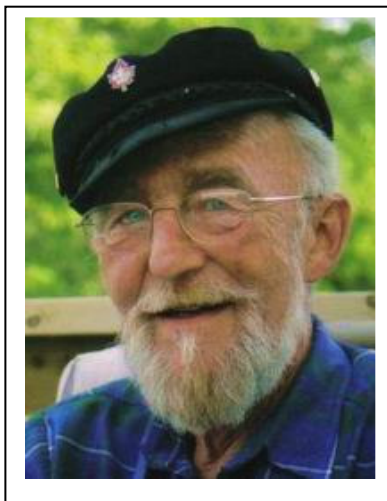


### Genetic Fingerprinting



You can scarcely pick up a Family History magazine these days without seeing something about the use of DNA testing in genealogy. At the risk of sounding like a Luddite, I must say at the outset that I am not wildly enthusiastic about the widespread application of this scientific marvel.

It has undeniable value as a forensic technique in identifying the perpetrator of a crime or proving paternity. It has also been able to solve otherwise unsolvable mysteries.

The Lemba tribe in southern Africa had a thousand-year-old tale that they were descended from a group of ancient Jewish settlers. Scholar Tudor Parfitt, of the University of London, was intrigued and by using DNA testing he was able to prove that they had indeed descended from Jewish ancestors and that, in fact, some of the men share DNA characteristics of priests reputedly descended from Aaron.

It is now being used to determine common ancestry among several male descendants and the possible generational distance from that

common ancestor.

Genetic research is traced back to the Austrian monk, Gergor Mandel (1822-1884), who researched heredity patterns of peas growing in the monastery garden. Its role in genealogy began in 1990 with the launch of the project to map the human genome (the germ cell that contains all the hereditary data)

All our hereditary information is carried by our chromosomes. Males have a 'Y' chromosome that comes from their father, and an 'X' one from their mother. Females have two 'X' chromosomes, one from each parent. Both chromosomes can be mapped to determine paternal and maternal lines but much more work has been done on the 'Y' chromosome.

A DNA test looks at a number of locations (usually between 10 and 40) on the chromosome and assigns a numeric value to each location. This results in a string of numbers, not unlike a bar code and is called a haplotype. If the haplotype from one person is identical to that of another, then they definitely have a common ancestor, in fact, they are probably brothers. Over the generations, little mutations creep in causing small variations in these personal bar codes and there are charts to help determine the significance of these. It could mean that the common ancestor is a certain number of generations back.

A relatively low level test, which a number of laboratories now perform, uses a swab of saliva taken from the inside of the cheek and can cost \$50. to \$80. The claim is that it can determine common ancestry up to 5 generations back with 99% accuracy. It does not check for other heritable traits such as predisposition to certain diseases, etc. More sophisticated tests are correspondingly more expensive and \$500. (US) is a sometimes quoted figure.

The Hemmings family, who are descended from one of Thomas Jefferson's slaves, Sally Hemmings, used DNA to prove their direct descent from Jefferson - much to the consternation of the 700-member, all- white, association of Jefferson's descendants who must now accept them as relatives.

DNA testing can be useful where there may have been a name change or to establish links with disparate branches of the same family. However, it is still only practical in the male line and a lot of people are uncomfortable with the thought of their DNA lying around in someone's files.

It is also possible for errors to happen and, for this reason, samples should be examined by several labs and their results compared. I know of one case where an error suggested that the subject was not the biological child of the person believed to be the father. That certainly caused some unnecessary consternation!

By the same token, we have had some wonderful successes in local genealogical research through the help of DNA and I will report on these in a future column.

DNA, like the Internet, is not the solution to genealogy's problems but it can sometimes be a useful tool.