



#### **DNA vs Irish Annals**

A summary of results to 2014 with examples from major surnames & haplogroups

Brad Larkin
Sponsored by
Surname DNA Journal
www.surnamedna.com

Prepared for the Genetic Genealogy Ireland Conference 2014



#### Overview

- The topic for discussion will be the major Irish genealogical groups from Irish annals such as the Uí Néill, and the provincial kings of Connacht, Munster, Leinster, and Ulster as well as Norman lineages.
- A brief review of how much modern DNA linked to these lineages has been sampled and how consistent the DNA findings match the ancient genealogies.
- This presentation is well suited for those who like to connect historical figures to their genetic genealogy research.

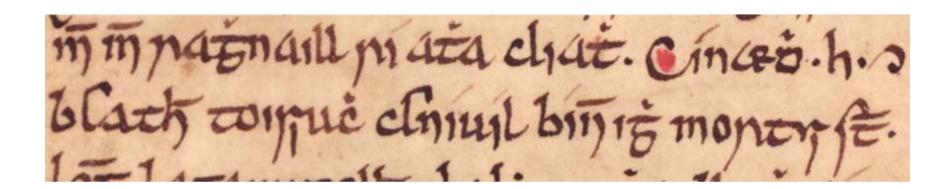
#### **Preface**

- 1. "Annals" refers here to all ancient Irish written material
  - Prior to the Christian Era, Druidic history was strictly committed to memory and oral history – but with a great deal of care
    - Julies Caesar mentions '20 years' and that Gaulish druids went to Britain
  - By the word 'Annals' we are referring to all annals, genealogies, & texts written in Gaelic or Latin from about 500 ad to 1700ad<sup>1</sup>
- 2. New Data, Fresh Look
  - This presentation is intended to promote a fresh look at the demographic history of Ireland based on recent DNA evidence.
  - DNA population frequencies have been freshly recalculated
    - Based on 2014 data in FTDNA DNA research projects and the SNP tsunami of new markers being discovered
      - sequencing technology, university research
      - dedicated citizen scientists & genetic genealogists
  - Some established intellectual paradigms will be challenged, so please try to be open-minded

# Presentation Approach

For each topic, we will touch upon:

- 1. What the Annals & Genealogies Say
- 2. What DNA Findings Say
- 3. Compare & Contrast DNA vs Annals



# **Topics**

- Prehistoric Era
  - Legends of Irish Invasions
  - Major Y-DNA Haplogroup Evidence
- Medieval Kingships & Surnames
- Regional Analysis

#### Prehistoric Ireland in Annals

- Fir Bolg
- Tuatha Dé Danann
- Mileseans
  - Came from Spain to Ireland "After the Deluge"
  - Defeated Fir Bolgs & Tuatha
     Dé Danann
  - Ancestors of medieval Irish kings
    - labeled as Celtic at one time



Wikipedia, Lebor Gabála Érenn; Wikipedia, Milesians (Irish)

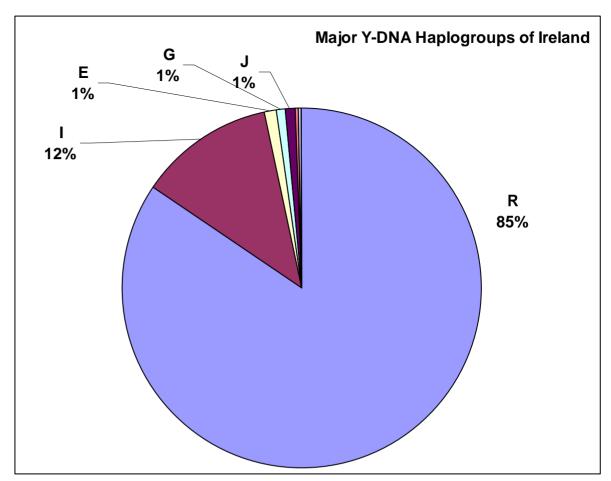
#### **Ancient Y-DNA Results**

- Y-DNA samples from ancient graves in western Europe have big differences from modern era:
  - Haplogroup G dominated in ancient graves
  - Haplogroup R was not present

Example	Approx Date	Y-DNA
Cheddar Man - England	8000 bc	"Not properly published"
Sweden	6000 bc	I & I-M223
Germany	5600 bc	G2a & F
Spain	5000 bc	G2a & E
Otzi – Italian Alps	3200 bc	G2a
France	3000 bc	G2a & I-M223

# Modern Y-DNA Haplogroup Frequencies in Ireland

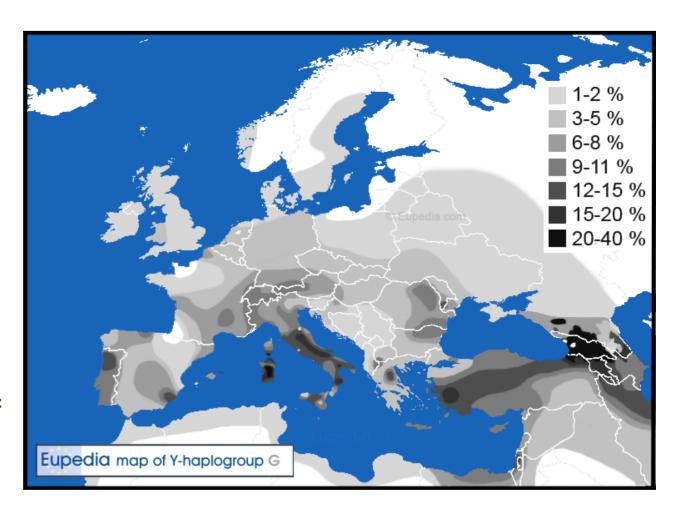
- Haplogroup G has virtually disappeared
- Haplogroup I is outnumbered by Haplogroup R by 7:1



