Email: Dr Tyrone Bowes at tyronebowes@gmail.com for a FREE consultation on your DNA results or to find out about a suitable DNA test for you!

Sloan
An Autosomal (Ancestry.com) DNA Case Study

www.irishorigenes.com

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INTRODUCTION

There are several commercial ancestral DNA tests that can be used to explore one's ancestry. By far the most popular is the 'autosomal test' which looks at bits of all of one's DNA and sheds light over ***all*** of one's recent ancestral lines. With autosomal DNA testing one will typically match many individuals (both male and female) and making sense of those relationships can be quite challenging. However, as with every DNA test the same golden rule applies, the more DNA that two people share the more recent their shared (paternal or maternal) ancestor once lived. In addition, many of one's autosomal matches will reveal surnames and placenames associated with their family tree, and those surnames and locations can hold clues as to where the various branches in one's own ancestral tree originated. The challenge of modern autosomal DNA analysis is linking a common location revealed in the autosomal DNA test result with a particular ancestral surname.

INTERPRETING THE AUTOSOMAL DNA RESULTS

An examination of test subject Sloan's 'autosomal' DNA test results revealed 26,493 genetic relatives, the vast majority of whom record ancestral information, see **Figure 1**. The locations revealed by the test subject's autosomal genetic relatives are ***NOT RANDOM***, given their respective population sizes, Ireland and Scotland dominate in frequency and shared DNA, see **Figure 1**.

Autosomal DNA stats			
Genetic Relatives	**26,493**	**Percentage**	**Max. Shared DNA/cM**
Generic relatives	627	2.4	895
Ireland	154	24.6	775
Northern Ireland	112	17.9	775
Scotland	75	12	207
England	125	20	232
Wales	25	4	37
Norway	15	2.4	45

Figure 1: *Ireland and Scotland gave strong autosomal DNA signals. Autosomal DNA testing revealed 26,493 genetic relatives, 627 of whom share more than 20cMs of DNA. The locations recorded by those genetic relatives are NOT RANDOM, given their respective populations sizes, Ireland and Scotland feature prominently in frequency and shared DNA.*

The Ancestral link with Ireland and Scotland

The locations recorded within Ireland and Scotland by the test subject's autosomal genetic relatives are not random, and a search of that ancestral detail for the 32 counties of Ireland revealed a single dominant DNA hotspot centred upon County Down in Ulster in Northern Ireland, see **Figure 2**. An examination of the 1841 counties of Scotland detailed by the test subject's autosomal genetic relatives revealed 3 DNA hotspots centred upon Lanarkshire/Ayrshire, Mid-Lothian, and Fife, see **Figure 3**.

A

	County	Frequency	Percentage		Max. Shared DNA/cM
Connaught	Leitrim	8	3.0		775
	Roscommon	8	3.0		402
	Sligo	5	1.9		26
	Mayo	16	6.0		196
	Galway	30	11.3		232
Munster	Clare	25	9.4		402
	Kerry	7	2.6		196
	Cork	31	11.7		775
	Limerick	15	5.6		775
	Tipperary	13	4.9		97
	Waterford	4	1.5		25
Leinster	Kilkenny	6	2.3		38
	Offaly	4	1.5		207
	Laois	6	2.3		24
	Kildare	5	1.9		402
	Dublin	22	8.3		402
	Wicklow	4	1.5		25
	Carlow	5	1.9		402
	Wexford	11	4.1		402
	Longford	3	1.1		24
	Westmeath	5	1.9		29
	Meath	9	3.4		402
	Louth	12	4.5		775
Ulster	Down	78	29.3		775
	Armagh	15	5.6		42
	Monaghan	14	5.3		402
	Cavan	10	3.8		196
	Fermanagh	2	0.8		28
	Donegal	21	7.9		196
	Tyrone	11	4.1		105
	Derry	21	7.9		196
	Antrim	24	9.0		41

B

Figure 2: *Autosomal testing reveals a solitary DNA hotspot within Ireland. An examination of the Irish counties detailed by the test subject's autosomal genetic relatives that share greater than 20cM of DNA reveals a solitary dominant DNA hotspot centred upon County Down in Ulster (**red arrow**, **panel A**, **red circle**, **panel B**). The signal from Dublin, Cork, and Antrim are non-specific noise, the result of more recent migration to the cities of Dublin, Cork, and Belfast.*

A

County	Frequency	Percentage		Max. Shared DNA/cM
Shetland	0	0.0		0
Orkney	3	4.0		29
Caithness	2	2.7		22
Sutherland	1	1.3		21
Ross and Cromarty	4	5.3		207
Invernesshire	4	5.3		24
Argyllshire	6	8.0		207
Perthshire	10	13.3		31
Stirlingshire	9	12.0		45
Dunbartonshire	7	9.3		32
Buteshire	0	0.0		0
Nairn	0	0.0		0
Morayshire	3	4.0		32
Banffshire	4	5.3		29
Aberdeenshire	12	16.0		45
Kincardineshire	4	5.3		29
Angus	4	5.3		29
Fife	19	25.3		45
Clackmannanshire	3	4.0		31
Kinrosshire	1	1.3		24
West Lothian	3	4.0		29
Mid Lothian	17	22.7		45
East Lothian	2	2.7		27
Renfrewshire	13	17.3		45
Lanarkshire	28	37.3		105
Ayrshire	19	25.3		207
Dumfriesshire	8	10.7		36
Roxburghshire	7	9.3		31
Kirkcudbrightshire	6	8.0		28
Wigtownshire	5	6.7		27
Peebleshire	4	5.3		45
Selkirkshire	3	4.0		97
Berwickshire	3	4.0		24

B

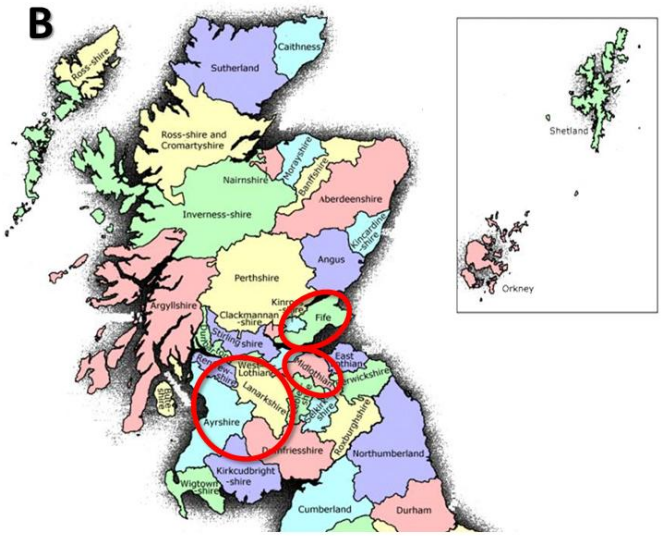

Figure 3: *Autosomal testing reveals 3 DNA hotspots within Scotland. An examination of the 1841 Scottish counties detailed by the test subject's autosomal genetic relatives that share greater than 20cM of DNA reveals that Lanarkshire/Ayrshire, Mid-Lothian, and Fife, and (**red arrows**, **panel A**, **red circles**, **panel B**) emerged as DNA hotspots. The signals from Lanarkshire and Mid Lothian may be non-specific noise, the result of more recent migration to the cities of Glasgow and Edinburgh, respectively.*

