The DNA DOE Project – Our First Two Years of Success

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The DNA Doe Project is a major success story of genetic genealogy. In early April 2018, we were the first to announce identifications on forensic cases using GEDmatch, a few weeks before the arrest of the GSK. Because we are volunteer-based – we have 70 volunteers with over 200 on the waiting list - we have been successful with cases that have required thousands of hours to solve, cases that were clearly out of reach of for-profit organizations.

In the past 18 months we have been part of the tremendous change in human identification that has occurred thanks to genetic genealogy. The identification of older remains presents challenges not typically seen with more intact crime scene DNA. Cases like ours that involve compromised DNA are being solved as we push the leading edge of technology to meet the front line of forensic challenges.

The war stories we share from the trenches are John and Jane Does that have benefited from our success: teens from broken homes, elderly Does who have disconnected from their families, a young suicide, and an escaped prisoner, each of whose identification has defied social networking, exposing a troubled stratum of society that mirrors the consequences of estrangement.

Our success rate thus far is about 40%. These have involved major breakthroughs with the analysis of highly compromised DNA samples using genetic genealogy tools designed to handle only fresh samples. Several of our success stories are based on degraded DNA where at most 10% of the genome survived. We have also tackled low-input samples and highly contaminated samples.

In this talk we select examples from our catalog of success stories, giving an overview of the techniques we have developed to address the multiple challenges we face.

These include:
2015 Butler County Jane Doe, whose severely degraded DNA appeared unusable until bioinformatics imputation increased her data ten-fold, allowing us to find matches and to identify her family;

2001 Lyle Stevik, whose mother's family was from a highly intermarried area of northern New Mexico. His father was born in South America; his family was completely absent from Lyle's list of matches.
1971 Annie Doe, one of the oldest cases at NCMEC. Not only was her DNA was severely degraded, her mother was from England, and her father's family was from Germany. Her DNA was severely degraded. She was one of the oldest cases at NCMEC.

These are only a few of the cases that we will discuss to give insight into the arsenal we are assembling to push forward the frontier of human identification.