# Haplogroup G2a Modern Frequency

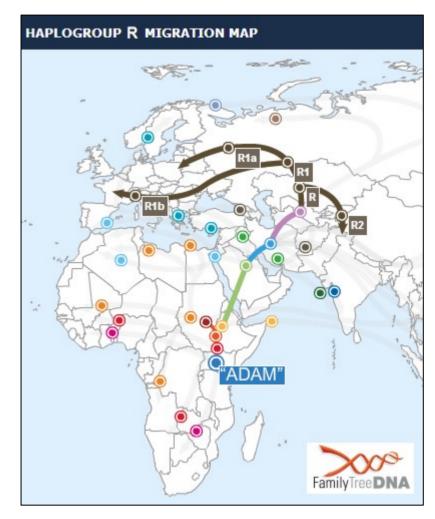
- Once dominant in stone age Europe
- Now rare except in a few regions.

Haplogroup G2a < 2% of Ireland



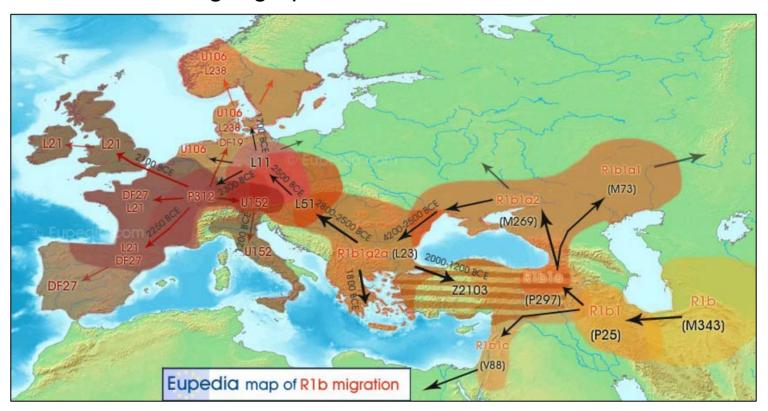
# Irish Archaeology & Cattle DNA

- Archeological evidence for first humans in Ireland ~ 8000 bc
- Around 4000 bc neolithic cattle, farming and stoneworks, population growth
- Population 'collapse' around 2500 bc with metallurgy & Bell Beaker culture arrival in Ireland.



# R-L21 DNA Entry to Ireland

- Unlike Haplogroups G and I, Haplogroup R went on a much longer journey and got to Europe and Ireland much later in time.
- R-L21 arrival in Ireland estimated as 2,000 bc based on R1b SNP variations across geographies.



#### DNA vs Lebor Gabála

- Could Tuatha Dé Danann be early Haplogroup I-M223 hunter-gatherers?
- Could Fir Bolg be neolithic farmers with G2a Y-DNA?
- Does Milesean invasion correspond with late arriving, metal-working, warrior culture of Celts with R-L21 Y-DNA?
- Nothing conclusive, but a case can be made that modern DNA has some consistency with Irish origin stories such as the Lebor Gabála Érenn.

# **Topics**

- Prehistoric Era
- Medieval Kingships & Surnames
  - Cultural SNP Markers & Maps
  - Milesian Lineages
  - Gaelic Kingship
  - Evolution of Surnames
- Regional Analysis

# Background: Major Cultural Event Eras

- Christianity Established in Ireland, Roman Army withdraws from Britain
  - $\sim 350 450$  ad
- Anglo-Saxon conquest of lowland Britain, Dál Riata colonize northwestern Britain
  - $\sim 450 800$  ad
- Viking Raids & Irish Surname Adoption
  - $\sim 795 1014$  ad
- Norman Invasion of Leinster
  - 1169 ad
- End of Gaelic Law & land ownership
  - $\sim 1536 1703$  ad
- Scottish Plantation of Ulster
  - ~ 1609 1700 ad
- Irish Diaspora
  - $\sim 1830 1914$  ad

