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## Rebuttal of Richards and Macaulay's post

Mark G Thomas' rebuttal of Richards and Macaulay's [post](#)

Martin Richards and Vincent Macaulay are leading proponents of the use of what I have termed 'interpretative phylogeography' to study human population history, and between them have probably published more scientific papers using this approach than anybody else in the UK. In my [Guardian blog](#) I singled out the 'murky world of interpretative phylogeography' as the approach most often used by genetic ancestry 'testing' companies to provide misleading inferences about an individual's ancestry. It is therefore understandable that Richards and Macaulay felt compelled to defend this inference approach

Richards and Macaulay say little about the genetic ancestry 'testing' industry in their [Guardian post](#), and what they do say is ambivalent at best (for example, they say: "*The line between popularising science and misleading the public is a very difficult one to draw, as responses to the recent BBC TV programme [Meet the Izzards](#), in which Eddie Izzard traces the migration of his ancestors out of Africa and into Europe, illustrate*"). However, Martin Richards has previously criticized genetic ancestry testing, in [The Guardian](#) 2003, and in a co-authored [article in BioEssays](#) in 2008.

The utility and scientific validity of interpretative phylogeography have been discussed extensively in the scientific literature (an excellent example can be found [here](#)), and this is not

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The utility and scientific validity of interpretative phylogeography have been discussed extensively in the scientific literature (an excellent example can be found [here](#)), and this is not the place to delve into a detailed discussion of those specific issues. Suffice to say that Richards and Macaulay's article does not address the concerns I and many others have raised. Rather it gives a few 'cherry picked' examples of purported 'successes' of interpretative phylogeography, then meanders into the philosophy of science.

Richards and Macaulay cite a number of examples (human expansion out of Africa, the colonisation of the Remote Pacific, the expansion of Bantu speakers in Africa, the first settlement of the Americas from Asia) where phylogeographic inference had led to conclusions that are consistent with archaeological views. However, as [noted in my Guardian post](#), phylogeographic inferences are "easily steered by subjective biases". Thus, in many cases, it is not clear if those phylogeographic inferences cited were independent of, or steered by preexisting archaeological and linguistic views (i.e. circular arguments).

Richards and Macaulay also say: "*But among people in this small (but vocal) group of detractors, as across science more generally, there is a tendency ..... to draw sharp dividing lines between "rigorous hypothesis testing" and "storytelling".*" I disagree that we are a "small (but vocal) group of detractors". Indeed, most population geneticists that I have discussed these matters with share my concerns about interpretative phylogeographic inference. But more importantly, Richards and Macaulay are correct about drawing "sharp dividing lines between "rigorous hypothesis testing" and "storytelling". Like most scientists, I do draw that sharp dividing line. Storytelling from genetic data is fun and a temptation to all of us in this field. But it's not the science bit - science is about testing stories (we prefer the term hypotheses), not just telling them.

Richards and Macaulay also say: "... we suspect that "interpretative phylogeography" will still have a central role to play, even as prevailing models are challenged once again". I agree! Interpretative phylogeography is a way of coming up with historical stories (hypotheses), as is sitting in the bath, chatting in the pub, and taking hallucinogenic drugs. But far better than any of these, if you want an hypothesis on our past to test using genetic data, is to try asking a historian, archaeologist, anthropologist or linguist. These challenges that hypotheses in a

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Lastly, Richards and Macaulay say of phylogeography: "It relies on the principle that every mutation in the DNA arises at a specific point in space and time, and that a plot pinpointing these locations is effectively an outline of the movement of people across the landscape and around the world". I agree with the 1st phrase, but the 2nd is more problematic. No rigorously tested method exists to pinpoint "these locations", and even if that were possible, knowing the locations of our mtDNA or Y-chromosome ancestors would say less and less about the history of our species as we look further back in time.

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