Adventures with DNA – Anne East

It has been suggested that an updated article about using DNA testing for family history research would be useful to members. It is over 15 years since Lionel East started the EFHS Y-DNA project, which did produce some good results and also some frustrating 'no matches'. Since then, the world of genealogical DNA testing has moved on, touching briefly on mitochondrial DNA and now focussing on autosomal DNA. It is the autosomal DNA test which is by far the most widely marketed by various testing companies today and what most lay people mean when they say they have 'done a DNA test'. I do not propose to explain the science because this is covered in great detail by many articles found on the internet. I will show you a couple of examples of 'breaking down a brick wall' and how I have had lots of lockdown fun adding distant cousins to our trees. I was very, very sceptical about the use of autosomal DNA tests but now I am a complete convert!

The main thing you need to know about autosomal DNA is that everyone has it and that each person inherits 50% of their DNA from their father and 50% from their mother. That will leave 50% from each parent that you do not inherit. Each sibling in a set of children will inherit their own versions of the 50%, so you may have a very similar or very different version to your sibling. Full siblings share 50% of their DNA on average; 1st cousins share just 12.5% of their DNA, even though they share half of their ancestors; 2nd cousins share, on average, just 3.125% of their DNA and 3rd cousins a mere 0.781%. Luckily there is a lot of DNA to go around and in practice you can find matches up to about 8th cousins.

The amount of shared DNA is measured in centi-Morgans (cM). You will share about 2600 cM with a sibling; about 800 cM with a 1st cousin; about 200 cM with a 2nd cousin. By the time you get to 3rd cousin you may share as much as 200 cM or none at all! It is important to remember that just because you know you are related at a 3rd cousin or less level does not mean you actually share any DNA. If you are lucky a person you do match will have tested and even a tiny shared 10 cM can point the way to a link with the family.

It is the more distant DNA matches which can be the most rewarding to research. Ron's 4x great grandfather was William East who married in Burgh le Marsh, Lincolnshire in 1791. His five children were baptised in four different places, illustrating the mobile lives of Lincolnshire agricultural workers at the time. It was very difficult to decide where William East might have been born. There was a possible William baptised in Donnington on Bain in 1767, child of John East and his wife Susanna Watson (names which William used for his own children). However, I was doubtful because the baptism did not quite match William's age at death. My doubt appeared to be confirmed when a DNA test taken a number of years ago by a proven descendant of John East and Susanna did not match Ron or other known cousins of Ron. Move on to present day testing and with millions of potential people to match with and I have now found not one but four people who are descended from two of John East and Susanna's other children and match with Ron and other descendants of William. See the diagram to illustrate the matches which I have also researched and proved on paper.

Another breakthrough was also from Ron's family but this time not the East family and it involves a female line. Elizabeth Marling married Joseph Ballance in Burstwick, East Yorkshire in 1805. (170 years later we also lived there but didn't know Ron's connection). Although these are rare surnames the research was much more difficult because they were Roman Catholic. It was not certain who Elizabeth's parents were, nor what happened to her after Joseph Ballance's early death. There was a possible marriage for her to a William Atkinson but the Parish Record said that Elizabeth Ballance, the bride, was a spinster. After years of research and speculation, recent DNA test results have shown descendants of both Joseph Ballance and William Atkinson match each other, so Elizabeth did have two marriages. There are also other matching descendants of Elizabeth Marling's sister Mary, leading to the confirmation of their parents. In total there are 10 Ballance descendants; 4 Atkinson descendants and 8 descendants of Mary Marling. All these are confirmed by both the DNA match and by paper research. All of them match at least one other in the group, as well as matching Ron. Some of them match several others.

These are just two illustrations of the progress I have made with the help of our DNA results. I have also found a great satisfaction in 'attaching' DNA matches to both Ron's tree and my own. So far I have linked over 400 people to one or other of our trees and each one has a digital paper trail as well as the DNA link. How is that possible? Our tests are with Ancestry and I use a variety of ways to find a family link.