Ancestral Surnames

The test subject's most recent ancestral papertrail reveals a mix of Irish and Scottish-associated surnames, see **Figure 4**. Distribution mapping demonstrates that

surnames still concentrate in the area where they first appeared or in the areas where one's ancestors first settled, see **Figure 5**.

In Ireland, the descendants of Gaelic Irish, Normans, and Scottish mercenary Gallowglass were overwhelmingly Catholic in early census data, while those descended from 16th and 17th Century Plantation Scots and English settlers were overwhelmingly Protestant. Irish census data reveals that the test subject's Carvill, Cunningham, Doyle, Haughian, Kelly, Lynch, McCartan, McEvoy, Rice, Shields, Sloan(e), and Whirrity/Whirity ancestral surnames are associated with Pre-Plantation Gaelic/Norman Ireland while Boyd, Cunningham, McBurney, Shields, and Sloan(e) are associated with 17th Century Plantation settlement within Ireland.

Surnames arose in an agriculturally based society, and farmers with each surname can still be found concentrated in early census data in the area where their surname first appeared (Gaelic) or in the area where one's ancestors first settled (Gallowglass/Norman/Planter). Distribution mapping of Catholic farmers named Carvill, Cunningham, Doyle, Haughian, Kelly, Lynch, McCartan, McEvoy, Rice, Shields, and Sloan(e), reveals distinct groups spread throughout Ireland, see **Figure 6**. Distributing mapping of Protestant Irish farmers named Boyd, Cunningham, McBurney, Shields, and Sloan(e) reveals distinct groups spread throughout Ulster in Northern Ireland where plantation settlement was most successful, see **Figure 7**. Distribution mapping demonstrates that almost all the test subject's ancestral surnames are associated with County Down in Southeast Ulster in Northern Ireland, see **Figures 6** and **7**. The Boyd, Cunningham, McBurney, Shields, and Sloan surnames are associated with Scotland with distribution mapping revealing distinct groups spread throughout Southern Scotland, some of which are also associated with areas that emerged as autosomal DNA hotspots, see **Figure 8**.

Ancestral Surname	Earliest Recorded Ancestral Location	
Sloan/Sloane (x2)	Ballyveagh, County Down, Ireland	Ballymageogh, County Down, Ireland
Haughian	Brackney Parish, Kilkeel, Down, Northern Ireland	
Shields	County Down, Ireland	
Cunningham	County Down, Ireland	
Rice	Ballymageogh, Kilkeel, County Down, Ireland	
McEvoy	Moyad, Kilkeel, County Down, Ireland	
Whirrity / Whirity (x2)	Kilkeel, County Down, Ireland	County Down, Ireland
Doyle	Kilkeel No 2, County Down, Ireland	
Lynch	County Down, Ireland	
McCartan	Brackney, County Down, Ireland	
McBurney	County Down, Ireland	
Carvill	County Down, Ireland	
Kelly	Fofanny, County Down, Northern Ireland	
Boyd	Ballymageogh, Mourne Park, Down, Ireland	

Figure 4: *Ancestral surnames and earliest recorded ancestral locations. Highlighted font indicates each surnames associated ethnicity or location of an earliest known ancestor: Irish/Ireland, Scottish/Scotland, Irish or Scottish-associated.*

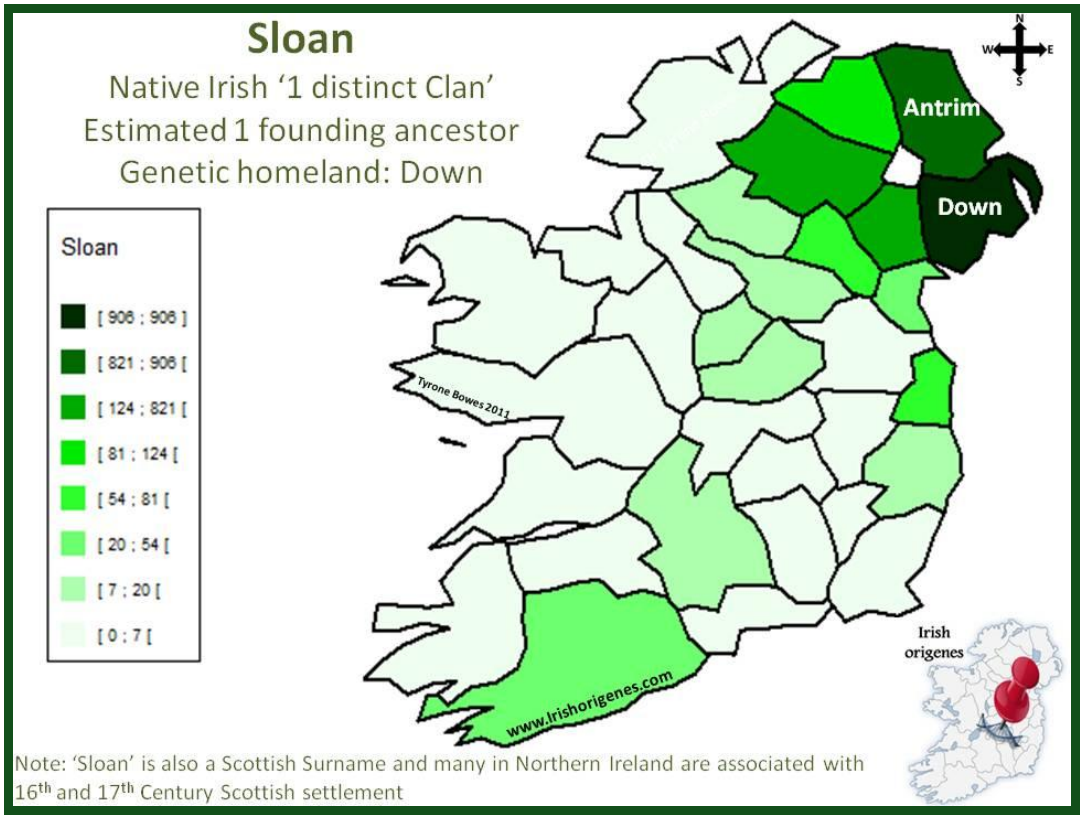

Figure 5: *The Sloan Surname in Ireland. Distribution mapping of all individuals named Sloan throughout the 32 counties of Ireland demonstrates clearly that the surname concentrates in in specific counties.*

