

## **How Forensic Genealogy Solved the Phoenix Canal Murders**

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Angela Brosso went for a bike ride along the Arizona Canal in Phoenix one evening in 1991. She never returned home. Her body was found nearby in a vacant lot a few days later. Melanie Bernas went for a bike ride along the same canal in early 1992. She never returned either. Her body was found floating in the canal a few days later. Over the years, numerous suspects were investigated, but without success. There was no CODIS hit to the DNA from the crime scenes.

The Phoenix Canal Murders remained unsolved until 2014, when Identifinders International was asked by the Phoenix Police Department to compare the Y-DNA collected from the crimes to genetic genealogy Y-STR profiles posted on public websites. Using in-house software to interrogate numerous online databases, a Y-DNA match was found to a small group of Millers, narrowing down the list of suspects from many hundreds to just five. This led the authorities to arrest Brian Patrick Miller, who is now on trial for the murders of both women.

The Phoenix Canal Murders are only one example of how cold case investigations are benefitting from the use of genealogical resources. There are many others that have drawn on the ~300k Y-STR profiles that have been posted online by the genealogy community in thousands of public databases on thousands of public websites. A match between a forensic Y-profile and a profile found in a genetic genealogy database can advance a cold case investigation in many ways. Perhaps the most interesting is that forensic genealogy used in conjunction with DNA phenotyping is making it possible to predict the appearance of a killer, his ethno-ancestry, and his last name, based on his DNA alone.

In this talk, we present the details of how forensic genealogy led to the successful resolution of the Phoenix Canal Murders. We discuss other cases that have benefitted from the use of forensic genealogy techniques along with casework statistics. We close with comments on the viewpoint of the genealogical community on working with law enforcement, with suggestions on how a working relationship can be formed between the communities.