Firstly, Ancestry uses algorithms from all the data it holds (including other people's trees) to suggest a 'common ancestor'. You can look at the suggestion and then work it out by your own research. It is a short cut because without the suggestion you would need to research all of that match's families to find the one line which links. In my experience the suggested 'common ancestor' is right in about 85% of cases.

Next, Ancestry can only find possible common ancestors if the person who tested links a tree to their name. Some people have an unlinked tree associated with their name and these can give clues for research, even if they have only put their parents or grandparents on a small tree.

Finally, if the person who tested does not have a tree at all I mostly don't bother with them even if they mutually match other people who match us. However, even in these cases, you can have success if the person has registered with their real name (not a nickname) and that name is uncommon. Careful research with the GRO index, censuses, parish records online and other online resources can lead to successfully finding the family link. I have printed some blank six generation ancestor charts to scribble on and I take each generation at a time looking for any familiar surnames or places of birth. Sometimes there is the reward of success and a family link but also the 'chase' of researching other family histories is a reward in itself.

There are other companies that also offer DNA testing as well as Ancestry. My Heritage, Family Tree DNA, 23andMe and Living DNA are probably the best known, so which one should you choose? Some of them still offer Y-DNA and mitochondrial DNA testing, which Ancestry does not. The Y-DNA test is only for males and can be useful for following the prime (male) surname. The mitochondrial DNA test is for

everyone and follows the female line but the nature of that DNA is a very slow mutation (change) so it tends to show links back to the distant past (up to 100 generations), which are probably not so interesting for family historians. A son will inherit mitochondrial DNA from his mother but cannot pass it on to his children - male or female.

All the companies offer autosomal DNA tests and because links to wider family can be a matter of luck you need as big a number of tests to compare with as possible. Roughly speaking at the present time Ancestry has over 18 million people tested, while the next largest appears to be My Heritage with 4 million. Clearly if your aim of DNA testing is to assist your family research then Ancestry is the one to use. There could be another reason too; several of the other companies allow you to upload your 'raw DNA data' to their websites and while Ancestry allows you to download your raw DNA data for your own use, it does not allow uploading of data from other companies. For example, if your test is with Ancestry you could also send your results to My Heritage. I have just done this and am interested to find some different ways of matching and a whole new set of matches and some names I recognise who, like me, have uploaded their Ancestry data.

A way that will help you to increase your chances of identifying distant cousins is to ask other close family members to take a test. I paid for a test for my brother and, like Ron, he allows me to manage the results for him. This means I can see and organise the list just like my own, although it remains his property and he could deny me access if he wanted to. It has been very interesting to see the similarities and differences in our list of matches and it has certainly extended our mutual tree. I now know much more about the more distant, neglected corners of our trees because it has been some of the more 'surprising' lines which have yielded the most matches. We all tend to have what we consider main branches in our trees but, of course, our relationship to each of our 4x great grandparents is equal, although the amount of autosomal DNA inherited from each of them will be different.

If you haven't already done an autosomal DNA test I hope this article has encouraged you to think it might be worthwhile. If you love the research and discovery of family history then this will give you something new to work on. You might solve some long-standing puzzles and possibly find some puzzles as yet unknown. You'll have around 15,000 to 25,000 matches and never find out how the majority of them link to you. You'll have the chance to contact long distant cousins, although it certainly is not necessary to contact anyone if you don't want to. You can allow your tree to be publicly shown on the company website, or keep it private, or not have a tree there at all. You can simply and permanently remove your data from the website if you should decide it is not for you. However, if you are hoping for an Ethnicity result you will probably be disappointed with the vague percentages, which are calculated merely by comparing the millions of people who have already tested – a huge number but a very tiny proportion of the whole world population.

I have been thoroughly enjoying this adventure in DNA and will continue to do so because every day there are new matches added to my lists. Mostly the matches are very small and many of them have no trees attached but every week there are four or five which are of interest for researching.