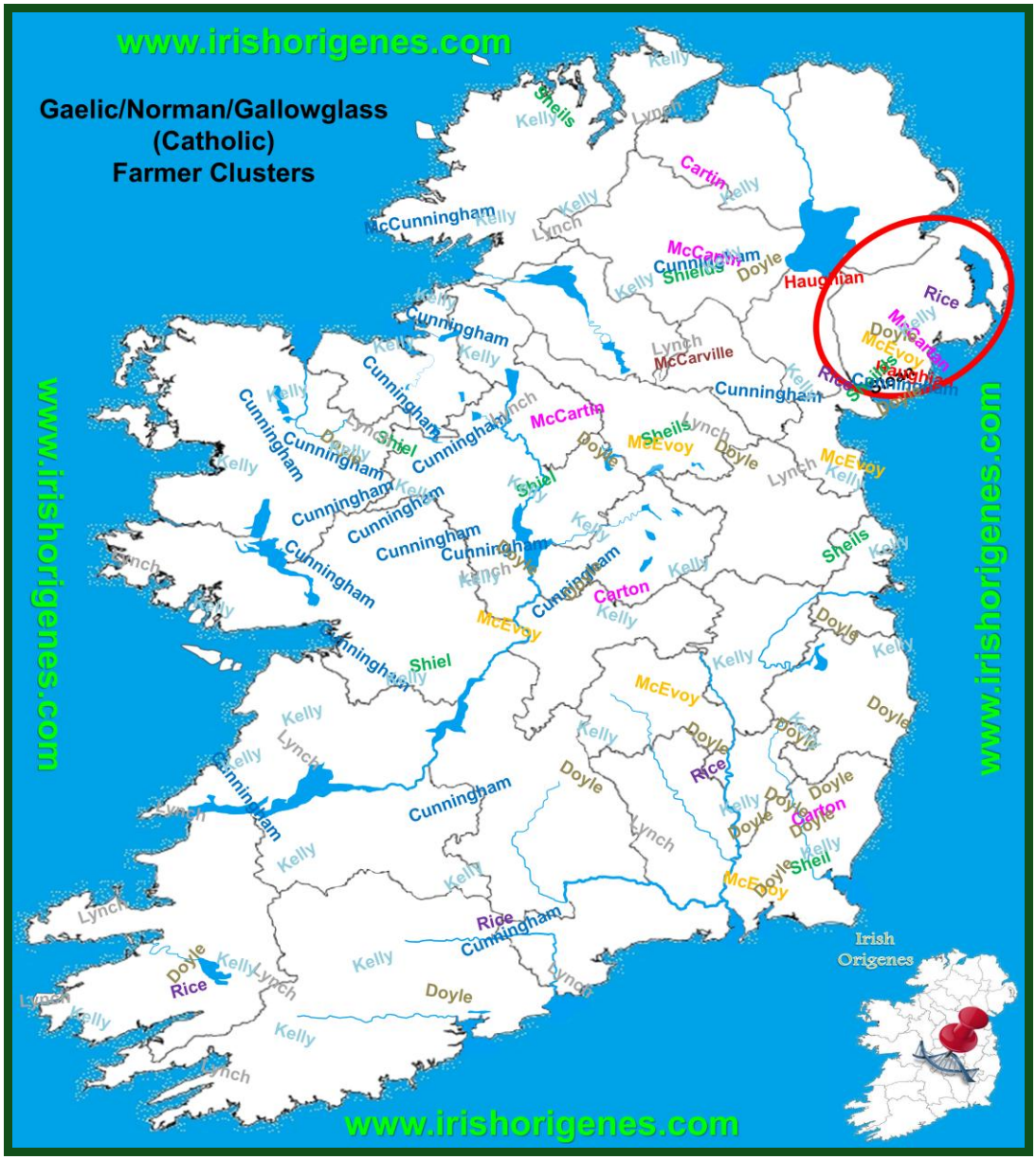

Figure 6: *Catholic Irish farming communities and Autosomal DNA revealed locations. Census data reveals that individuals with Gaelic Irish, Norman and Scottish Gallowglass surnames were overwhelmingly Catholic, while those with 16th and 17th Century Plantation Scottish or English surnames were overwhelmingly Protestant. The Carvill, Cunningham, Doyle, Haughian, Kelly, Lynch, McCartan, McEvoy, Rice, Shields, and Sloan(e) surnames are associated with Gaelic/Norman/Gallowglass Ireland. Distribution mapping of farmers (Catholic, male, heads of household) named Carvill, Cunningham, Doyle, Haughian, Kelly, Lynch, McCartan, McEvoy, Rice, Shields, and Sloan(e) in early census data reveals distinct groups spread throughout Ireland, almost all of which (except Lynch) are associated with County Down which emerged as the solitary autosomal DNA hotspot (**red circle**). Each surname is positioned as it appears on the Irish Origenes Medieval Surnames map, the most common spelling is detailed in each location, free to explore online at:* ***www.origenesmaps.com****. A surname search function is available at* ***https://analysis.irishorigenes.com/surnames*** ***Note:*** *Only 8 individuals named 'Whirity' are recorded in Ireland in County Down in 1901. Whirity is almost certainly a spelling variant of a yet unidentified surname.*

