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### Catching Killers with Consumer Genetic Information

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# Catching Killers with Consumer Genetic Information

Angela Hackstadt  
University at Albany, SUNY

NYLA Annual Conference  
November 16, 2019 | Saratoga Springs, NY

# “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



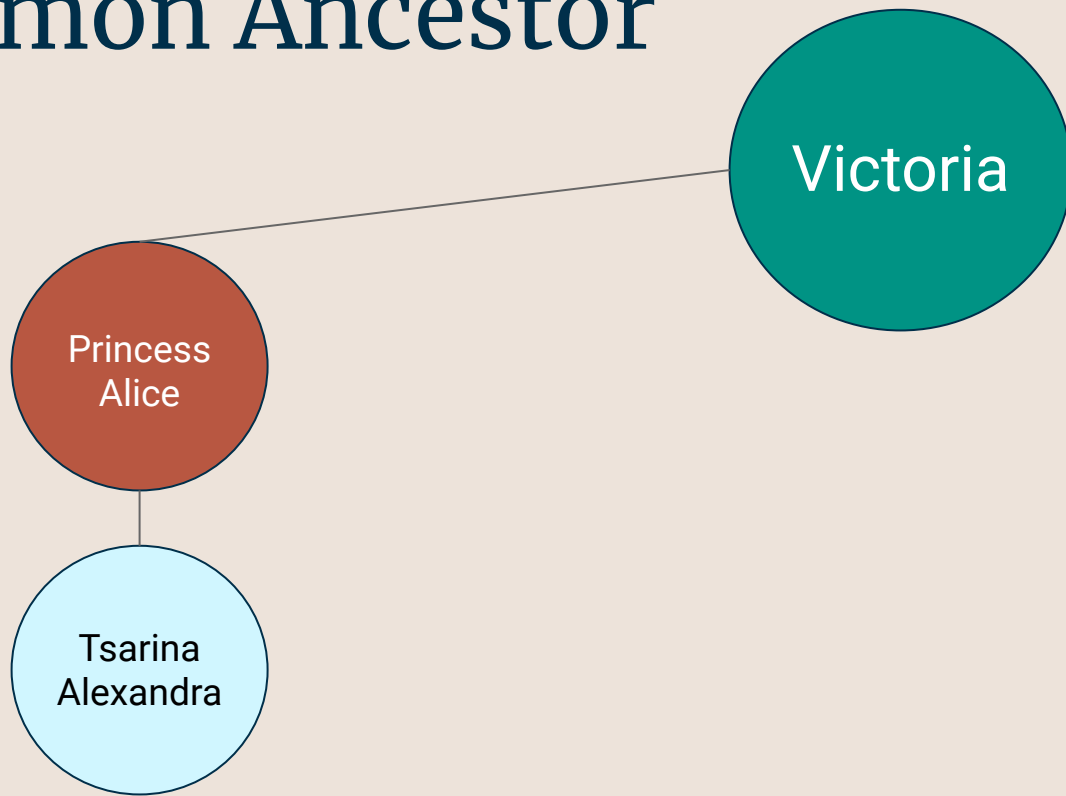