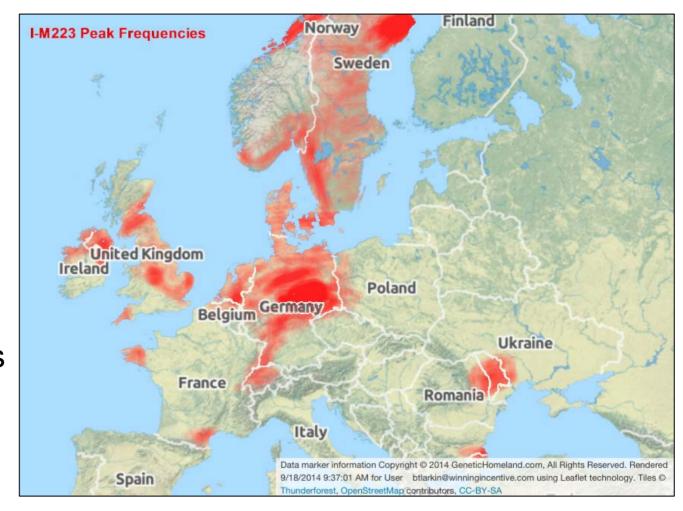


#### **Cultural SNP Markers**

- Y-DNA data has 4 genetic markers (SNPs) that generally align with cultural identities
  - I-M223 ~ Pre-R1b European
  - I-M253 ~ Norse Viking
  - R-U106 ~ Germanic
  - R-L21 ~ Gaelic Speaking Celtic
- Remember these are just oversimplifications
  - Other haplogroups in the mix at lower concentrations
  - Real populations that we refer to with terms like 'Viking' were genetically diverse 1000 years ago, just as modern Norway is genetically diverse

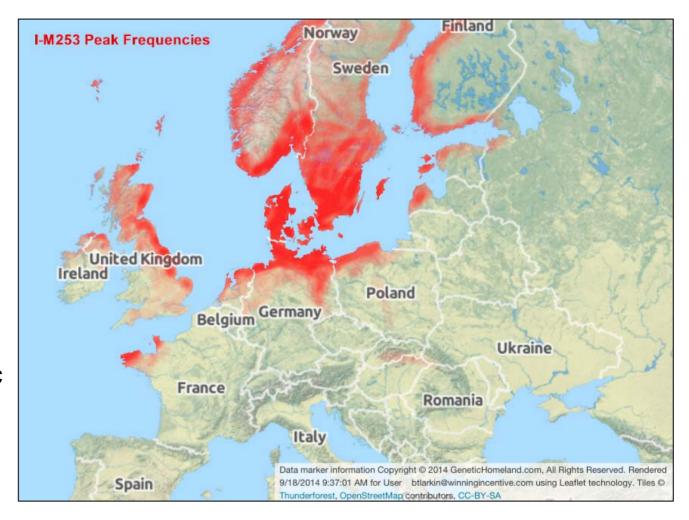
# I-M223 Haplogroup

- Surviving Pre-R1b European Population
- Germanic language & culture in early historical era
- Formerly referred to as I2
   Haplogroup



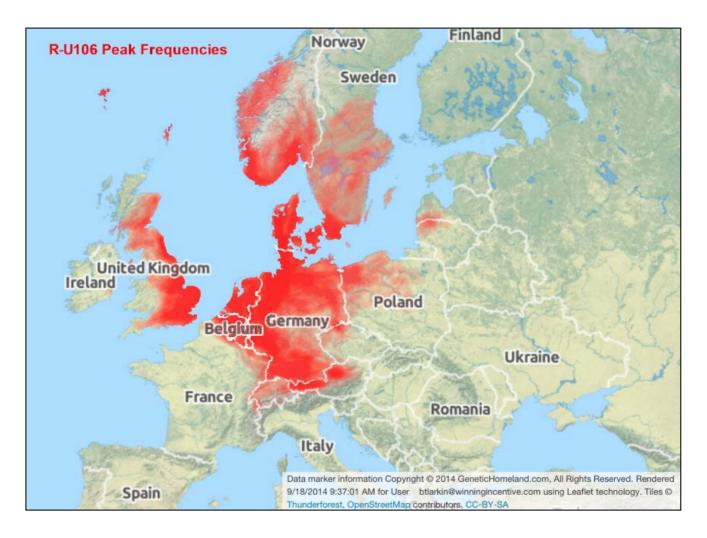
# I-M253 Haplogroup

- Corresponds to Viking areas of middle ages
- I-M253 Formerly referred to as I1 Haplogroup
- Distribution of Norse R1a
   Haplogroup (R-M420) follows same geographic pattern but at lower concentration.



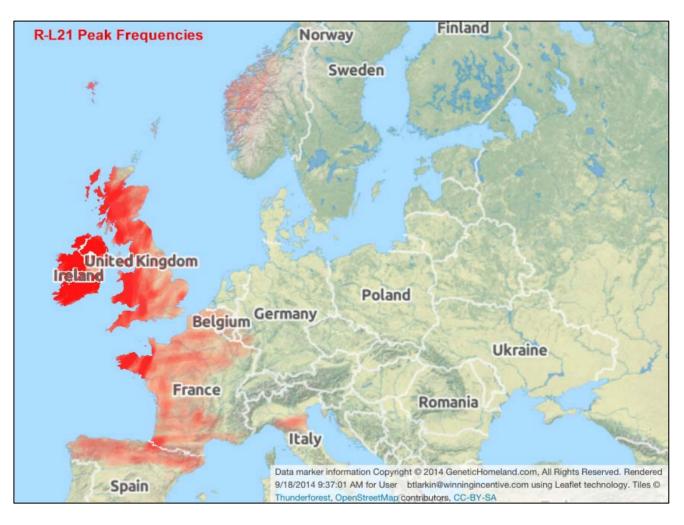
# R-U106 Haplogroup

- Corresponds to Anglo-Saxon areas
- Germanic languages
- Marker also known as R-S21