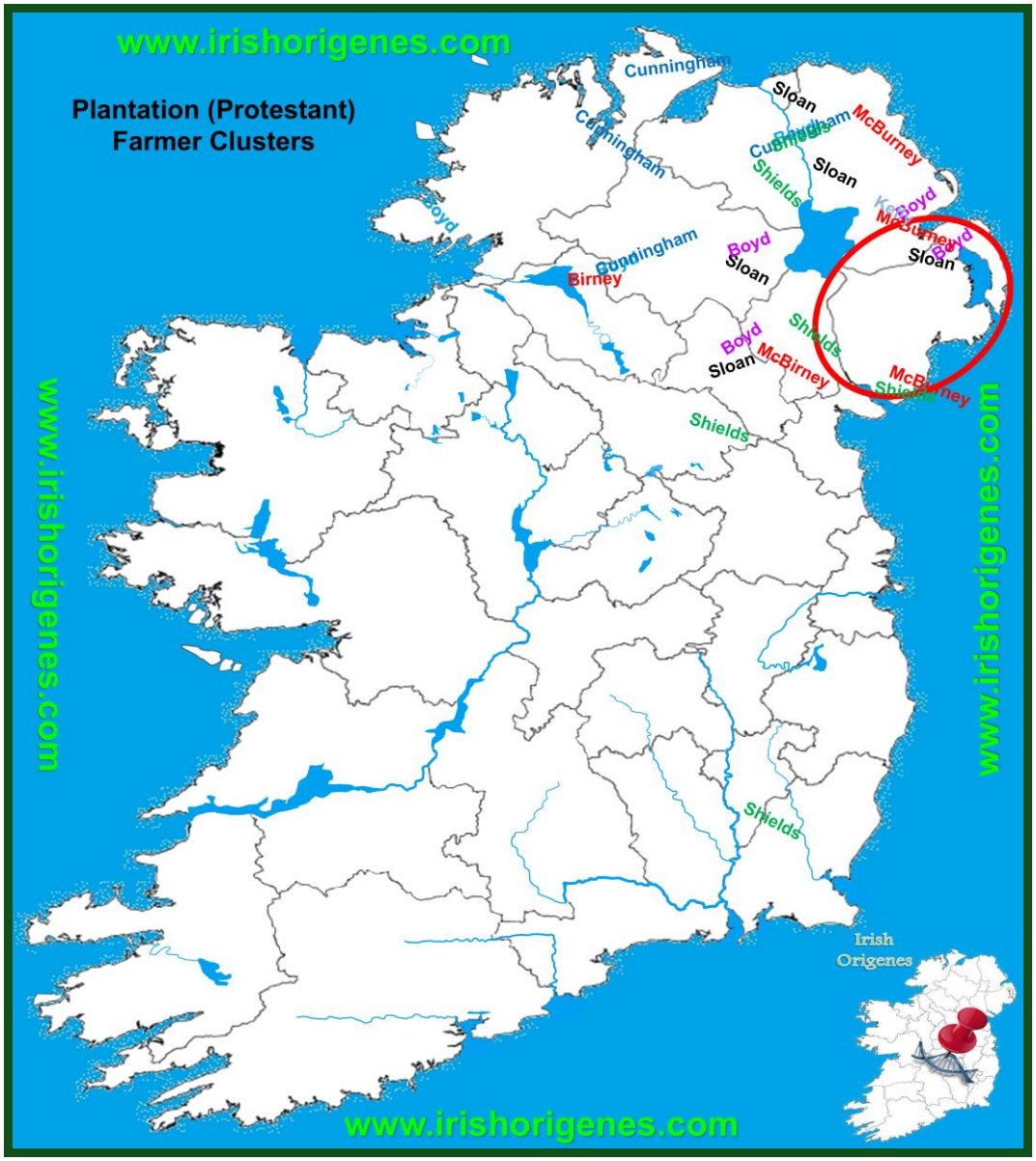

Figure 7: *Protestant Irish farming communities and Autosomal DNA revealed locations. Census data reveals that individuals with Gaelic Irish, Norman, and Scottish Gallowglass surnames were overwhelmingly Catholic, while those with 16th and 17th Century Plantation Scottish or English surnames were overwhelmingly Protestant. The Boyd, Cunningham, McBurney, Shields, and Sloan(e) surnames are associated with Plantation Ireland. Distribution mapping of farmers (Protestant, male, heads of household) named Boyd, Cunningham, McBurney, Shields, and Sloan(e) in early census data reveals distinct groups spread predominantly throughout Ulster in Northern Ireland, some of which are associated with County Down which emerged as an autosomal DNA hotspot (**red circle**). Each surname is positioned as it appears on the Irish Origenes Plantation Surnames map, the most common spelling is detailed in each location, free to explore online at: **www.origenesmaps.com/**.*

