surname matches are either exclusively Scottish in origin like Dunbar and Lackie, or associated with Scotland like Gillespie and Peden. This indicates that Mr Barr's most recent paternal ancestry as revealed by his Y-DNA is linked with Scotland.

The Paternal Ancestral link with Ayrshire

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 Barrs, Dunbars, Pedens, and Leckies had a link to the land by examining where farmers with these 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 many farmers called Barr spread mainly throughout Scotland's southwest central belt area, see **Figure 2**. The Barr farmers are scattered

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throughout the Counties of Renfrewshire, Ayrshire, and Lanarkshire and not localised to one specific area. This indicates that rather than a single founding ancestor for all Scottish-Barrs (or a single Barr-Adam), that there were in fact many founding Barr-Adams. This fits with the fact that 'Barr' is a topographical surname presumably denoting a person who resided by a 'Barr' (a top of a hill).

By examining where the Barr, Dunlop, Peden, and Leckie farmers lived in early census data one should reveal an area common to all and identify which cluster of Ayrshire Barrs the test subject is related to and where his Barr founding-Adam lived. However, by 1841, and presumably due to the Industrial revolution, there are no farmers called Leckie in Ayrshire and only solitary Dunlop and Peden farmers recorded. Nevertheless, the Barr, Dunlop, and Peden farmers are found in the same general area surrounding Kilmarnock town in Ayrshire, see **Figure 3**.

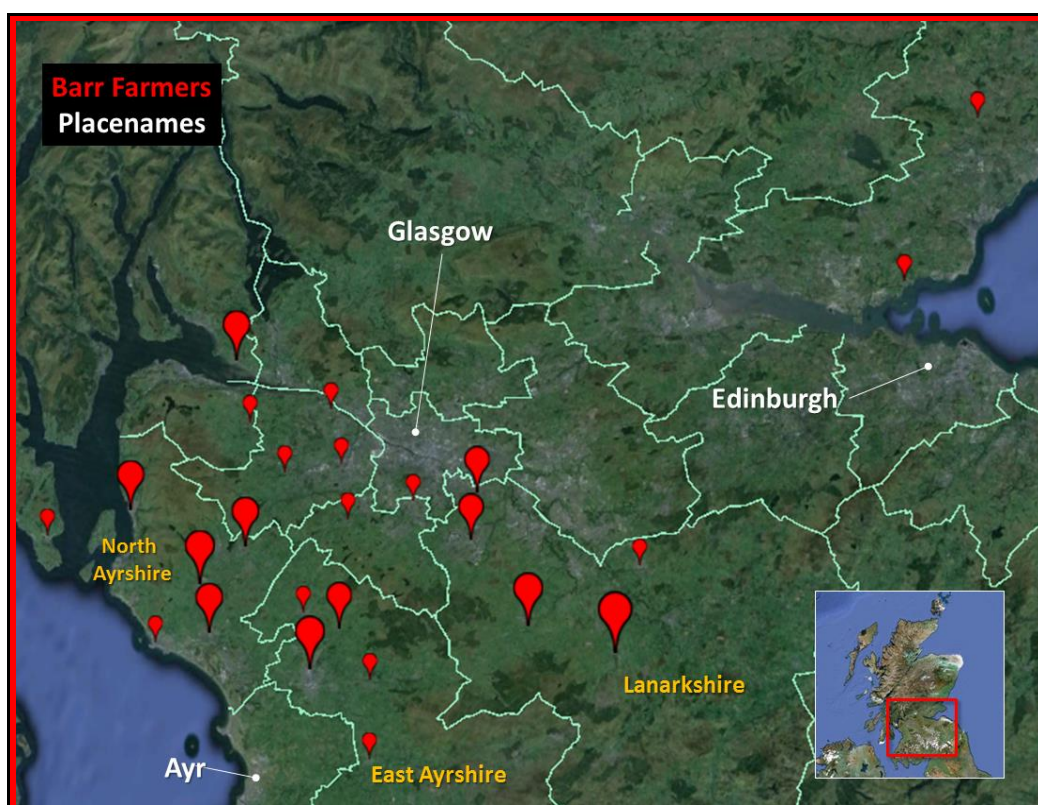


Figure 2: The 1841 Scottish-Barr farming community. The Scottish Barr farmers are found overwhelmingly to the west and south of Glasgow City and mainly in the modern Counties of North and East Ayrshire, and Lanarkshire. The distribution is scattered indicating that the Barr surname arose in multiple locations among multiply unrelated males and that it is associated with multiple Barr-Adams. Each red pin represents a Barr farmer. Pin size is indicative of frequency. Pins are placed in the parish where each farmer is recorded in 1841.

