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on your Y-DNA results

Case Study

Pinpointing the BENNETT Paternal Ancestral Genetic Homeland

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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 'Bennett' was living in close proximity to others with whom he was related, but who assumed other surnames like Lock, Seymour, and Coat. In the 1,000 years 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 reflected in today's Y-DNA test results.

Surnames in England 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 reveal 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. Paternally inherited surnames were adopted in England after the arrival of the Normans in 1066AD. Surnames in England tend not to reflect a genealogical record of a surnames founding ancestor but denote either a person's profession e.g. Taylor, Thatcher, Smith, a notable feature e.g. Short, Brown, Wise, or even the place where they lived e.g. Townsend, Hill, York. As a result English surnames often have multiple points of origin, and hence potentially a large number of unrelated founding Adams (each surname may have had multiple founding 'Adams').
2. Science has demonstrated that only 50% of individuals with a unique surname will be related to that surname's founding ancestor (the surname Adam), 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.
3. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results reflect one's ancestor's neighbours from around 1000 years ago. As a result if one's English ancestors are descended from Viking raiders or conquering Normans, then ones Y-DNA results will reflect earlier continental European or Scandinavian origin. In Ireland for example, only 60% of those with Irish ancestry are related to the pre-Christian Celtic tribes of Ireland. One must approach this process with an open mind!

INTERPRETING THE Y-DNA RESULTS

To identify a paternal ancestral genetic homeland one must first find the surnames that continually appear as genetic matches. These recurring surnames are less likely to be a result of non-paternal events (adoptions/infidelity) and reflect the surname of a medieval ancestor's neighbour. Surnames that recur as genetic matches for test subject Bennett are listed in **Figure 1**.

Test Subject	haplogroup	Y-DNA test Results								37 markers	25 markers
		0	1	2	67 markers		4	5	6		
Bennett	R1b	Bennett(x14)	-	-	Locke(x2)	Seymour(x3)	-	-	-	-	Fallis/Follis(x5)

Figure 1: Genetically recurring surname matches for test subject Bennett. Surnames are shown at the point at which they first appear as a genetic match e.g. the first match to an individual called Bennett occurs at 67/67 markers, although not all Bennetts may match at that level. In brackets are the numbers of individuals with each surname that occur as a genetic match. Font colour is indicative of the ethnicity associated with each surname; **English**, black font indicates surnames with multiple possible ethnicities.

Upon commercial ancestral Y-DNA testing Mr Bennett matched others called Bennett who tested independently of him which indicates that he among the estimated 50% of individuals who after an estimated 1,000 years have retained their founding ancestor's surname (the Bennett-Adam; the first to take that surname), see **Figure 1**. However, Bennett is a very common surname and it is possible that 1000 years ago there were many unrelated Bennett-Adams living in many different locations, anyone of whom the test subject could be directly descended from. Mr Bennett's genetically recurring matches are to English surnames, revealing an ancestral link with England from the time when paternally inherited surnames became common, see **Figure 1**.

Y-DNA, SURNAMES AND LAND

Paternally inherited surnames first appeared about 1000 years ago at a time when the vast majority of people were involved in agriculture; hence many surnames appeared amongst farming communities whose descendants can still be found farming the lands where their ancestors lived when they first inherited a surname. However, the link with the land for many English surnames has disappeared due to the early industrial revolution and one must therefore examine early census data to determine where farmers with the surnames that appear in one's DNA results lived, identifying an area common to all and revealing one's paternal ancestral genetic homeland.

The 1841 census reveals that there are at least 12 clusters of Bennett farmers spread throughout England and Wales, see **Figure 2**. Since Mr Bennett is descended from a Bennett-Adam, and each cluster represents the descendants of a distinct (unrelated) Bennett-Adam who lived in each location approximately 1000 years ago, this means that Mr Bennett's ancestors lived in one of these locations. Mr Bennett's genetically occurring surname matches, as a snapshot of the surnames that his medieval

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ancestor's neighbours/relatives picked, will exhibit a common area of association and reveal which of the 12 locations his Bennett ancestors originate from.