# R-L21 Haplogroup

- R-L21
   corresponds to
   Gaelic languages
   in historical era
- Over 80% of Irish males are R-L21
- Major Irish clades include:
  - Irish Type I
    - R-M222
  - Irish Type II
    - R-CTS4466
  - Irish Type III
    - R-L226
  - Clan Colla
    - R-S971 / DYS425 Null



# Annals: Milesian Lineages

Annalist genealogy of Christian-era Irish kings back to Milesian Invaders from Lebor Gabála

- Heber
  - Dál gCais O'Brien
  - Eóganachta McCarthy
  - Corc Stuart Dynasty of Scotland & England
- Heremon
  - Conn of the 100 Battles
  - Uí Néill
  - The Three Collas
- Ir
  - Ulaid
    - Clanna Rory
  - Dál Riata



John O'Hart, <u>Irish Pedigrees</u>, 1892 Owen Connellan, The <u>Annals of Ireland by the Four Masters</u>, 1846 Author's image of ring fort ruin in County Galway.

# Nature of Gaelic Kingship

#### Gaelic Ireland

- Hierarchy of chieftains and kings of small, medium, and large sizes of territory
- Tanistry rather than primogeniture
  - Selection from leading males of the kin group by consensus based on merit
- Alternating succession pattern between kin groups was common.
  - Means of conciliation and consensus building amongst rivals
  - Also result and stimulus for warfare



#### Surname Evolution

- Agrarian Society
  - Assignment to families of individual pieces of land typically done at the Clan / surname level
  - Financial identity / debts<sup>1</sup>
    - Honor-Price a cornerstone of Brehon Law
    - Debt was a big feature of Gaelic society
    - Lots of Behon law around father-son relationships
- Surnames evolve from ancestor chieftain as a shorter reference than the series of mac prefixes
  - Typically adopted the name of paternal grandfather or greatgrandfather. For example:
    - Abt 890<sup>2</sup> [Pedigree of the Sil Anmchadha] **Lorcán** mac Moran, mac Flann, mac Inreachtaigh, mac Maelduin....
    - AFM 9373 Donal mac Lorcán, lord of Aidhne, died at Clonmacnoise
    - Finnachta macDonal mac Lorcán
    - AFM 955 Raigain macFinnachta Uí Lorcán died
  - Over time, Uí prefix became spelled as "O" prefix in English or dropped.
  - Some surnames retained the "Mac" prefix as well.

<sup>1</sup>Bart Jaski, <u>Early Irish Kingship and Succession</u>, 2000 <sup>2</sup> Pedigree of the Sil Anmchadha in John O'Donovan, <u>The Tribes and Customs of Hy-many</u>, 1843 <sup>3</sup>AFM = <u>Annals of the Four Masters</u> quoted in David Austin Larkin, Ui Maine O'Lorcains, 2004

# **Topics**

- Prehistoric Era
- Medieval Kingships & Surnames
- Regional Analysis
  - Ulster
  - Connacht
  - Munster
  - Leinster
  - The Normans

#### Ulster

- Uí Néill
- Airgíalla
- Ulaid
  - Dál Riata



#### Uí Néill

- Trinity College Study of Dan Bradley et al
  - Sampled Ireland with 17 STR markers across Ireland
  - Genetic signature first identified by John McEwan on YSearch as STR19, aka Northwest Irish, Irish Type I, now named the SNP R-M222
    - About 15% of men from Ireland have this genetic signature
    - Hypothesized as descendants of the Uí Néill <sup>1</sup>
- Northern Uí Néill descended from Niall's son Eoghan
  - Kings of Tyrone, adopted many surnames but not O'Neil
- Southern Uí Néill
  - Kings of Meath and Tara
  - Adopted O'Neill surname
  - 2006 DNA Study<sup>2</sup> of O'Neil and related surnames suggests a very different Y-DNA lineage became the Kings of Tara sometime between 1036 and 1176 ad
    - R-DF27 about 30% of O'Neil surname; is not an L-21 subclade.
    - About 18% of O'Neil surname do carry R-M222

# Airgíalla

- A distinct kingdom in Ulster said to be settled by descendants of three brothers of the 4<sup>th</sup> century: The Three Collas
- Some genealogies claimed they were descendants of Conn of the Hundred Battles
- Some scholars doubted the Three Collas even existed, alleging they were just aliases for some Uí Néills.
- DNA links 33 Airgíalla-affiliated surnames with a distinctive marker
  - R-L21 with DYS 425 Null
    - New high-resolution SNP R-S971
  - Legend of the Three Collas looks very true
  - Genealogy and analysts linking Airgíalla to the Uí Néill patrilineally looks false

#### **Ulaid**

- Ancient peoples of northeast Ireland
- Power waned in Christian era
  - 19<sup>th</sup> century genealogy writers tended to blend or abstract Ulaid genealogies
- Territory heavily planted by Scots in 17<sup>th</sup> century
- Ulaid-affiliated surnames:
  - MacNally, MacNulty, Dunleavy, Larkin
  - Most of these have minimal DNA samples

#### Ulster Larkin Example

• Irish annals mention the name *Lorcán* in the year 879 AD in the same areas where the surname is found in Ulster today.

