Catching Killers with Consumer Genetic Information

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Catching Killers with Consumer Genetic Information

Angela Hackstadt
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“Golden State Killer”

The arrest that started it all

- Arrested in April 2018
- *I’ll Be Gone in the Dark*
- Combined DNA Index System (CODIS)
- Familial DNA Searching
- Direct-to-consumer (DTC) genetic testing companies
Outline

- History
- Legal Issues
  - DNA profiling of convicted persons
  - Familial DNA searching
  - DTC genetic testing
- Social Issues
  - Family as a social unit
  - Belonging to a community
Forensic Genealogy

- Known relative(s) of an individual
- Work backward to find a common ancestor
- Narrow down a family tree
- DNA alone does not identify people
  - Census, birth, death, land records
  - Newspaper articles
  - Other information
Identifying the Romanov Family

The Russian Imperial Family, 1914
mtDNA
Mitochondrial DNA
Common Ancestor

Princess Alice

Tsarina Alexandra

Victoria
Common Ancestor

- Princess Alice
- Princess Victoria
- Tsarina Alexandra
- Prince Philip
Other information

- Location
- Injuries
- Age and sex
- Dental work
Y-STR

Y Chromosome Short Tandem Repeats
“Buckskin Girl”
Identifying Victims

- April, 1981
- Miami County, Ohio
- DNA Doe Project
  - dnadoeproject.org
- GEDMatch
Marcia King
Identifying Victims

- April, 1981
- Miami County, Ohio
- DNA Doe Project
  - dnadoeproject.org
- GEDMatch
Identifying Victims
Identifying Victims

Identifying Perpetrators
CODIS

As Seen on TV
Collection

Controversy
Familial DNA Searching of Law Enforcement Databases

YES

- Arkansas
- California
- Colorado
- Florida
- Michigan
- Texas
- Utah
- Virginia
- Wisconsin
- Wyoming
- Ohio (pilot program)

No

- Maryland
- District of Columbia
Familial DNA Search

“Familial searching is an intentional or deliberate search of the database conducted after a routine search for the purpose of potentially identifying close biological relatives of the unknown forensic sample associated with the crime scene profile”
The Grim Sleeper

Los Angeles, California
State & Federal DNA Databases

- Valuable resources for law enforcement
  - Victims
  - Missing persons
  - Perpetrators
- Highly regulated
- Communication
- Collection issues are possible
- Debates continue
Let’s put it in a box and sell it!
Genetic Genealogy Standards

- www.geneticgenealogystandards.com
- Understanding companies and terms
- Necessity of consent
- Data handling
- DNA storage
- Unexpected results
Now What?

What do you do with your results?
Angie Dodge

Part I
Third Party Services

- DNA GEDCom
- GEDMatch
- Raw DNA data
  - A-C-G-T nucleotides
- Company-neutral comparisons
The Arrest

Joseph James D’Angelo
William Earl Talbott II

- Same genetic genealogy technique used in GSK investigation
- First to be tried
- First convicted
Angie Dodge

Part II

- Brian Dripps arrested May 2019
- Genetic genealogy
Updated Terms of Service
“Downright gobsmacked”
Reasonable expectation of privacy?
Social Issues: Community
Recommended Reading (and listening)

- *Native American DNA*, Kim Tallbear (2013)
- *All My Relations* podcast, Matika Wilbur & Adrienne Keene (2019)
  - Episode 4: Can a DNA Test Make Me Native American?
  - Episode 10: Beyond Blood Quantum
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Thank You!