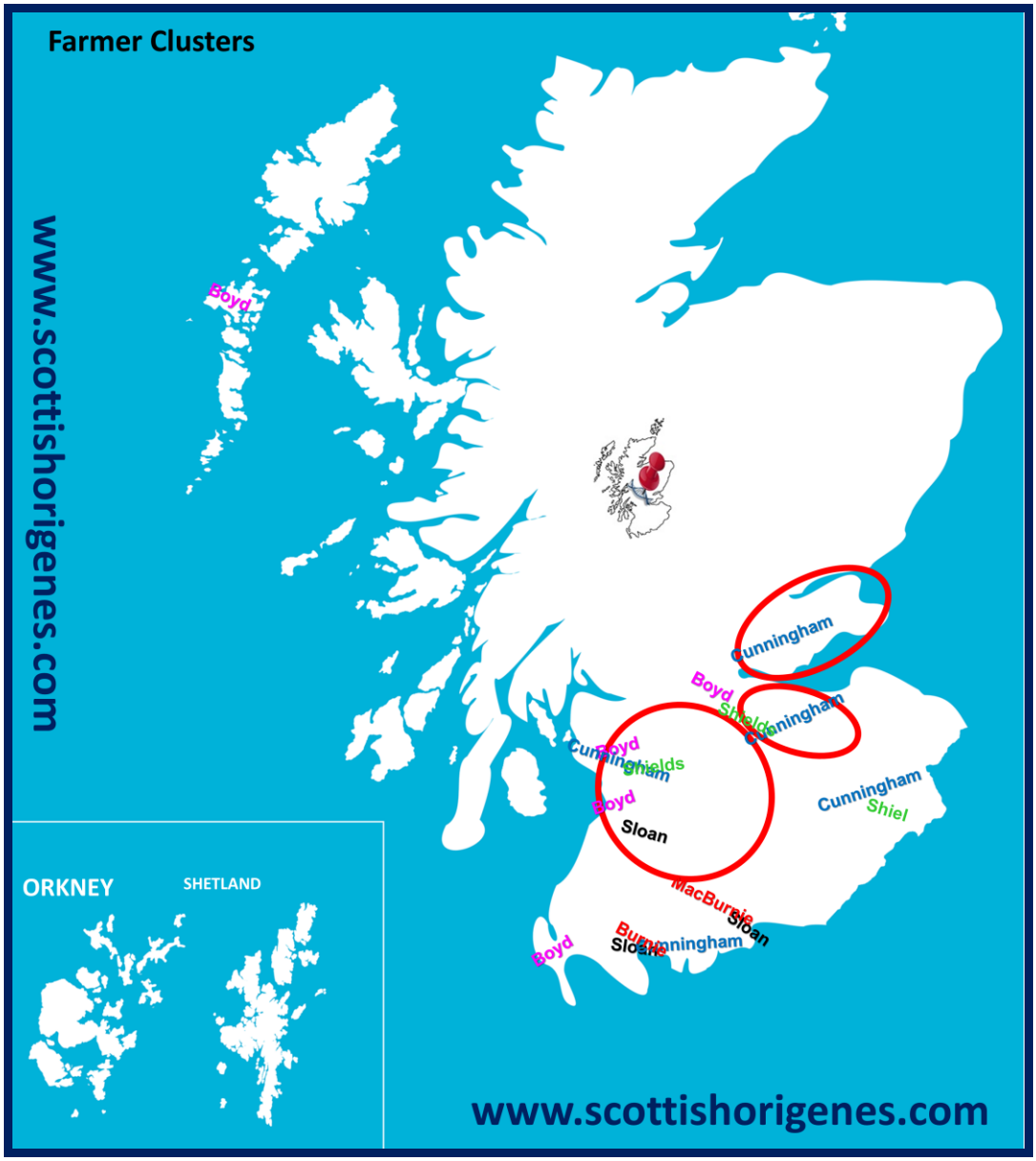

Figure 8: *Scottish-associated surnames and Autosomal DNA revealed locations. Scottish farmers still concentrated in early census data in the area where their surname first appeared or in the area where their ancestors first settled. Distribution mapping reveals distinct groups of Boyd, Cunningham, Burnie/McBurnie, Shields, and Sloan farmers throughout Scotland, some of which are found in, or near autosomal DNA hotspots (**red circles**). Each surname is positioned as it appears on the Scottish Origenes Surname map, the most common spelling is detailed in each location, free to explore online at: **www.origenesmaps.com***

LINKING ANCESTRAL SURNAMES WITH AUTOSOMAL DNA HOTSPOTS

The ancestral information (surnames and locations) recorded by one's autosomal DNA genetic relatives are not random, reflecting the relationships that developed among one's most recent ancestral lines in specific locations. One can therefore search that detail for locations associated with the test subject's ancestral surnames. One can then compare the distribution of one's ancestral surnames with DNA revealed locations, together with autosomal search results to begin the process of linking each ancestral surname with its Irish and/or Scottish origin.

The non-random nature of the ancestral locations recorded by the test subject's autosomal genetic relatives can be easily demonstrated by examining the countries of Britain, Ireland, and Norway that are recorded in association with each ancestral surname, see **Figure 9**. Autosomal search results confirm Irish links for ***ALL*** the test subject's ancestral lines, an ultimate Scottish origin for his Boyds, and possible ultimate English origins for the Rice ancestral line, see **Figure 9**.

A search of the ancestral information recorded by the test subject's autosomal genetic relatives for the 32 counties of Ireland in association with each ancestral surname, confirms Sloan, Haughian, Shields, Cunningham, McEvoy, Doyle, McCartan, McBurney, McConville (Carvill), and Kelly links with County Down which dominates as an autosomal DNA hotspot, see **Figures 2**, **10**, and **11**. While autosomal search results also reveal an ultimate Lynch origin within County Cavan, no clear origin emerged for the Rice or Boyd ancestral lines which could be an indication that those lines arrived relatively late with County Down, see **Figures 11**. A search of the ancestral information recorded by the test subject's autosomal genetic relatives for the 1841 counties of Scotland in association with the Boyd surname revealed an ultimate origin within Ayrshire in Southwest Scotland which emerged as an autosomal DNA hotspot, see **Figures 3** and **12**.

The Origenes Surname maps detail where farmers with each surname concentrated in Ireland, and an examination of County Down as it appears on the Irish Origenes Medieval and Plantation Surnames of Ireland map reveals almost all the test subject's ancestral surnames in the farmland that surrounds the Mourne Mountains, see **Figure 13**. However, a comparison of the Medieval and Plantation surnames maps reveals a large area in North County Down that is devoid of Pre-Plantation Medieval surnames which indicates that significant displacement of the native Irish (a mix of Irish Gaels, Vikings, Normans, and Gallowglass) has occurred post 1610AD, see **Figure 13**. In addition, two of the test subject's ancestral surnames; McConville (Carvill) and Haughian show two separate clusters on either side of this dead zone which indicates that the McConvilles and Haughians were originally from the area surrounding Banbridge, see **Figure 13**. Ireland has a wealth of information stored in its placenames, with the entire island divided into an estimates 64,000 townlands which are Ireland's smallest geographical unit of land division which pre-date the arrival of the Normans in 1169AD. Many of the townlands are named after the clans and families that lived there, and an examination of the local placenames and townlands in County Down reveals several surrounding Banbridge that are references to the test subject's Kelly, Shields, McConville, and Doyle ancestors, see **Figure 13**. While the Doyles and Kellys still concentrate near their ancestral homelands, the test subject's Shields, McConvilles (Carvill), and Haughians do not, and can be counted among the displaced Gaels of the early 17th Century, see **Figure 13**.

An examination of the Scottish surnames associated with Central Ayrshire in Southwest Scotland as it appears on the Scottish Origenes Surnames of Scotland Map reveals that the test subject's Boyds originated near the town of Ayr and in an area where one finds castles, towerhouses and placenames that are associated with his Boyd clan, see **Figure 14**. The test subject's ancestral surnames and their autosomal DNA revealed origins are summarised in **Figure 15**.

Autosomal Search Results

Surname	Ireland		Northern Ireland		Scotland		England		Wales		Norway	
	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM
Sloan	32	402	16	402	6	17	2	13	0	0	0	0
Sloane	11	402	3	36	1	12	0	0	0	0	0	0
Haughian	7	402	5	402	0	0	0	0	0	0	0	0
Shields	14	20	8	402	3	14	8	24	0	0	0	0
Shiels	2	45	6	93	0	0	0	0	0	0	0	0
Sheils	3	45	3	24	0	0	0	0	0	0	0	0
Shiel	3	14	0	0	0	0	0	0	0	0	0	0
Sheil	2	12	0	0	0	0	0	0	0	0	0	0
Cunningham	70	775	37	402	16	23	6	24	0	0	0	0
Rice	9	21	3	18	0	0	13	26	0	0	0	0
McEvoy	13	196	9	232	1	13	3	19	0	0	0	0
McAvoy	6	34	2	20	0	0	1	10	0	0	0	0
Whirrity	0	0	4	775	0	0	0	0	0	0	0	0
Whirity	0	0	1	18	0	0	1	18	0	0	0	0
Doyle	27	105	6	136	0	0	3	18	0	0	0	0
Lynch	29	31	8	136	0	0	2	16	0	0	0	0
McCartan	12	207	15	207	0	0	5	24	0	0	0	0
McBurney	2	14	3	29	0	0	0	0	0	0	0	0
McBurnie	0	0	1	14	0	0	0	0	0	0	0	0
McBirney	0	0	0	0	0	0	0	0	0	0	0	0
McBirnie	0	0	0	0	0	0	0	0	0	0	0	0
Carvill	1	775	2	775	0	0	0	0	0	0	0	0
Carville	1	12	1	13	0	0	0	0	0	0	0	0
McCarvill	0	0	0	0	0	0	0	0	0	0	0	0
McCarville	0	0	0	0	0	0	0	0	0	0	0	0
McConville	5	30	2	20	0	0	1	13	0	0	0	0
Conville	2	15	0	0	0	0	0	0	0	0	0	0
Kelly	72	402	18	775	7	19	7	20	0	0	0	0
Boyd	22	775	12	22	17	18	4	62	0	0	0	0