*The Russian Imperial Family, 1914*

# mtDNA

Mitochondrial DNA

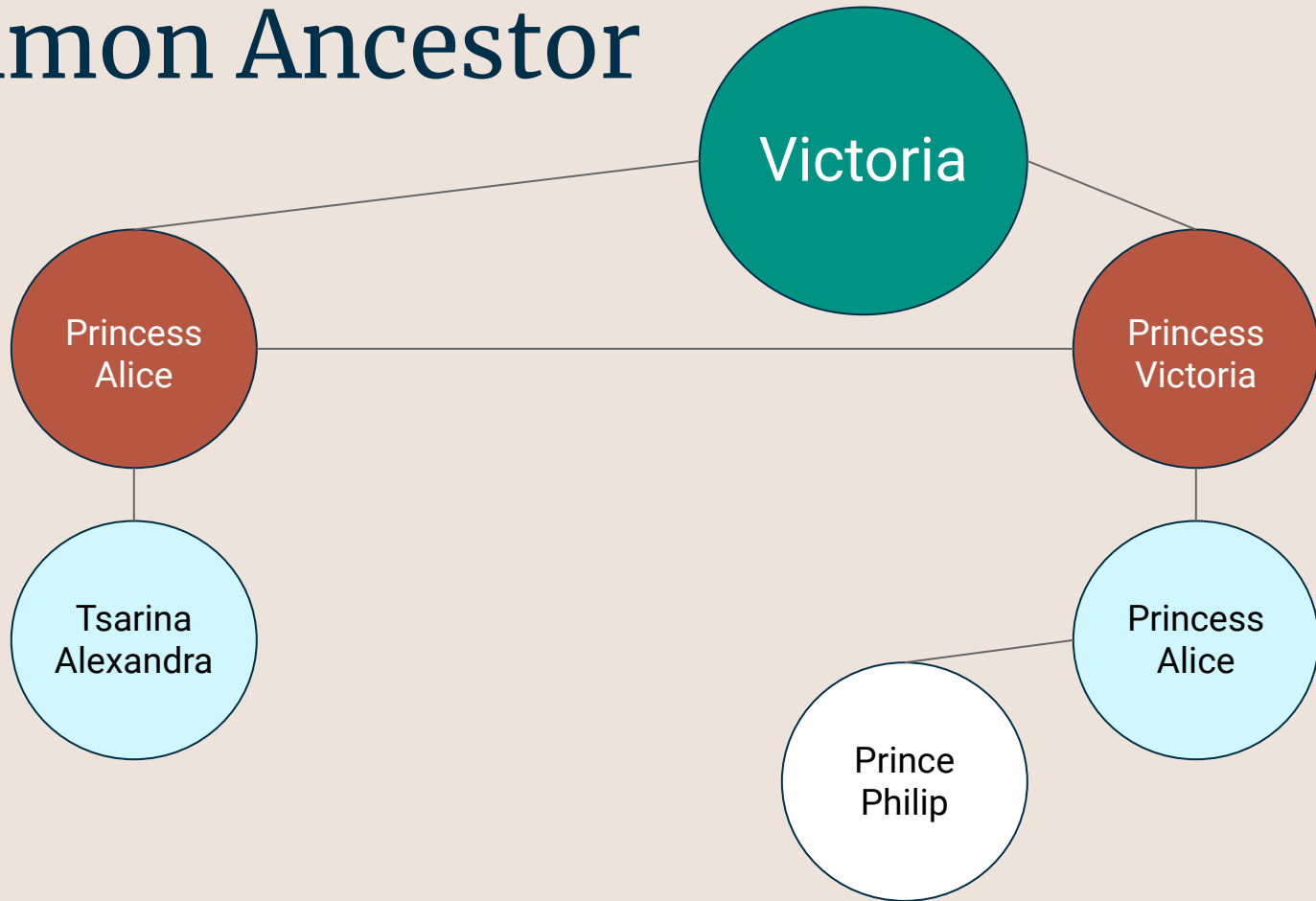


# Common Ancestor





# Common Ancestor



## 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](http://dnadoeproject.org)
- GEDMatch

# Marcia King

Identifying Victims

- April, 1981
- Miami County, Ohio
- DNA Doe Project
  - [dnadoeproject.org](http://dnadoeproject.org)
- GEDMatch