The 1841 census data reveals that Bennett, Lock, Seymour, Coat, and French (the surname French appears as a close singular match) farmers were associated with two distinct geographical locations, see **Figure 2**. There is a large cluster of Bennett farmers found in Somerset in the English southwest where one also finds large numbers of Lock, together with Seymour, Coat, and French farmers. A smaller concentration of Bennett farmers are found within the larger neighbouring Counties of Lincolnshire and Yorkshire in the Northeast of England, together with Locks, Seymours, Coats, and French, see **Figure 2**.

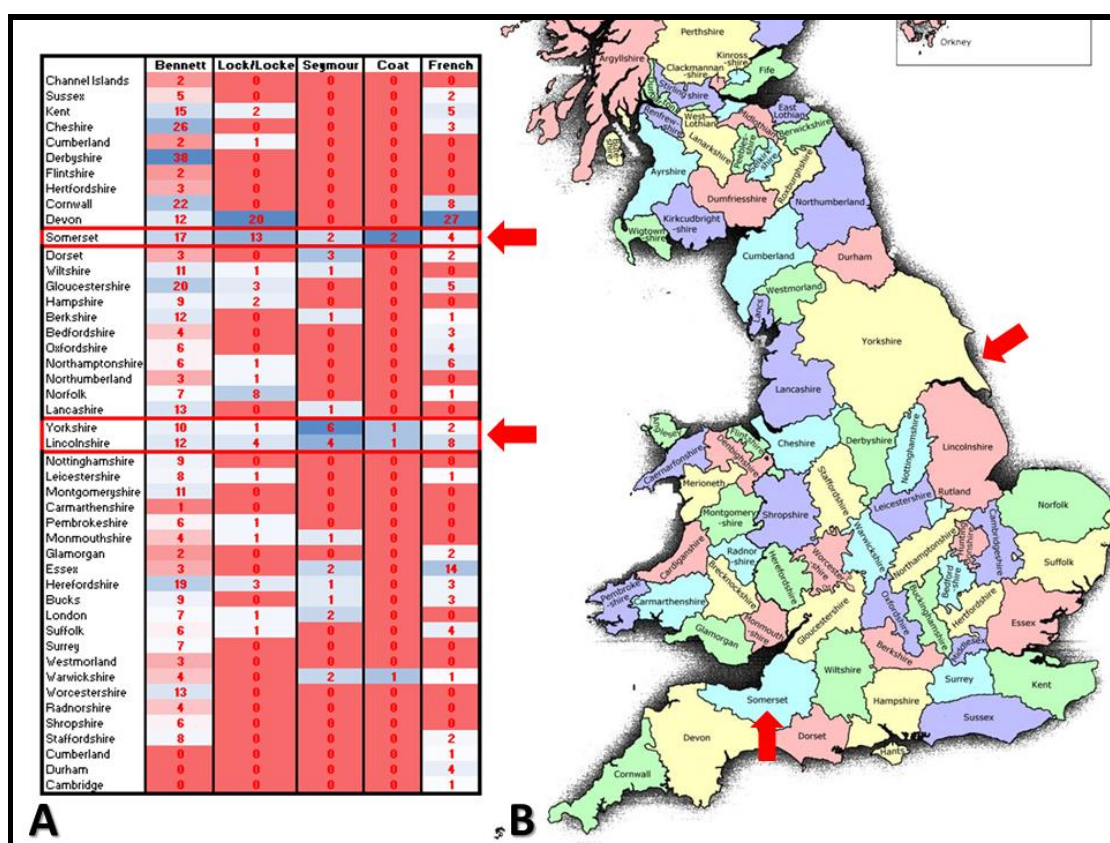


Figure 2: The farming communities associated with the surnames that appear as close genetic matches to Mr Bennett. By examining the distribution of Bennett, Lock/Locke, Seymour, Coat/Coate, and French farmers in 1841 (**Panel A**) it reveals that farmers with these surnames are only found associated with Somerset in the southwest and within the neighbouring Counties of Yorkshire and Lincolnshire in the Northeast (**Red Arrows, Panel B**)

Surnames arose among tribal groups of related males living in close proximity to one another, hence one can examine where the Bennett, Lock, Seymour, Coat, and French farmers lived within Somerset and Yorkshire/Lincolnshire. The area where farmers with these surnames live in closest proximity to one another will reveal where Mr Bennett's ancestors originate. By plotting the parish where each farmer lived in 1841 it reveals that Bennett, Lock, Seymour, Coat, and French farmers cluster together in close proximity to one another only within Somerset, see **Figure 3**. In

contrast farmers with these surnames are scattered in different parts of the northeast, see **Figure 3**.

