People of the *British Isles*

Newsletter Issue 1 - December 2006

Welcome to the first Newsletter

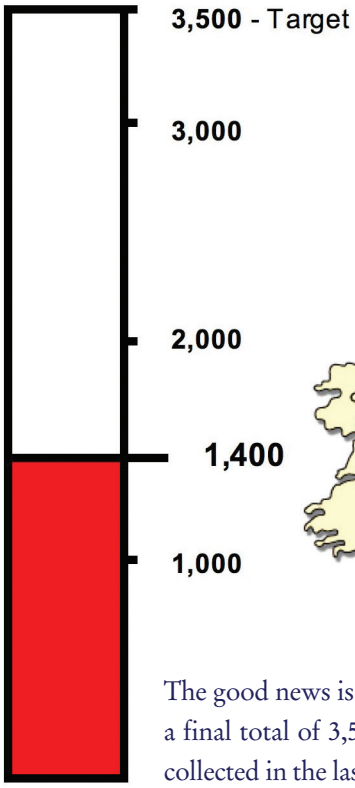
Thank you very much for volunteering to participate in the People of the British Isles (PoBI) project.When you volunteered for the study you asked us to keep you up to date and this is the first of a series of newsletters about the project. They will tell you how the project is progressing and will let you know about results as we get them. The project will take 5 years and, just over half way through, sample collection is well under way.

We also have some preliminary results of a small pilot project, which is the subject of a TV documentary series, planned to be shown on Channel 4 in February.

The working title is 'The Face of Britain' and the first programme is planned for the evening of Saturday 3rd February. Keep an eye out for that. That in itself is exciting but we can give you an exclusive preview of the results here. To make the programme more interesting, the production company, WagTV, commissioned us to genotype a few individuals extra to the project who were given results specific to them on camera. For the project itself, ethical procedures to protect each volunteer insist that we are not allowed to give individual results out and that all samples are anonymous.

We are still looking very actively to recruit more volunteers. If you know anyone who fits our criteria please do tell them about the project. As a reminder, to qualify volunteers must be unrelated people from a rural area with all four grandparents born in the same region. The more people who know about it, the quicker we will be able to recruit and get results. People can now volunteer through our updated website (www.peopleofthebritishisles.org).We hope you enjoy the newsletter.

Sample progress



Regions covered by the project and numbers of samples collected from the top 14 areas

- North East (201)
- Yorkshire (163)
- Oxfordshire(157)
- Norfolk (126)
- Orkney (103)
- Devon (81)
- Cornwall (71)
- Sussex/Kent (69)
- Forest of Dean (63)
- Northamptonshire(60)
- Suffolk (60)
- Cumbria(53)
- Lincolnshire (48)
- Northern Ireland (43)
- Pembrokeshire(40)

The good news is that we have already collected over 1,400 samples from all over the UK. We are aiming for a final total of 3,500 so it is going well but we still have a long way to go. Most of the samples have been collected in the last year, once things were set up. If the study keeps recruiting volunteers at the same rate, the target date for collecting all the samples will be January 2009, but the sooner we reach our target the better.

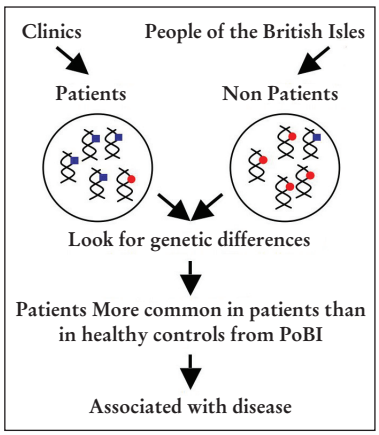
How to recruit volunteers

As our criteria are so stringent, recruitment of volunteers is the hardest part of the project. We have taken a variety of approaches ranging from articles about the project in national media to talking to local groups, newspapers and radio and arranging volunteer events at local venues. Early articles published by the Womens' Institute and the National Farmers' Union, whom we would like to thank for all their help, got us off to a very good start. As a result, about 300 people from around the UK volunteered. This was followed by the first of our events, which was at the Centre for Life in Newcastle. Articles in local newspapers and local radio coverage created a great deal of interest and on the day more than 70 blood samples were collected. This was a great learning experience and since then the process has been refined with further events in Cornwall, Pembrokeshire, Kent, Sussex, Norfolk, Hereford and Worcestershire, the Forest of Dean and Northamptonshire. Local media have also been extremely helpful in places such as Northern Ireland, Lincolnshire and East Anglia. We must also thank Sorrel May from WagTV who was very helpful in getting us started with the recruitment. Another good avenue has been through Agricultural and Family History Society (FHS) shows. These included a productive few days at the Great Yorkshire Show, Nidderdale and FHS shows in Kidlington and Hexham. On a smaller scale, talks to Womens' Institutes, Rotary International, the Inner Wheel and Tangent have also proved fruitful, whilst a number of GP surgeries (especially in East Anglia) and enthusiastic individuals (especially in Kent and Sussex) have boosted the numbers. We have more events organised before the TV series and we plan to line up a number immediately after. If you know of anyone who might be interested, you can find further details on the updated website.

