

Excavating past population structures using surname-based sampling: the genetic legacy of the Vikings in northwest England

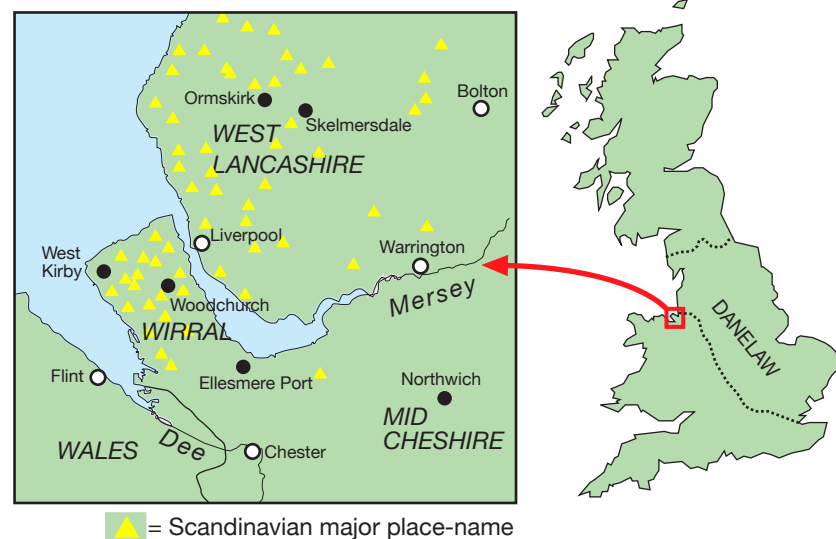
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Viking history in the Wirral and West Lancs

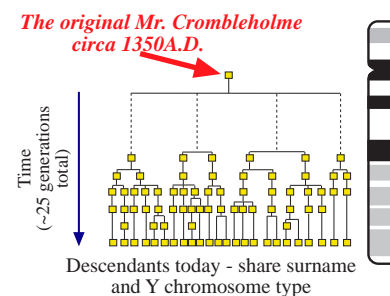
- Archaeological evidence: jewellery, weaponry or treasure hoards at Meols, Crosby, and Cuerdale; Hiberno-Norse ring-headed crosses and hogback tombstones;
- Many modern place-names are of Norse origin;



- In one version of events, Vikings of Norwegian origin, under their leader Ingimund, arrived in the region in 902AD after having been expelled from Dublin. Æthelflæd, Lady of the Mercians, granted them land in north Wirral, where they settled;
- **Is there a corresponding genetic legacy among the modern inhabitants?**
- A problem: population of this region has grown massively since Viking times, including immigration from other regions - likely to dilute the signal;
- Use the link between genetics and surnames to approach this problem

Surnames and the Y chromosome

- The male-specific **Y chromosome** passes from father to son, like a surname;
- Men sharing surnames often share Y-chromosome types;
- The link may trace back to the time of surname establishment - about 700 years ago;
- Sampling men with particular surnames known to have been present in Wirral and West Lancs in medieval times may give us a 'medieval' sample of Y chromosomes, relatively unaffected by post-Viking immigration



Sampling using surname lists

- Collect two samples from Wirral, two from West Lancs:
- **'Modern' sample:** men whose paternal grandfather was born in the area;
- **'Medieval' sample:** as above, plus a surname present in lists dating from before 1572, or one derived from a local place-name