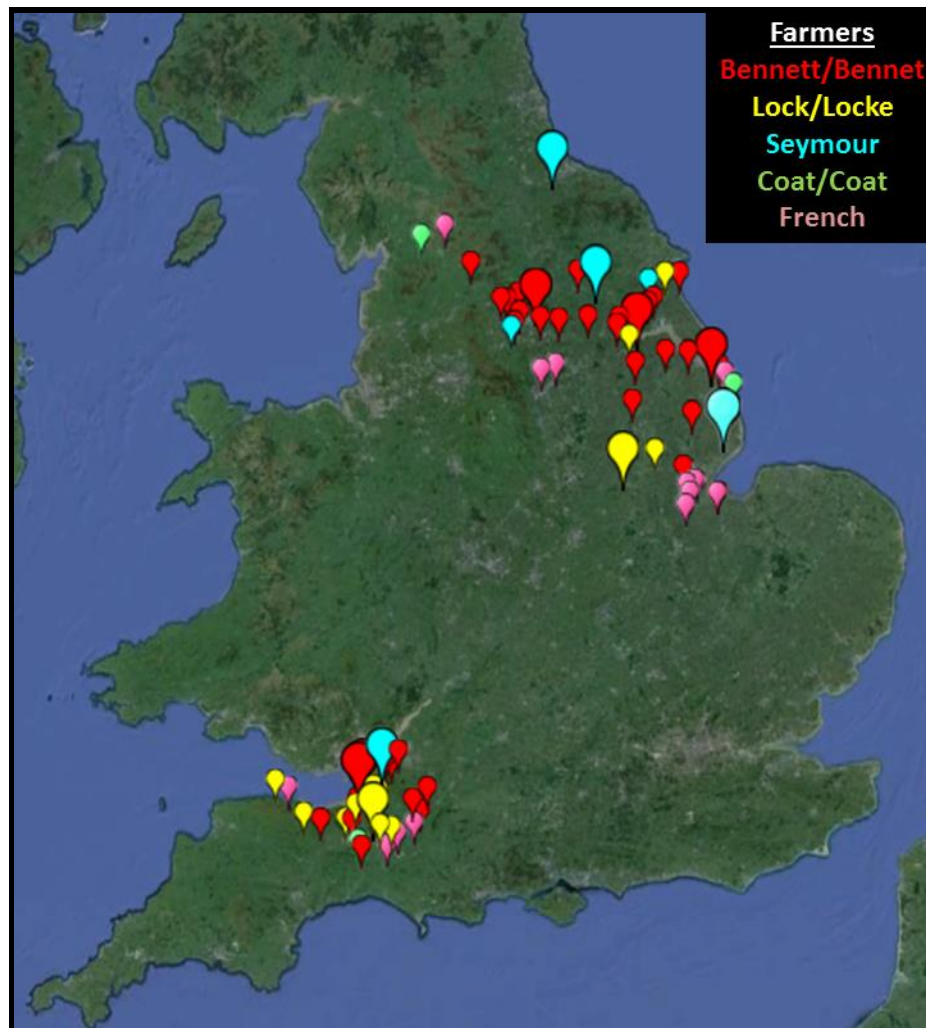


Figure 3: Farmers with the surnames that appear as genetic matches cluster in the English southwest. Census data revealed that Bennett, Lock/Locke, Seymour, Coat, and French farmers are associated with Somerset in the southwest and with the neighbouring Counties of Yorkshire and Lincolnshire in the northeast. It is only within Somerset that farmers with these surname cluster together in close proximity; indicating that these surnames arose among related males living in Somerset. In contrast these surnames do not cluster in the northeast where they arose in multiple locations among unrelated males. Each pin has been placed in the parish where a farmer is recorded in 1841. Pin size is indicative of frequency.