Some thoughts behind the project

Medical Health

This project will produce a genetic map of the British Isles. The Wellcome Trust funded this study as it will provide important long term medical benefits. The samples from the People of the British Isles (PoBI) project will help future researchers to look for genes that make people susceptible to common diseases such as heart disease, cancer and mental health diseases. To do this, researchers look for genetic differences between a group of patients and a control group of healthy people from the general population, as illustrated in the diagram. If something is more common in the patients (blue square), than in the healthy group, it is likely to be associated with the disease. PoBI will provide non patient samples for these projects and will help ensure results are meaningful.



Why are the selection criteria so strict?

As a volunteer who has taken part in the project, you will realise that we have very strict criteria concerning who we want to recruit. We are looking for people from rural areas whose four grandparents were born in the same area. There is a very good reason for this. It means that the volunteer is likely to be from a family that hasn't moved in previous generations, so will be a good representative of the region. We are avoiding large cities because, even if a family has been there for three generations, previous generations may well have been from somewhere else.

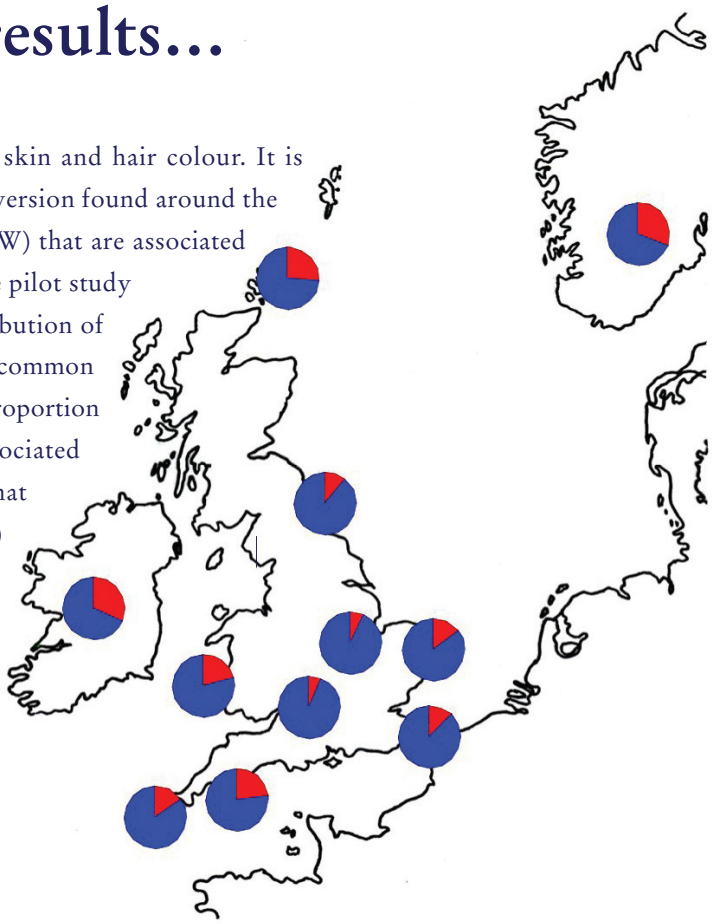
What else can we do with the genetic map?

Once we have this genetic map of the British Isles, we will be able to compare it to the surrounding countries. In particular we are interested in places such as Scandinavia, Northern Germany, and Holland, since these are the countries that may have had a genetic influence on the British Isles. Thus, we may think of Denmark and Northern Germany as the home of the Anglo-Saxons, and Scandinavia as the home of the Vikings.

Now for some early results...