Figure 9: *Autosomal search results for ancestral surnames within Britain, Ireland, and Norway. The ancestral locations revealed by one's autosomal genetic relatives are not random, reflecting the relationships that developed among the test subject's various ancestral lines living in specific areas. Autosomal searching of genetic relatives that share greater than 12cM of DNA for the countries of Ireland, Scotland, England, Wales, and Norway for each ancestral surname and common spelling variants graded according to maximum shared DNA (cM) reveals Irish links or origins (**green arrows**) for the **ALL** the test subject's ancestral lines, an ultimate Scottish origin for his Boyds (**blue arrow**), and possible English links for his Rice ancestral line (**violet arrows**). Autosomal DNA search results also reveal that Carvill/Carville is most likely a spelling corruption of 'McConville' (spelling variants arise as one moves further from the place of origin).* ***Note:*** *the weak autosomal DNA signals observed for surnames like Carvill/Carville, McBurney, and Whirrity can be generationally amplified (by autosomal DNA testing a parent or grandparent).*

Autosomal Search Results

County	Sloan		Haughian		Shields		Cunningham		McEvoy		Doyle		McCartan	
	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM
Leitrim	0	0	0	0	0	0	0	0	0	0	1	12	0	0
Roscommon	0	0	0	0	0	0	1	14	0	0	0	0	2	14
Sligo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mayo	3	17	0	0	0	0	0	0	0	0	0	0	0	0
Galway	0	0	0	0	0	0	4	21	3	196	0	0	0	0
Clare	9	36	2	14	0	0	9	24	3	196	1	20	2	207
Kerry	0	0	0	0	0	0	3	16	0	0	0	0	0	0
Cork	1	36	0	0	0	0	12	775	0	0	0	0	2	24
Limerick	0	0	0	0	0	0	0	0	0	0	2	14	0	0
Tipperary	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waterford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kilkenny	0	0	0	0	1	16	0	0	0	0	1	18	0	0
Offaly	0	0	2	14	0	0	0	0	0	0	0	0	0	0
Laois	0	0	0	0	0	0	2	23	1	13	0	0	0	0
Kildare	0	0	0	0	0	0	1	16	1	12	0	0	0	0
Dublin	1	14	0	0	0	0	2	15	2	12	3	14	0	0
Wicklow	0	0	0	0	0	0	0	0	2	14	3	17	0	0
Carlow	0	0	0	0	0	0	0	0	1	13	1	14	0	0
Wexford	2	402	0	0	2	20	2	13	1	13	3	16	0	0
Longford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westmeath	0	0	0	0	0	0	0	0	0	0	1	12	0	0
Meath	1	14	0	0	0	0	0	0	1	19	1	14	0	0
Louth	0	0	0	0	0	0	0	0	0	0	1	12	0	0
Antrim	1	14	1	12	1	14	1	15	0	0	1	12	0	0
Down	13	402	4	402	6	402	32	402	9	232	5	136	14	24
Armagh	0	0	0	0	1	12	1	13	0	0	0	0	2	14
Cavan	1	20	0	0	0	0	1	12	0	0	0	0	0	0
Monaghan	0	0	0	0	0	0	1	15	1	13	0	0	0	0
Fermanagh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Donegal	1	20	0	0	2	18	5	19	0	0	0	0	0	0
Tyrone	0	0	0	0	0	0	1	19	0	0	0	0	0	0
Derry	1	15	0	0	1	18	1	22	0	0	0	0	0	0

Figure 10: *Autosomal search results for Irish-associated surnames within the 32 Counties of Ireland. The counties recorded by autosomal genetic relatives (that share greater than 12cM of DNA) in association with each Irish-associated surname revealed origins for ancestral lines (**green arrows**). Autosomal DNA testing revealed Sloan, Haughian, Shields, Cunningham, McEvoy, Doyle, and McCartan origins within County Down.*

Autosomal Search Results

County	McBurney		McConville		Lynch		Rice		Kelly		Boyd	
	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM	Frequency	Max. DNA/cM
Leitrim	0	0	0	0	0	0	0	0	3	19	1	775
Roscommon	0	0	0	0	0	0	0	0	2	14	0	0
Sligo	0	0	0	0	0	0	0	0	1	12	1	13
Mayo	0	0	1	20	1	13	0	0	2	23	0	0
Galway	0	0	0	0	0	0	0	0	3	15	0	0
Clare	0	0	0	0	3	31	0	0	0	0	3	14
Kerry	0	0	1	12	2	13	1	12	2	13	0	0
Cork	0	0	0	0	3	17	0	0	4	38	4	38
Limerick	0	0	0	0	0	0	1	21	3	15	0	0
Tipperary	0	0	0	0	0	0	0	0	3	97	0	0
Waterford	0	0	0	0	0	0	0	0	0	0	0	0
Kilkenny	0	0	0	0	0	0	0	0	1	15	0	0
Offaly	0	0	0	0	0	0	0	0	1	12	0	0
Laois	0	0	0	0	0	0	2	15	0	0	0	0
Kildare	0	0	0	0	0	0	0	0	1	12	0	0
Dublin	0	0	0	0	3	16	2	15	11	38	0	0
Wicklow	0	0	0	0	0	0	0	0	1	13	0	0
Carlow	0	0	0	0	0	0	0	0	1	12	0	0
Wexford	0	0	0	0	0	0	0	0	1	12	1	16
Longford	0	0	0	0	0	0	0	0	0	0	0	0
Westmeath	0	0	0	0	0	0	0	0	4	29	0	0
Meath	0	0	0	0	0	0	0	0	0	0	0	0
Louth	0	0	0	0	1	12	1	12	3	21	0	0
Antrim	0	0	0	0	1	13	0	0	6	18	4	18
Down	2	29	2	20	3	136	2	18	8	775	2	13
Armagh	0	0	0	0	1	13	1	16	4	21	0	0
Cavan	0	0	0	0	5	13	0	0	1	13	0	0
Monaghan	0	0	0	0	0	0	0	0	3	13	0	0
Fermanagh	0	0	0	0	0	0	0	0	0	0	0	0
Donegal	0	0	0	0	1	12	0	0	2	18	1	12
Tyrone	0	0	0	0	1	15	0	0	1	14	4	15
Derry	0	0	0	0	2	12	0	0	0	0	2	22