Mr Bennett's Paternal Ancestral Genetic Homeland

The Bennetts of Somerset cluster near the town of Burnham on Sea close to the Bristol Channel, see **Figure 4**. It is in this area that Mr Bennett's direct male ancestor, the first to inherit his 'Bennett' surname lived approximately 1000 years ago and where his paternal ancestral genetic homeland is to be found. His Bennett-Adam lived surrounded by male relatives who picked other surnames like Lock, Seymour, Coat, and French, whose descendants can also be found farming in the surrounding Somerset levels. An examination of the area surrounding Burnham on Sea reveals

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local placenames that reflect the ancestral link of the Bennetts and their genetic cousins with the surrounding area including Bennett road, Lockswell, Locksway, Seymour road, Seymour Court, Coat (village), and Coate farm, see **Figure 4**.

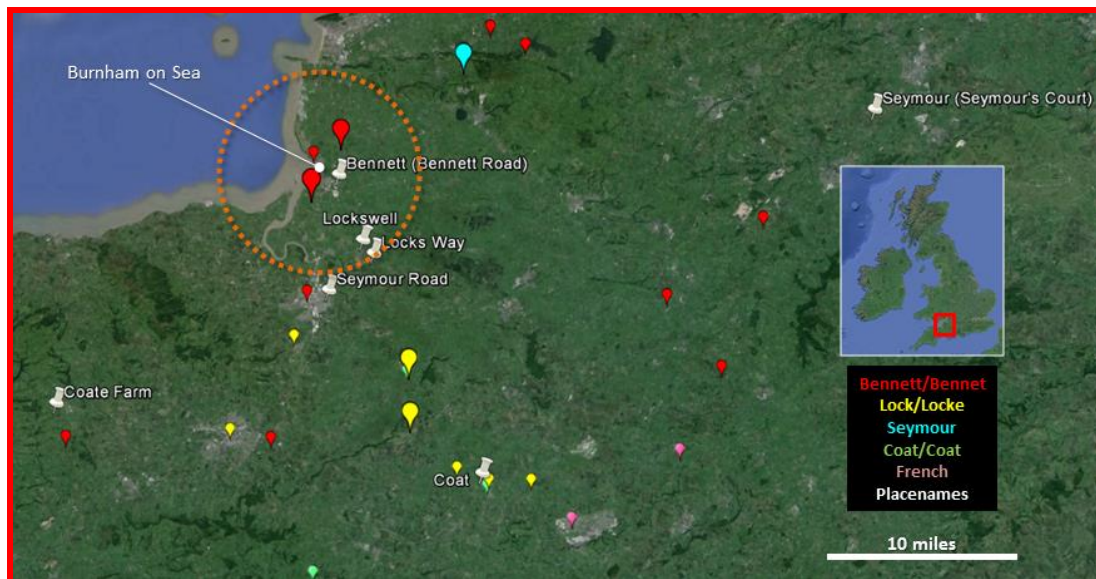


Figure 4: Mr Bennett's paternal ancestral genetic homeland. Mr Bennett's paternal ancestral genetic homeland is centred upon the town of Burnham on Sea. It is the area surround Burnham on Sea that the Bennetts cluster surrounded by farmers with surnames that appear as close genetic matches including Lock, Seymour, Coat, and French. An examination of the surrounding area reveals a number of placenames associated with these surnames, evidence of their long ancestral link with this area.

Normans or Ancient Briton?

Mr Bennett belongs to the R1b which is the most common haplogroup found within the British Isles and is often associated with pre-historic settlement in Britain. In addition, the further west one's ancestors are found in Britain, the more ancient or the earlier ones ancestors arrived. However, Mr Bennett's closest genetic matches are a mix a curious mix of English (Coat, Lock) and French surnames (Bennett, Seymour, French). Only a thorough exploration of Mr Bennett's distant genetic matches will reveal whether his ancestors were ancient Britons or more recent Conquering Normans.

Confirming the Paternal Ancestral Genetic Homeland

To confirm the area surrounding Burnham on Sea as Mr Bennett's paternal ancestral genetic homeland will require Y-DNA testing of Bennett farmers who currently live in that area.

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