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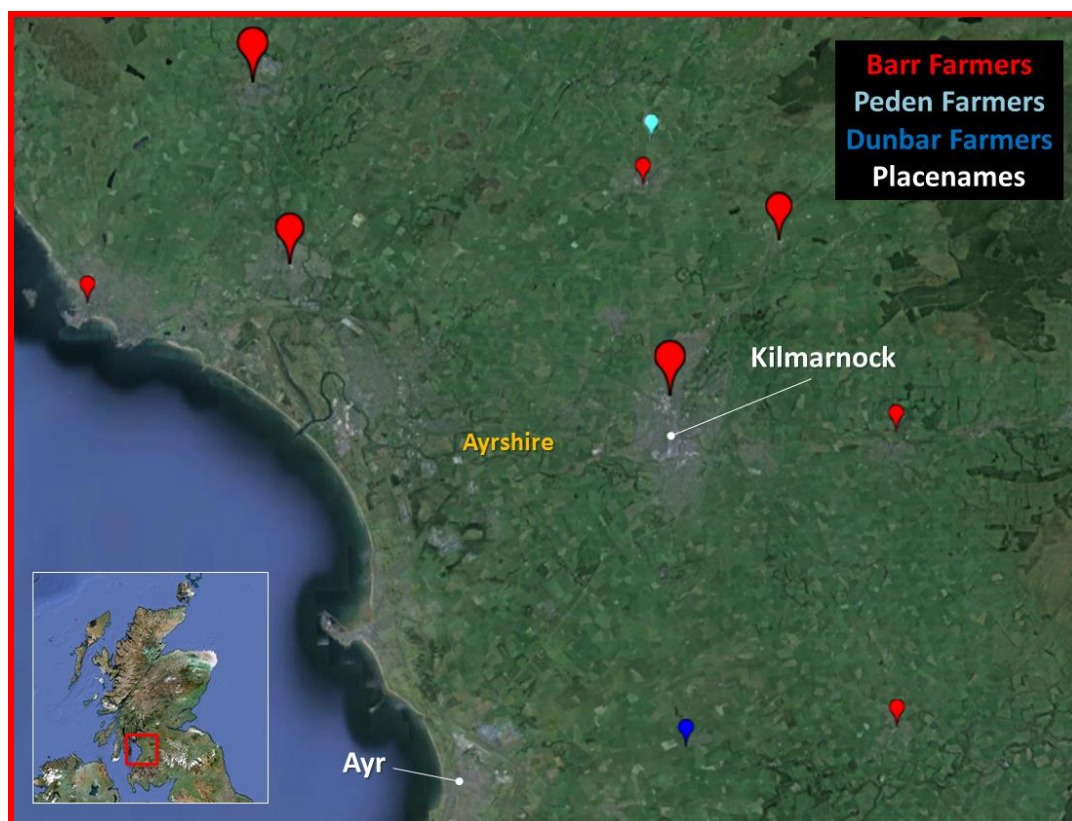


Figure 3: The 1841 farming communities associated with Mr Barr's Y-DNA results cluster in Ayrshire. Barr farmers are recorded scattered across Ayrshire. However both Dunbar and Peden farmers are rare and only solitary farmers with these surnames are recorded in southwest Scotland in 1841. However they do cluster in the area surrounding Kilmarnock town.

Lowlander Clan Barr

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. There are no known castles or towerhouses associated with the various Barr Clans, but the test subject's lowlander Barrs would have lived in the territory of Clan Campbell which surrounded Kilmarnock, and where to the south one finds Clan Dunbar who controlled the area south of Cumnock, and who appear as a recurring genetic match to Mr Barr, see **Figure 4**.

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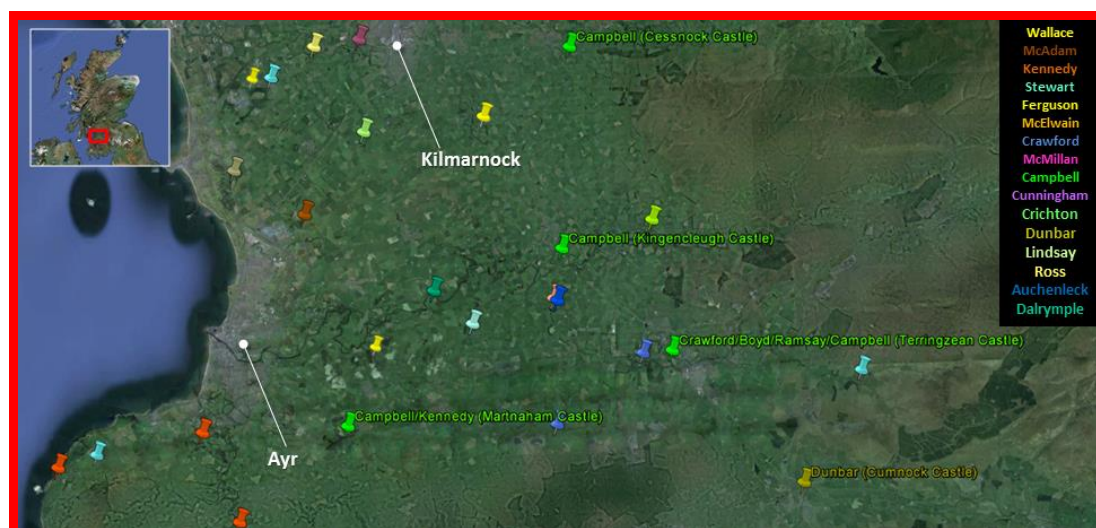