Figure 11: *Autosomal search results for Irish-associated surnames within the 32 Counties of Ireland. The counties recorded by autosomal genetic relatives (that share greater than 12cM of DNA) in association with each Irish-associated surname revealed origins for ancestral lines (**green arrows**). Autosomal DNA testing revealed McBurney, McConville (Carvill), and Kelly links with County Down, and a Lynch origin within County Cavan. In contrast, no clear area in Ireland emerged for the Rice and Boyd ancestral lines which indicates that those ancestral lines were later arrivals within County Down (where the test subject records his earliest Boyd and Rice ancestors (fig. 4)).*

Autsomal Search Results

County	Boyd	
	Frequency	Max. DNA/cM
Shetland	0	0
Orkney	0	0
Caithness	4	18
Sutherland	0	0
Ross and Cromarty	0	0
Invernesshire	0	0
Argyllshire	0	0
Perthshire	0	0
Stirlingshire	0	0
Dunbartonshire	1	15
Buteshire	2	12
Nairn	0	0
Morayshire	0	0
Banffshire	0	0
Aberdeenshire	1	12
Kincardineshire	0	0
Angus	0	0
Fife	0	0
Clackmannanshire	0	0
Kinrosshire	0	0
West Lothian	0	0
Mid Lothian	1	17
East Lothian	0	0
Renfrewshire	0	0
Lanarkshire	0	0
Ayrshire	8	17
Wigtownshire	0	0
Kirkcudbrightshire	0	0
Peebleshire	0	0
Selkirkshire	0	0
Berwickshire	0	0
Roxburghshire	1	18
Dumfriesshire	0	0

Figure 12: *Autosomal search results for the Boyd surname in association with the 1841 Counties of Scotland. The counties recorded by autosomal genetic relatives (that share greater than 12cM of DNA) in association with the Boyd surname revealed an ultimate origin within Ayrshire (**blue arrow**).*