"These families are all noted in the Annals and are from two races - the Clan Colla of Oriel and the Uí Eathach Cobha (Iveagh, Co. Down) an ancient Clanna Rory tribe of Ulidia (ancient Ulster)."



- DNA Results
  - Larkins of Clan Colla: R-L21-DF21 DYS425 Null
  - Ulaid Larkins: R-L21\*
- Annals look correct in attributing two sources

#### The Dál Riata

- Described as an early subkingdom of the Ulaid
- Reputed to have emigrated from Ireland to Scotland due to pressure in Ireland in 6<sup>th</sup> century
  - Spanned the Irish Sea for some time.
  - Brought Christianity & Gaelic language with them.
  - Migration so ancient that some believe Dál Riata DNA does not exist or cannot be differentiated from Picts.
- Surname analysis example:
  - MacAulay with spelling variations

# MacAuley DNA Distribution

- Distribution of Clan MacAulay DNA Project Participants
  - Irish Sea Area
  - All Haplogroups



# Distribution of MacAuley DNA

Group	%	DNA
MacAulay Ireland, Isle of Lewis, North Harris Scotland	8%	R-L21 CTS4466
Macaulay of Uig and Hg I	3%	I-M223 & I-M253
MacAulay North Uist, Renfrew, Co Down	26%	R-M222
McAulay – Clan Colla	1%	R-DF21 DYS425 Null
MacAulay - Scottish Modal	14%	R-L21 CTS11722
MacAulay – Other Scottish R1b	15%	R-M269

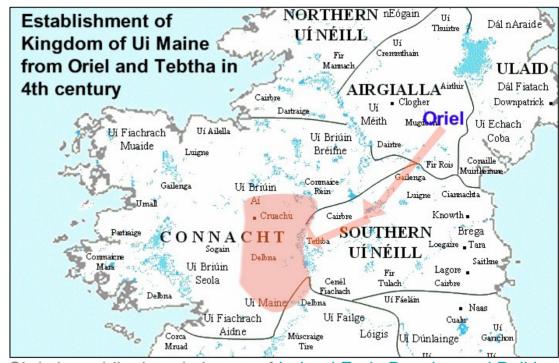
So which DNA group is the Dál Riata?

# Kenneth MacAlpin, King of Alba

- Led Irish 'Scots' in 839 ad three-way battle with Picts and Norse Vikings.
  - Resulted in domination of the Picts by the Scots and the formation of 'Scotland'
  - Kenneth descended from Dál Riata<sup>1</sup>
- DNA evidence among many Scottish surnames linked to MacAlpin suggests that Kenneth's Dál Riata lineage has been identified.<sup>2</sup>
  - SNP CTS11722 (aka L1065 & S749, consistent with STR profile known as Scots I Modal).
    - Example Surnames: MacGregor, MacRae, Campbell, Buchanan, MacKinnon, MacFie, MacQuarrie
  - Evidence that Highland Scots are descendants of the Dál Riata from Ireland.

#### Connacht -Uí Maine

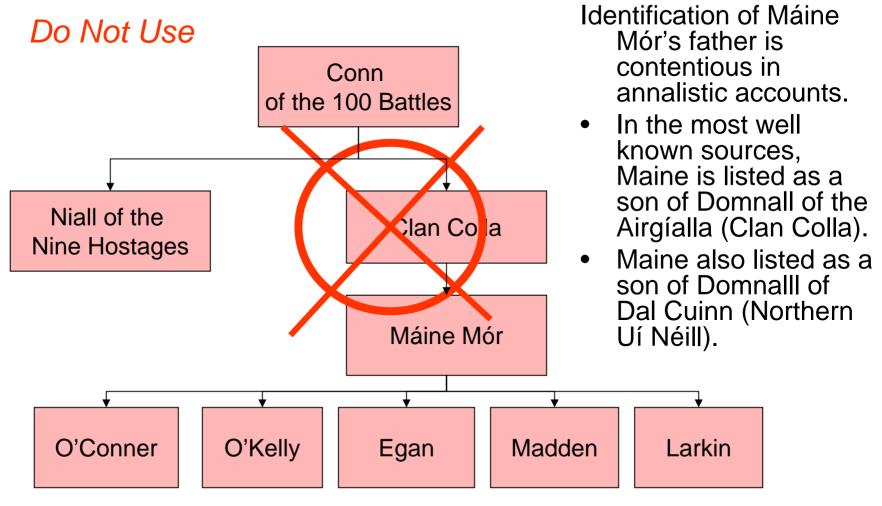
- Original Connachta tribe descended from Conn-of-the-Hundred-Battles and two of Niall of the Nine Hostages' brothers who became overlords of the Fir Bolg peoples of western Ireland.
- Population pressure in Ulster inspired Máine Mór to lead his people to reconquer and occupy southern Connacht in the 4<sup>th</sup> century.
  - Established Kingdom of Uí Maine that lasted more than 1000 years.
  - Shannon River valley around east Galway and Roscommon