Figure 4: Castle locations and their historically associated Clans and Families in the area surrounding Ayr town. The area surrounding Ayr town was dominated by the Campbell and Kennedy Clans. The test subjects Ayrshire Barr ancestors lived in what would have once been Campbell territory. To the south one finds the territory of Clan Dunbar who appear as a close genetic match to Mr Barr.

Mr Barr's Paternal Ancestral Genetic Homeland

One's ancestors often left evidence of their ancestral link with an area in its placenames and historical monuments. So although the Ayrshire Dunbar and Peden farmers were rare by 1841 they may have left evidence of their presence in the areas placenames. An examination of Ayrshire reveals a 'Peden's Cave' found close to the solitary Ayrshire Dunbar found in Tarbolton and close to a Barr farmer recorded in Maucline parish, see **Figure 5**. Mr Barr's paternal ancestral genetic homeland is centred upon the town of Maucline in Ayrshire, it was here that his direct male ancestor first assumed the Barr surname when paternally inherited surnames became common approximately 1000 years ago. His ancestor lived surrounded by male relatives who became Pedens, Dunbars, Leckies, and Gillespies. The area surrounding Mauchline is hilly and many of its placenames begin with 'bar-', including Barwehy, Barneigh and Barmuir (top of the moor), see **Figure 6**.

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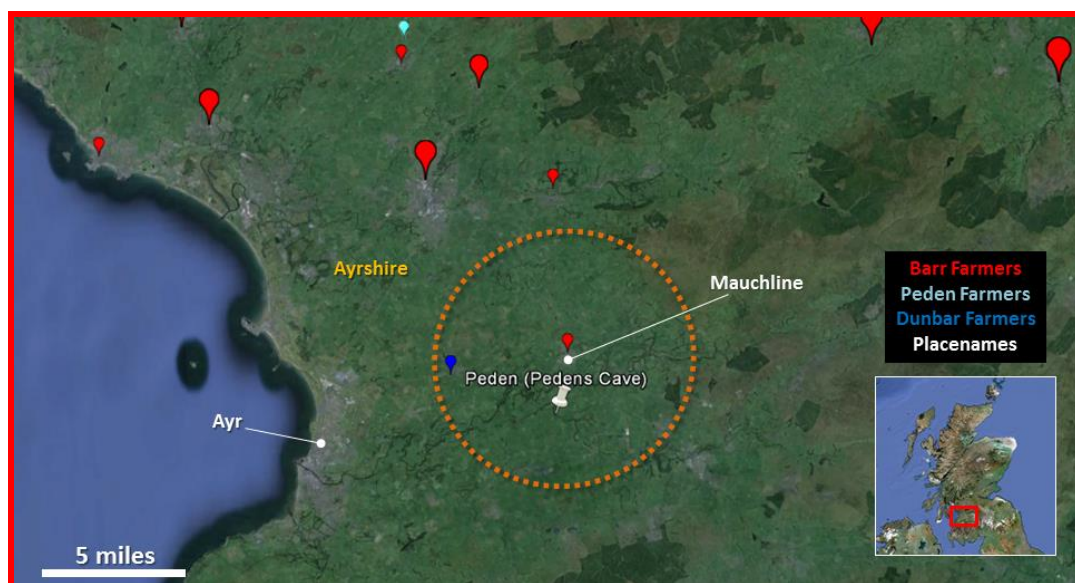


Figure 5: Mr Barr's Paternal Ancestral Genetic Homeland. Mr Barr's paternal ancestral genetic homeland is centred upon the town of Mauchline where one can find evidence of Barrs, Dunbars, and Peden's (orange broken circle) in early census data and in the areas placenames. It was in this area an estimated 1000 years that the test subjects ancestor first picked his Barr surname surrounded by male relatives who became Leckies, Dunbars, Pedens, and Gillespies.



Figure 6: Barr placenames surrounding Mauchline in Ayrshire. Barr is a locational surname referring to someone who lived at the top of a small hill. The area surrounding Mauchline consists of rolling hills with names like Barneigh, Barmuir, and Barwhey. Mr Barr's founding ancestor presumably lived on one such hill in the area that surrounds Mauchline.

How to confirm the 'Barr' Genetic Homeland

Confirmation of the paternal ancestral genetic homeland will require the commercial ancestral Y-DNA testing of Barr farmers who current live in the area surrounding Mauchline town.

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