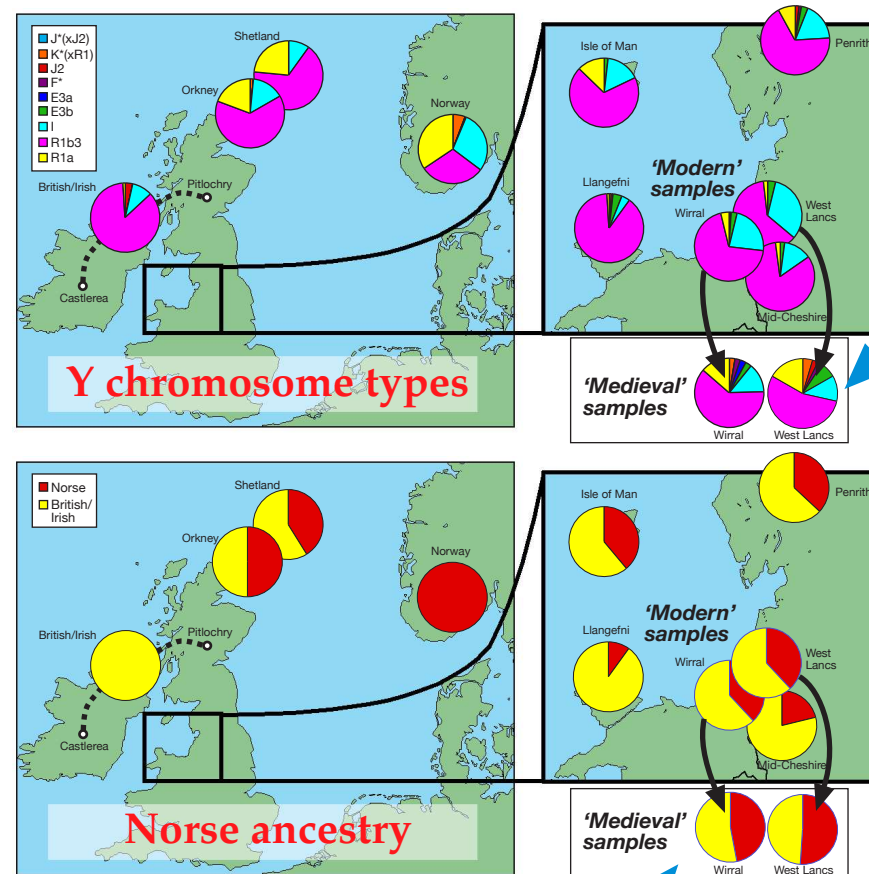
Surnames for Wirral (Subsidy rolls of Henry VIII, 1545):

Barker, Beck, Bennett, Billing, Bird, Bryde, Bushell, Colley, Corfe, Edmunds, Forshaw, Gill, Green, Hesketh, Holmes, Hough, Kemp, Kirk, Kirkby, Lunt, Rathbone, Richardson, Rimmer, Robinson, Sampson, Scarisbrick, Sherlock, Skinner, Taskar, Tellett, Tottey, Young, Oxton, Raby, Upton, Harding, Joynson

Surnames for West Lancs (names of those promising to contribute to the stipend of the priest of the altar of Our Lady of Ormskirk, 1366; plus place-names):

Balshaw, Brown, Carr, Coby, Cook, Cooper, Fletcher, Gray, Holland, Holmes, Jones(son), Leyland, Melling, Molyneux, Otty, Prescott, Rimmer, Serjeant, Thomasson, Walsh, Webster, Westhead, Alker, Bilsborrow, Charnock, Corfe, Crombleholme, Gill, Hesketh, Hulme, Lunt, Pendleton, Penketh, Pennington, Rigby, Risley, Roby, Scarisbrick, Sephton, Swarbrick

What we found



- 'Modern' and 'medieval' samples have significantly different sets of Y chromosome types;
- The proportion of a type called 'R1a', common in Norway, is significantly higher

Perspectives

- Our results confirm the belief that Wirral and West Lancs were once heavily settled by Norse Vikings - the 'medieval' samples have ~50% Norse ancestry;
- Surname-based sampling may help to disentangle past population history in other regions, too - rarer surnames are better than common ones;
- Harder to identify Danish Viking contributions (in eastern Britain), because Danish and 'Anglo-Saxon' Y chromosomes are too similar;
- Method has no potential to study the history of contributions of women in the past;
- Works on the *population* level - unsafe to say that an *individual* has Viking ancestry through a Y chromosome test (as some testing companies do);
- We plan to extend our studies to N.Lancs, Cumbria and N. Yorkshire