Mike Christie, public domain image of <u>Ireland Early Peoples and Politics</u>,

2008 with annotations by author

#### Connachta in the Annals



#### O'Connor

- Six septs of O'Connor surname cited in annals<sup>1</sup>
- O'Connor of Connacht
  - Ruaidrí Ua Conchobair, (last) High King at time of Norman invasion in 1169.
    - Last identified heir in annals: Aed Ua Conchobair d. 1233 'daughtered out'
- O'Conner DNA project has not been able to link samples to septs in the annals<sup>2</sup>
  - Percentage of haplogroup I larger than average for Irish surnames (16%).
    - Project sample from County Galway has the I-M223 marker of stone age European men

# O'Kelly

- Kelley DNA Project is well-developed.
- Largest group from Uí Maine
  - Closely related to, but negative for M222 mutation
  - SNP marker Z2961
    - The marker just upstream of R-M222.
  - Pedigree to William 'Boy' O'Kelly (d. 1381 ad) line of Gaelic chiefs of northern Uí Maine
    - Annals state that he descended from Maine Mór
- Other project members from Uí Maine area have both the R-Z2961 and M222 mutations.

## Egan & Larkin

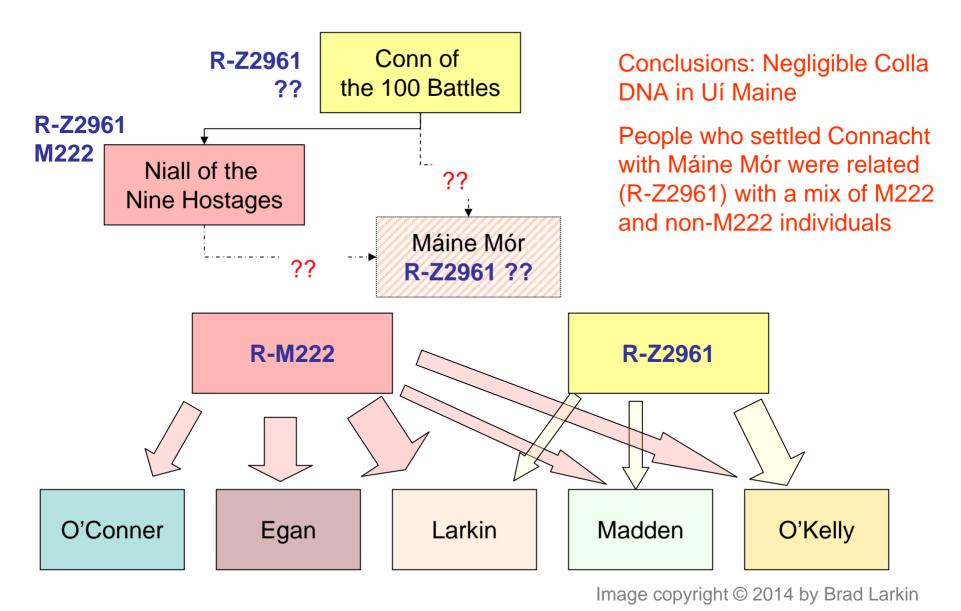
- Well-developed DNA Projects
  - Not chieftains, historically served as Erenaghs
     & Brehons in Uí Maine area.
  - Uí Maine participants overwhelmingly R-M222
- Other DNA Projects have too little
   Uí Maine geographic sampling to analyze.
  - Madden, Mooney, Mullaly, etc.

#### Uí Maine DNA

Categorization of DNA Project Results	R-Z2961 M222	R-Z2961	R-S971 DYS 425 Null Colla	l
Kelly (Uí Maine)	39%	34%	0%	0%
Larkin (Uí Maine)	86%	6%	3%	0%
Egan	44%	2%	0%	2%
Madden	14%	5%	0%	14%
O'Connor	18%	1%	0%	16%

For those skeptical that 'Conn of the 100 Battles' even existed, note that this DNA evidence suggests that someone we might call "Conn of the R-Z2961" is the ancestor of a great number of people originating from the Connacht region.

#### Connachta in DNA



#### Munster

- Eoghanacta
- Brian Boru & the Dál gCais



## Eóganachta- Kings of Munster

- Ailill Aulom, King of Munster
- Kingship alternated between lineages of sons, seated at Cashel, Tipperary
  - Surnames: McCarthy,
    O'Sullivan, O'Callaghan,
    O'Keefe, Kirby,
    O'Mahony, O'Donoghue



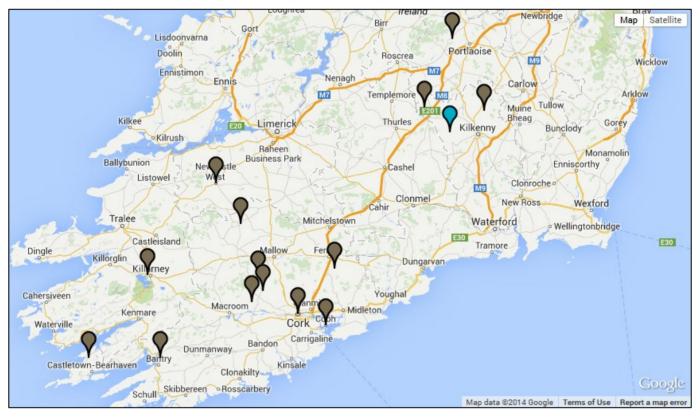
## Eóganachta DNA vs Annals

Annals	DNA Cluster	Frequency of DNA within surname project
Eóghanacht Chaisil & Rathlind descendants of first Christian King of Munster (d. 489)	Irish Type II R-L21-DF13 -CTS4466	O'Sullivan, O'Keeffe, O'Donoghues (S), > 50% O'Mahonys 30% McCarthy (grp A) 23% O'Callaghans 4%
Cárthach, King of the Eóghanacht Cashel (d 1045)	R-L21-DF13 -DF21-L362	McCarthy (grp B) 27% O'Callaghans 12%