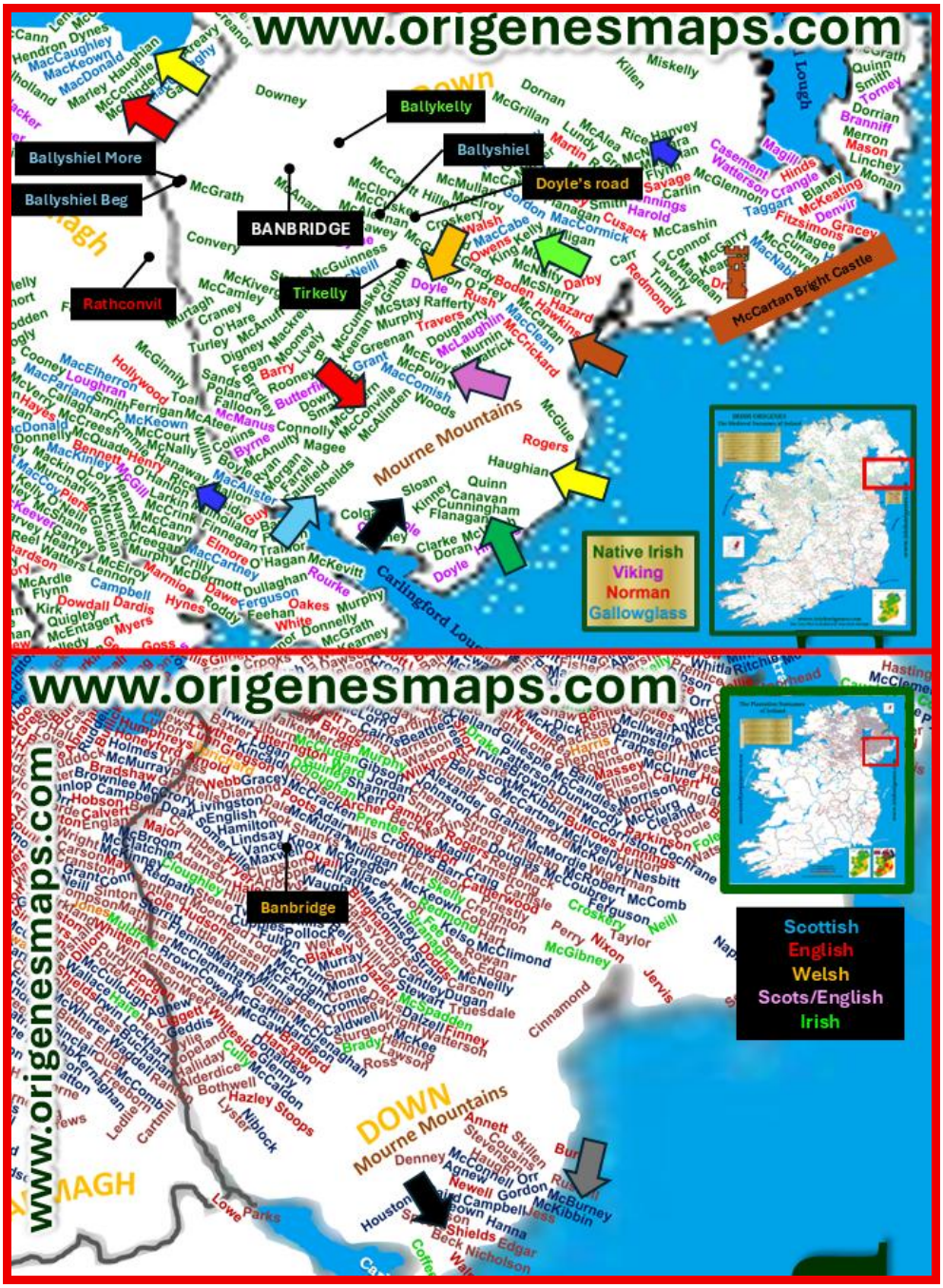

Figure 13: *The Surnames of County Down. County Down dominates as an autosomal DNA hotspot, and an examination of the Medieval (**top panel**) and Plantation surnames (**bottom panel**) associated with County Down reveals almost ALL the test subject's ancestral surnames (**coloured arrows**) in the farmland that surrounds the Mourne Mountains in South County Down where all the test subject's earliest ancestors are recorded. The Medieval Surnames (**top panel**) exhibits a large area in North Down surrounding Banbridge that is devoid of surnames and indicates an area colonised by Scots (**bottom panel**) with surnames like McBurney and Boyd. The observation of clusters of McConville (**red arrows**) and Haughian (**yellow arrows**) farmers on either side of this dead zone together with several placenames associated with the test subject's Shields and McConvilles indicate the post plantation displacement of some of his Gaelic Irish ancestors. Each surname is positioned in the location where farmers (male, heads of household) with each surname concentrate in early census data. The most common spelling is detailed in each location. Detail taken from the Irish Origenes Surname maps, free to explore online at* ***www.origenesmaps.com*** *A surname search function is available at* ***https://analysis.irishorigenes.com/surnames***

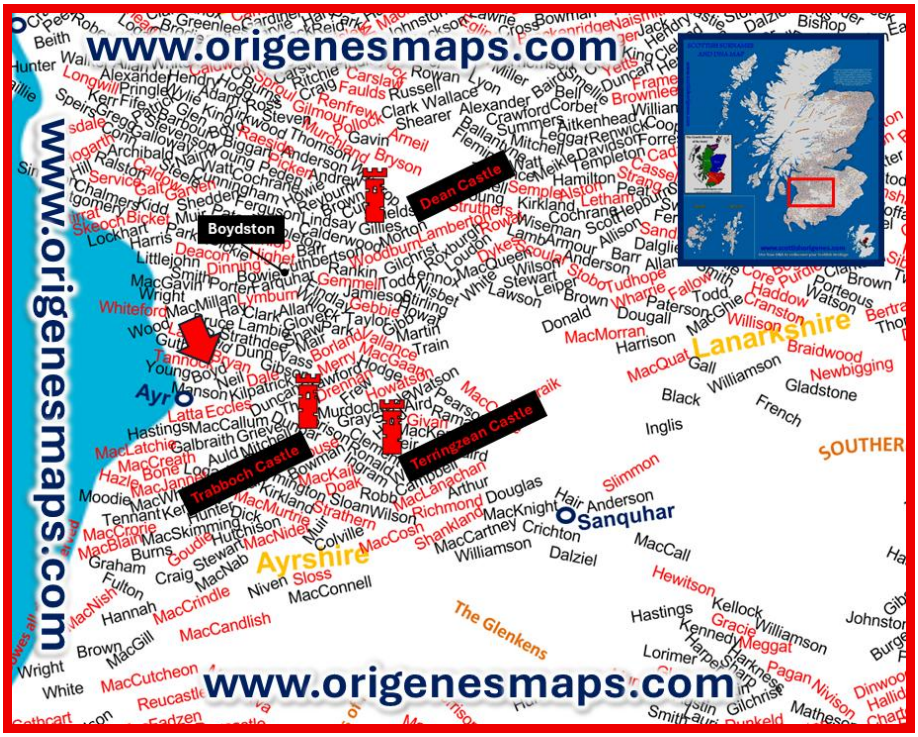

Figure 14: *The Surnames of the Ayrshire and Lanarkshire borderlands. Scottish farmers still concentrated in early census data in the area where their surname first appeared or in the area where one's ancestors first settled. An examination of the surnames associated with the Ayrshire and Lanarkshire borderlands which dominates among autosomal DNA hotspots reveals that the test subject's Boyd's originated near Ayr town (**red arrow**) and in an area where one finds castles, towerhouses and at least one placename (Boydston) associated with his Boyd ancestors. Each surname is positioned in the location where farmers with each surname concentrate in early census data. The most common spelling is detailed in each location. Each surname is positioned as it appears on the Scottish Origenes Surnames of Scotland map, free to explore online at:* ***www.origenesmaps.com***

Ancestral Surname	Earliest Recorded Ancestral Location	Autosomal DNA Revealed Origin(s)
Sloan/Sloane (x2)	Ballyveagh+Ballymageogh, County Down, Ireland	Gaelic Irish, Tullyframe, County Down, Ireland
Haughian	Brackney Parish, Kilkeel, Down, Northern Ireland	***Displaced Irish Gaels, 'Banbridge area' County Down, Ireland***
Shields	County Down, Ireland	***Displaced Irish Gaels, Ballyshiel townlands, 'Banbridge area' County Down, Ireland***
Cunningham	County Down, Ireland	Irish Gaels, Ballymageogh, County Down, Ireland
Rice	Ballymageogh, Kilkeel, County Down, Ireland	Ireland? / England?
McEvoy	Moyad, Kilkeel, County Down, Ireland	Irish Gaels, Tullyquilly, County Down, Ireland
Whirrity / Whirity (x2)	Kilkeel, County Down, Ireland	Ireland
Doyle	Kilkeel No 2, County Down, Ireland	Irish Gaels, Doyle's Road, County Down, Ireland
Lynch	County Down, Ireland	County Cavan? Ireland
McCartan	Brackney, County Down, Ireland	Irish Gaels, Bright Castle, County Down, Ireland
McBurney	County Down, Ireland	Plantation Scots, Moneydorraghbeg, County Down, Ireland / Dunscore, Galloway Scotland
Carvill	County Down, Ireland	***Displaced 'McConville' Irish Gaels, Rathconvil, County Armagh, Ireland***
Kelly	Fofanny, County Down, Northern Ireland	Irish Gaels, Ballykelly, County Down, Ireland
Boyd	Ballymageogh, Mourne Park, Down, Ireland	Plantation Scots, Ireland / Boydston, Ayrshire, Scotland

Figure 15: *Ancestral surnames and Autosomal DNA revealed origins. Highlighted font indicates each surnames associated ethnicity, location of an earliest known ancestor, or DNA revealed origin: Irish/Ireland, Scottish/Scotland, Irish/Scottish-associated, English/England.*

Confirming an ancestral link to an identified area

One must keep in mind that this is a scientific 'DNA' approach. The DNA does not lie, and commercial ancestral DNA testing of individuals (farmers) with the surnames of interest from the ancestral DNA hotspots would confirm the ancestral link to that location.

Email: Dr Tyrone Bowes at tyronebowes@gmail.com for a FREE consultation on your DNA results or to find out about a suitable DNA test for you!