# Identifying Victims

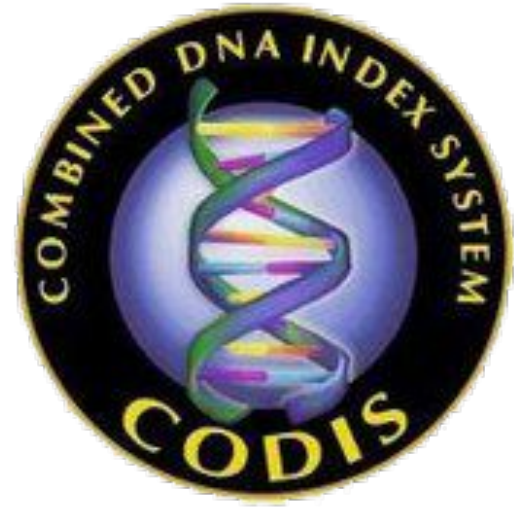


Identifying Victims

Identifying Perpetrators

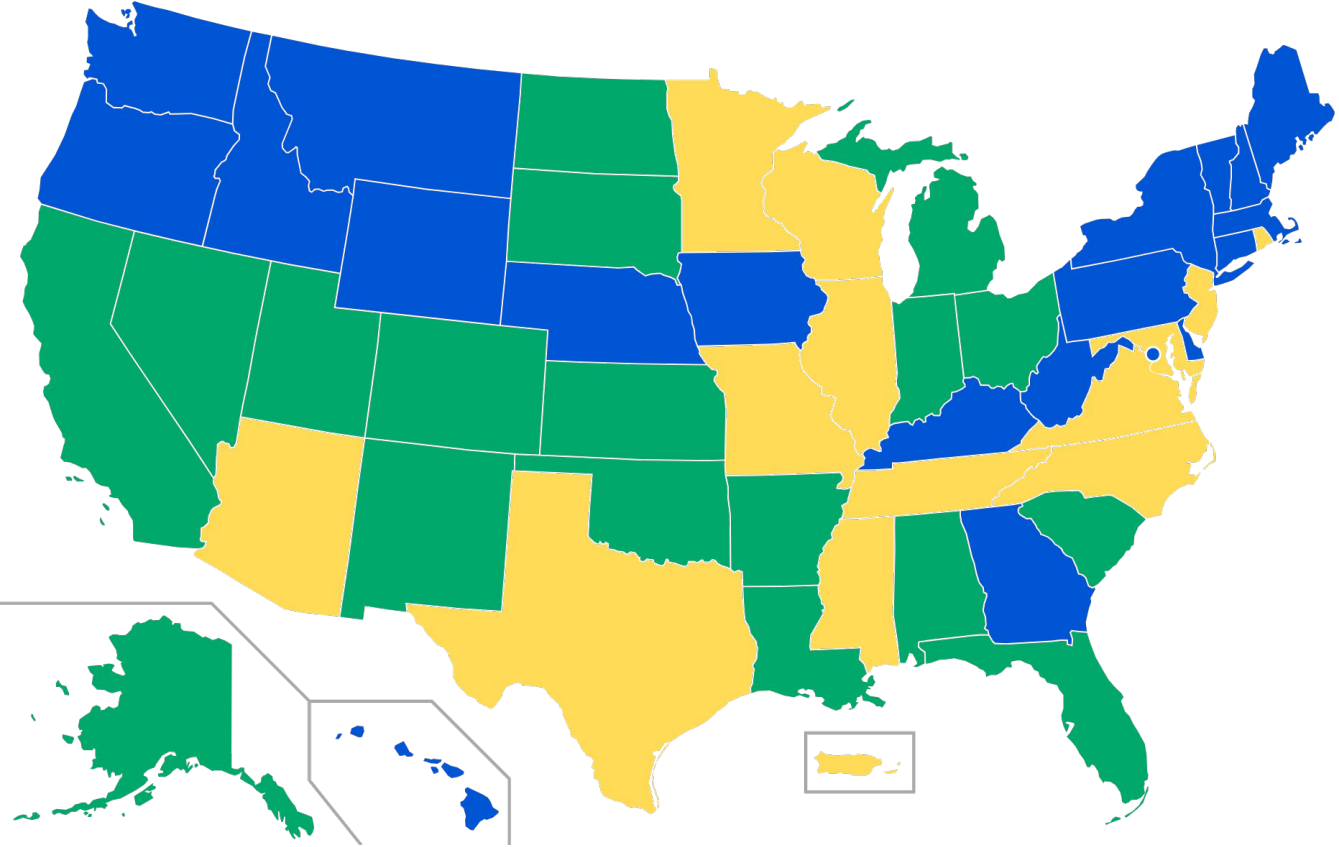
# CODIS

As Seen on TV





# DNA Collection by State (2018)



# 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



[South Central Los Angeles CC-BY 2.0](#)

# 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!

# Top 3 for Genealogy

*The Family Tree Guide to DNA Testing  
and Genetic Genealogy, Blaine Bettinger*

# 23 and Me

## Family Tree DNA

## Ancestry.com



# Genetic Genealogy Standards

- [www.geneticgenealogystandards.com](http://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