Overall the common origin of the Eóganachta in the Annals is well-supported by the DNA evidence with the caveat that there are multiple McCarthy lineages.

## Eo'ganacht Chaisil

- DNA Distribution
  - R-CTS4466 Irish Type II
  - Eo'ganacht Chaisil subgrouping



## Brian Boru & Dál gCais

- Brian mac Cennétig mac Lorcáin
  - Born along the Shannon River in County Clare
  - King of the Dál gCais then High King of Ireland
  - Proginetor of the O'Brien
     Lords of Thomond
    - Lineage intact today



- called Irish Type III

R-L21-ZZ10-Z253-L226-FGC5628-DC1



### R-L226 Distribution

- Participants from Ireland
  - All R-L226positivesubgroup.



#### Surnames: R-L226 vs Annals

Dál gCais Surname	Surname % of R-L226	R-L226 as % of Surname
O'Brien / Bryant	13%	19%
Kennedy	6%	6%
Casey	4%	50%
Hogan	3%	31%
McGrath	2%	23%
Carey	3%	17%

Dál gCais Surnames with frequency < 2% in R-L226 Project: Aherne, Caisin, Quinn, O'Mahoney, McMahon, Ryder / O'Markahan

#### Leinster

- Uí Chennselaig
  - Énnae Cennsalach, contemporary of Niall of the Nine Hostages
- Uí Dúnlainge
  - Said to be cousins of Chennselaig from Énda Niada
  - Split into 3 groups in 8<sup>th</sup> century
    - Uí Muiredaig
      - O'Toole surname
    - Uí Dúnchada
      - FitzDermot surname
      - Larkin surname
    - Uí Fáeláin
      - O'Byrne surname



Donncha Ó Corráin, <u>Ireland before the Normans</u>, 1972

#### Leinster DNA

- Uí Chennselaig
  - Kinsella, Kinsley, Kinsey surnames
    - No DNA Project
  - Murphy Project (Leinster)
    - No meaningful Leinster DNA sample assembly
- Uí Dúnlainge
  - McDermott, Dermott, FitzDermot, O'Toole surname projects
    - No meaningful Leinster DNA sample assembly
  - O'Byrne
    - R-L21-DF13-ZZ10-Z255
  - Larkin (Wexford)
    - R-L21-DF13-ZZ10-R-Z253 (negative for R-L226)
    - By annalistic pedigree, the surname progenitor, King Lorcán mac Fáelán (d. 941 Dublin), was 8<sup>th</sup> cousin to Bran macMáelmórda (deposed 1015), the O'Byrne progenitor.
  - DNA supportive of annalistic pedigree.

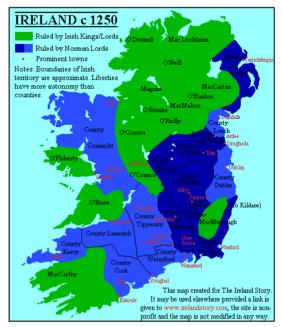
#### The Normans

 About 1.5% of the population of Ireland have surnames associated with Norman lords

- Burke, Fitzgerald, Power, Barry, Roche,

Butler, Grace, Cusack, Dillon

- Three Most Powerful Dynasties
  - Butler
  - Burke
  - FitzGerald



#### Lords Butler

- Descendants of Norman family that came to Ireland with King Henry II ~ 1171 ad
- Large holdings
  - Loyal to the British Monarch but generally remained Catholic
  - Ormond Palatinate (Tipperary & Kilkenny)
    - Earldom extinct 1846
    - Last Marquis of Ormond (without lands) died 1997 without male heir.
    - One English estate remains with 18<sup>th</sup> Viscount Mountgarret believed to be a patrilineal descent.
      - No identified DNA test results.