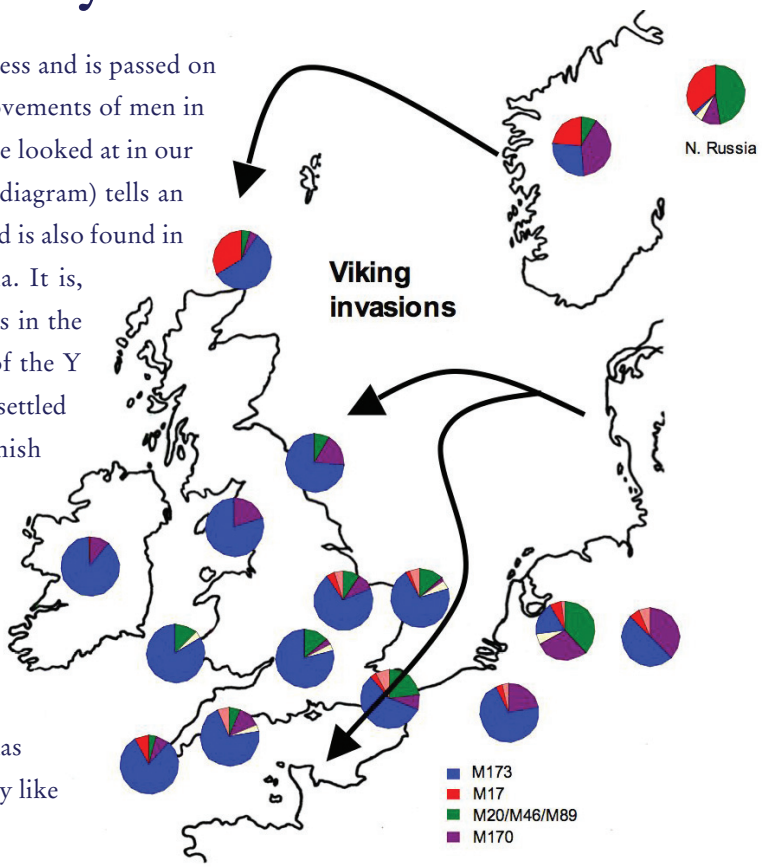
The MC1R Story

MC1R is a gene that is involved, along with many others, in skin and hair colour. It is particularly interesting because, although there is one common version found around the country, there are also two rarer versions (called 150C and 161W) that are associated with red hair. We have looked at this gene in the samples for the pilot study and the results from this were used for the TV series. The distribution of the MC1R types is shown in the diagram. Each circle shows how common the types are in each region of the country looked at so far. The proportion of the circle in red indicates how common the red hair associated versions of the MC1R gene are in that region. It is striking that within Britain, the Celtic Fringe regions (or Ancient Britons) appear to have a higher frequency of these red hair associated versions of the gene than 'Anglo-Saxon' England in the east.



The Y Chromosome Story

The Y Chromosome is the chromosome that determines maleness and is passed on only from father to son. This makes it useful for looking at movements of men in the past. There are a number of Y Chromosome variants that we looked at in our pilot study. One particular version (M17, shown in red in the diagram) tells an interesting story. This is found in about 20% of Norwegians and is also found in North Eastern Europe and Asia from Russia to Central Asia. It is, however, very rare in Western Europe. The exception to this is in the Orkney Islands, where about 30% of men have this version of the Y Chromosome, which supports the belief that Norse Viking men settled there. M17, however, is not found in the area where the Danish Vikings settled (e.g. Northumberland) and is also rare in Denmark. This suggests that the Danish Vikings were different from the Norse Vikings. It is likely that the Danish Vikings came from the same area as the Anglo-Saxons, only 200 years later. They are probably essentially the same people genetically and it is only their culture that was different. The Danish Vikings invaded Normandy, which means that Britain has effectively been invaded by Anglo-Saxons, and people genetically like them, three times.



Mixed up populations

One of the exciting challenges we have is to investigate how mixed up the people of the British Isles really are. Historically there have been a number of invasions, starting with the Romans, continuing through the Anglo-Saxons, Vikings and ending with the Normans. To look at what impact the Vikings had on Orkney we can, for example, assume that the people now in Orkney are a mixture of the Ancient Britons (or what we now call the Celtic Fringe) and the Norse Vikings from Norway and the surrounding countries. Using our genetic data we can estimate what is the relative mixture of Ancient British and Norse ancestry in the present day Orcadian population.

We can use two different sources of genetic variants to do this. The first is the Y Chromosome, which follows movement of males. The results shown in the table suggest that about half the males in Orkney have Norse ancestry. In contrast, when looking at all the other genetic data, a different pattern is observed. About 67% of people from Orkney, as shown in the figure, have a Celtic background. This suggests that there was substantial settlement by Norse men who married local Celtic women. We have also looked at Anglo-Saxon and Celtic contributions to several other regions in Britain. In this case, as we do not yet have any Danish data, we have used East Anglia and Lincolnshire as a proxy for the Anglo-Saxons. The Figure shows that the eastern regions (the North and South East) appear to be largely Anglo-Saxon in origin, shown in red. In more central regions, such as Oxfordshire, the spilt in ancestry becomes more or less even. Cumbria also appears to have a more even split but this may be complicated by Norse Viking incursions.

	% Celtic	% Norse
Males (Y-Chr)	45	55
Other Markers	67	33

Please do let us have your comments on, and questions about, this newsletter. You can contact us directly through the main website or by using the details below. Also, please don't forget to tell any friends who have not yet volunteered but fit our criteria of having four grandparents from the same rural area in which they live to get in touch with us either through the website or at:

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