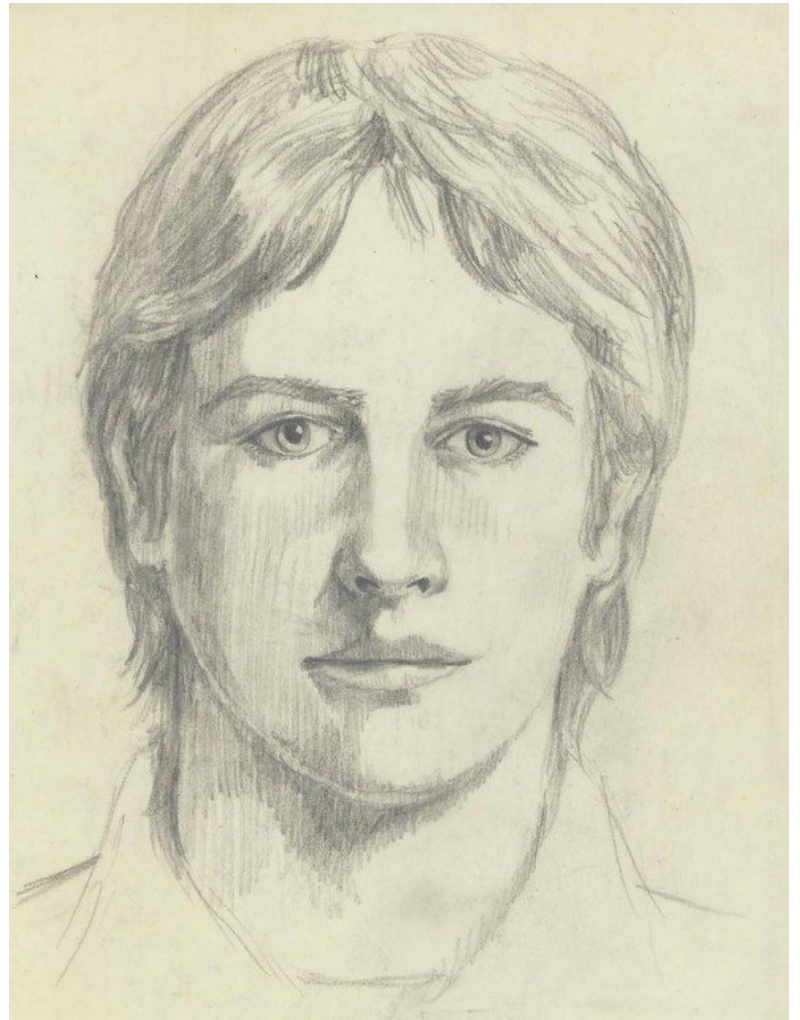
[DNA Evidence CC-BY-SA 4.0 International](#)

# 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 Talbot II

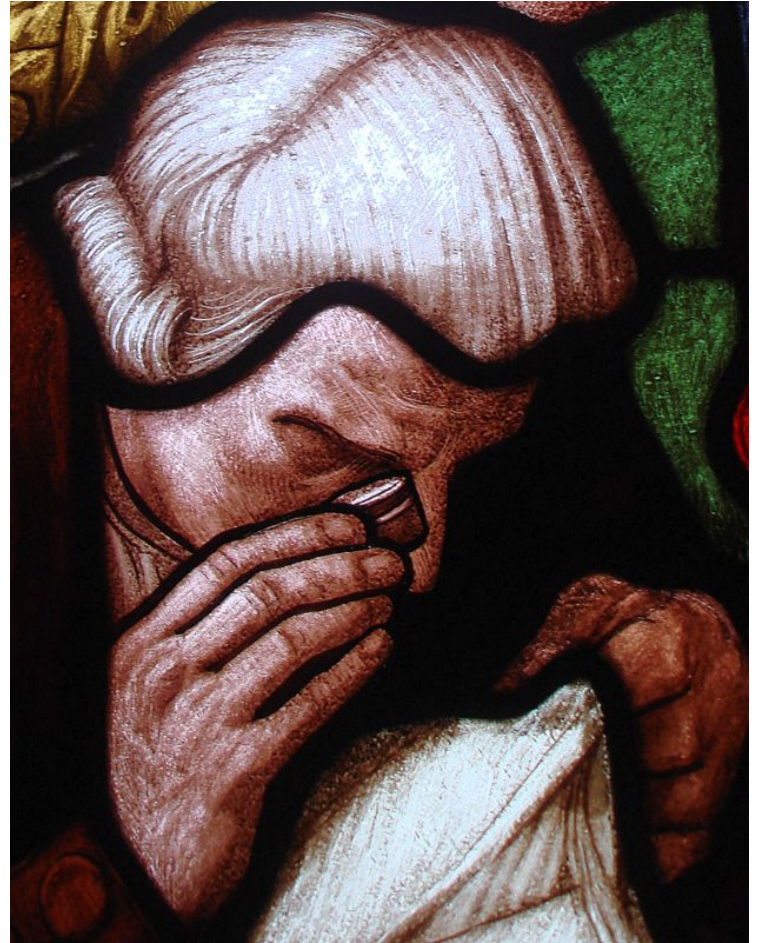
- Same genetic genealogy technique used in GSK investigation
- First to be tried
- First convicted

# Angie Dodge

## Part II

- Brian Dripps arrested May 2019
- Genetic genealogy

# Updated Terms of Service





“Downright gobsmacked”

Reasonable  
expectation of  
privacy?



# Social Issues: Family



[Broken Glass, Rodrigo Paredes CC-BY 2.0](#)

# Social Issues: Community



# Recommended Reading (and listening)

- *Genetic Genealogy in Practice*, Blaine Bettinger & Debbie Parker Wayne (2016)
- *The Family Tree Guide to DNA Testing & Genetic Genealogy*, Blaine Bettinger (2016)
- *Inside the Cell: The Dark Side of Forensic DNA*, Erin Murphy (2015)
- *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!