## de Burgh / Burke / Bourke

- William de Burgh, Norman invasion of Connacht in 1175 & 1200
- Earl of Clanricarde lineage became extinct 1916
- Burke surname survives
  - Largest group, from Ireland
    - R-M269 U106 L48 Z2
      - Suggests Anglo-Saxon / Germanic paternal ancestry



## Fitzgerald Dynasty

- Maurice FitzGerald, Lord of Lanstephan
  - Norman knights coming from occupation of Wales
  - Prominent in Strongbow's original invasion force of 1169.
    - Expected to be R-L21 if Welsh ancestry like Stuarts of Scotland
- Earls of Leinster & Kildare
  - Built many of the prominent buildings around Dublin
  - Original earldom exists, but fortune was lost by 20<sup>th</sup> century
  - Maurice Fitzgerald, a gardener from Oxfordshire, is currently the 9th Duke of Leinster
- DNA Lineage identified from descendant with Barron surname
  - I-M253 haplogroup (aka I1 haplogroup)
    - Suggests Viking Ancestry

## Summary

- Genetic Genealogy DNA testing offers exciting new evidence to historians and archaelogists
  - Sampling coverage and resolution of testing technology reaching useful levels for informing historical questions.
  - Ancient Y-DNA results are starting to come in
- In general, Annals are supported by DNA evidence
  - Macro Level: replacement of mesolithic male population of Ireland (Haplogroups G & I) by Celts (Haplogroup R)
  - Micro Level: Connachta, Northern Ui Neill, Eóganachta, Dál Riata, Clan Colla distinctness
  - Exceptions occur: Clan Colla relations, O'Neil portion of Uí Néill
- Reliable pedigrees back to historical figures are few but very valuable where they do exist to help 'root' the DNA genealogies.

## Dispersal & Mixing

- •DNA reflects people a lot of dispersal and diversity.
- •In virutally any surname, there are representatives of most major European haplogroups.

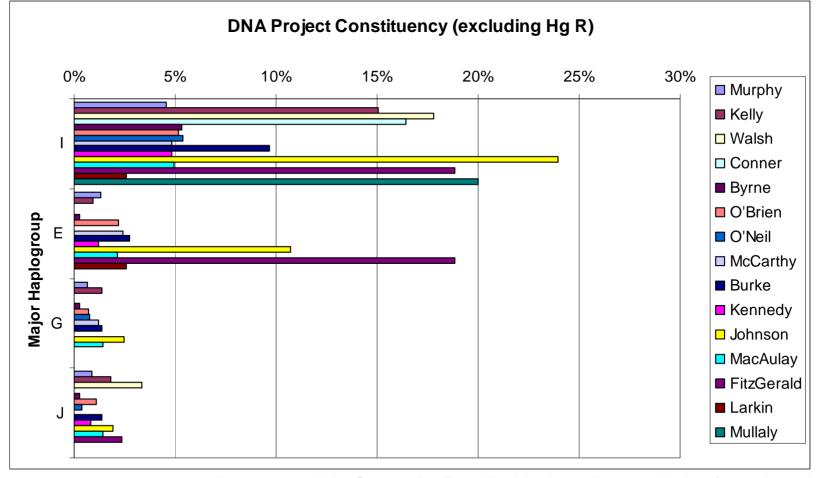


Image copyright © 2014 by Brad Larkin, based on analysis of mentioned DNA project members with Y-DNA surname affiliation

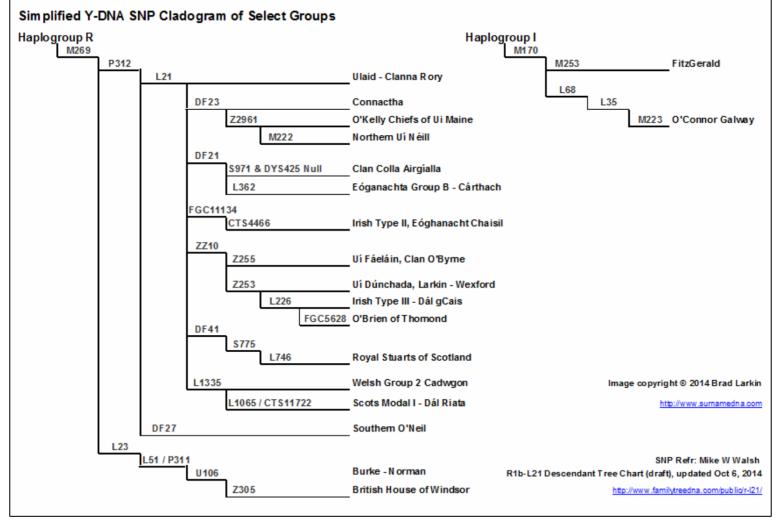
# Summary - Specific Findings DNA vs Irish Annals

- Uí Néill
  - Northern Uí Néill R-L21-Z2961-M222
  - Southern O'Neil R-P312-DF27
- Connachta
  - R-L21-Z2961
  - R-L21-Z2961-M222
- Clan Colla Airgíalla
  - R-L21-DF21-S971, DYS425 Null
- Eóganachta
  - Group A R-L21-CTS4466
  - Group B R-L21-DF21-L362
- Dál gCais
  - R-L21-ZZ10-Z253-L226 Irish Type III
- Leinster
  - R-L21-ZZ10-Z255 Byrne
  - R-L21-ZZ10-Z253 Larkin of Wexford
- Normans
  - Burke R-M269-U106 Germanic
  - Fitizgerald I-M253 Viking



Mike Christie, public domain image of <u>Ireland</u>
<u>Early Peoples and Politics</u>, 2008

## SNP Phylogenetic Tree





#### Questions?

#### **DNA vs Irish Annals**

A summary of results to 2014 with examples from major surnames & haplogroups

#### **Brad Larkin**

Sponsored by
Surname DNA Journal

