



Searching for Syphilis

The future for syphilis

Simon Mays:

The significance of this particular individual is that we can be reasonably sure that this is a case of treponemal disease, and the radio carbon date firmly indicates that it pre-dates the Columbus voyage to the Americas. So this means that it proves that treponemal disease was present in Europe prior to the voyage of Columbus.

Narrator:

And Rivenhall woman has one more secret to reveal. The assumption has always been that she was probably a local girl, born and raised in East Anglia. But the results of her tooth analysis bring a major surprise.

Paul Budd:

OK Simon so where do you think this person may have come from?

Simon Mays:

Well I expect she'll basically be local to Rivenhall. It's a country churchyard, which is set aside for burials of parishioners, so I would expect her to have grown up locally.

Paul Budd:

Well I think you might be in for a bit of a surprise with the results that we've got.

Simon Mays:

Really!

Paul Budd:

As you know we looked at a two teeth - we looked at this first molar which forms in early childhood and then we looked at this wisdom tooth which forms quite a lot later on in later childhood. Even taking the first molar first - the one in early childhood we came up with a value of nearly minus nine for this tooth. Now if we look at the UK - the whole of the UK varies from about minus five in the west to about minus eight and half in certain little pockets. And that's really about as negative as you get. But of course what was really even more interesting was that when we looked at the wisdom tooth, so later in childhood, we find an even more negative value. Actually a very negative value amongst, amongst the lowest values that we've actually had for anybody that we've looked at. We get this figure of nearly minus twelve.

Simon Mays:

So almost off the map then?

Paul Budd:

Off the map there essentially. I have a slightly larger map here, a bit less detailed but slightly larger. So what we're talking about with this wisdom tooth is this sort of minus eleven to twelve sort of value is really this sort of band right up here - to the southern edge of this junction between the green and the blue. But the fact that we've got this, this change between early and late childhood - now that implies some sort of movement. Now if we look at where that movement is most likely to have been, one begins to consider Scandinavia and Norway in particular, because as you can see, the difference between those sorts of values in terms of geographical distance up there is not so dramatic.

Simon Mays:

Yes, yes. I mean given that coastal trade between towns in Norway would have been carried out by sea I suppose you would expect a bit of movement of people there. I mean obviously

what's less expected is that somebody who ended up in Rivenhall churchyard actually spent much of her early life in Scandinavia.

Paul Budd:

But then of course we're talking about somebody from an eastern coastal, reasonably coastal location in the UK so I suppose maritime contact again is not unexpected.

Simon Mays:

The Norse connection is also quite interesting from the point of view of treponemal disease, syphilis and what have you. The Norse were in North America four centuries before Columbus, so you know, does this bring up the spectre of the North American connection again. We can't argue that consistently because we don't know how old she was when she actually got the disease.

Paul Budd:

That's a critical question

Simon Mays:

Exactly, so was it something she contracted in Scandinavia or something she contracted when she arrived in Britain. It's an interesting question because it leaves open the question of whether syphilis or closely related diseases were endemic to Britain at that period or not.

Don Brothwell:

The more we know about the history and biology of diseases in the past, the more we may be able to use this information for interpreting what might happen into the future.

Narrator:

The sequencing of *Treponema pallidum*'s Genome has opened the door to solving the mystery of the origin of syphilis.

It has also offered hope of a vaccine that could one day wipe this ancient scourge from the planet. Until that day one of the most successful of all pathogens continues to enjoy our human hospitality.

Piers Mitchell:

If I wanted to be an infectious disease, I'd probably want to be a venereal disease. There are a lot of things that humans can avoid to avoid disease, but avoiding sexual intercourse is one of those things that's very difficult for human beings.

Sheila Lukehart:

I think the treponemes will have a very long and happy future. They're extraordinarily hard to work with and I think we are as not as close as we would like to think to developing a vaccine against the treponemes. I think they have lived with us for many, many thousands of years and will live with us for many years in the future.