

**Rethinking science and innovation  
in the era of datification  
23 May, 2019**

**Dr. Penny Walters**

*Small trees, big data*

**12-12.40pm**

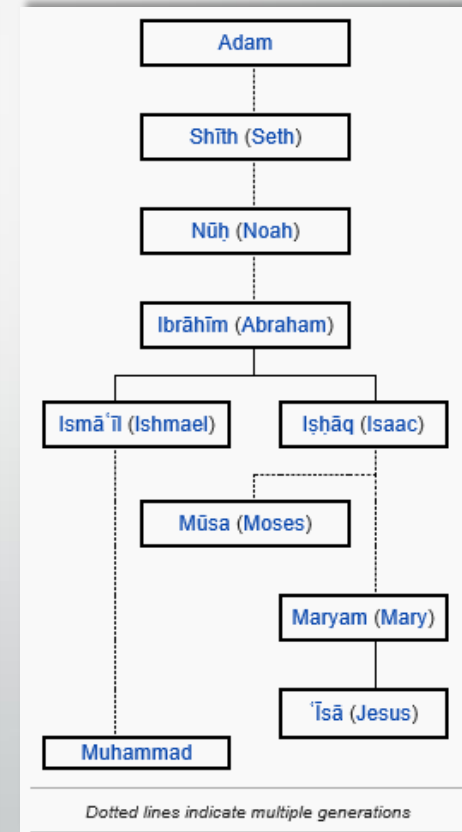
[penny\\_walters@talk21.com](mailto:penny_walters@talk21.com)

# All cultures & religions have impressive recorded lineages

- there is prestige with lineage traced far back in time
- used to prove entitlement to land & power
- now a popular hobby

Abraham was the father of Isaac, and Isaac the father of Jacob, and Jacob the father of Judah and his brothers, and Judah the father of Perez and Zerah by Tamar, and Perez the father of Hezron, and Hezron the father of Ram, and Ram the father of Amminadab, and Amminadab the father of Nahshon, and Nahshon the father of Salmon, and Salmon the father of Boaz by Rahab, and Boaz the father of Obed by Ruth, and Obed the father of Jesse, and Jesse the father of David the king. And David was the father of Solomon by the wife of Uriah, and Solomon the father of Rehoboam, and Rehoboam the father of Abijah, and Abijah the father of Asaph, and Asaph the father of Jehoshaphat, and Jehoshaphat the father of Joram, and Joram the father of Uzziah, and Uzziah the father of Jotham, and Jotham the father of Ahaz, and Ahaz the father of Hezekiah, and Hezekiah the father of Manasseh, and Manasseh the father of Amos, and Amos the father of Josiah, and Josiah the father of Jechoniah and his brothers, at the time of the deportation to Babylon. And after the deportation to Babylon: Jechoniah was the father of Shealtiel, and Shealtiel the father of Zerubbabel, and Zerubbabel the father of Abiud, and Abiud the father of Eliakim, and Eliakim the father of Azor, and Azor the father of Zadok, and Zadok the father of Achim, and Achim the father of Eliud, and Eliud the father of Eleazar, and Eleazar the father of Matthan, and Matthan the father of Jacob, and Jacob the father of Joseph the husband of Mary, of whom was born

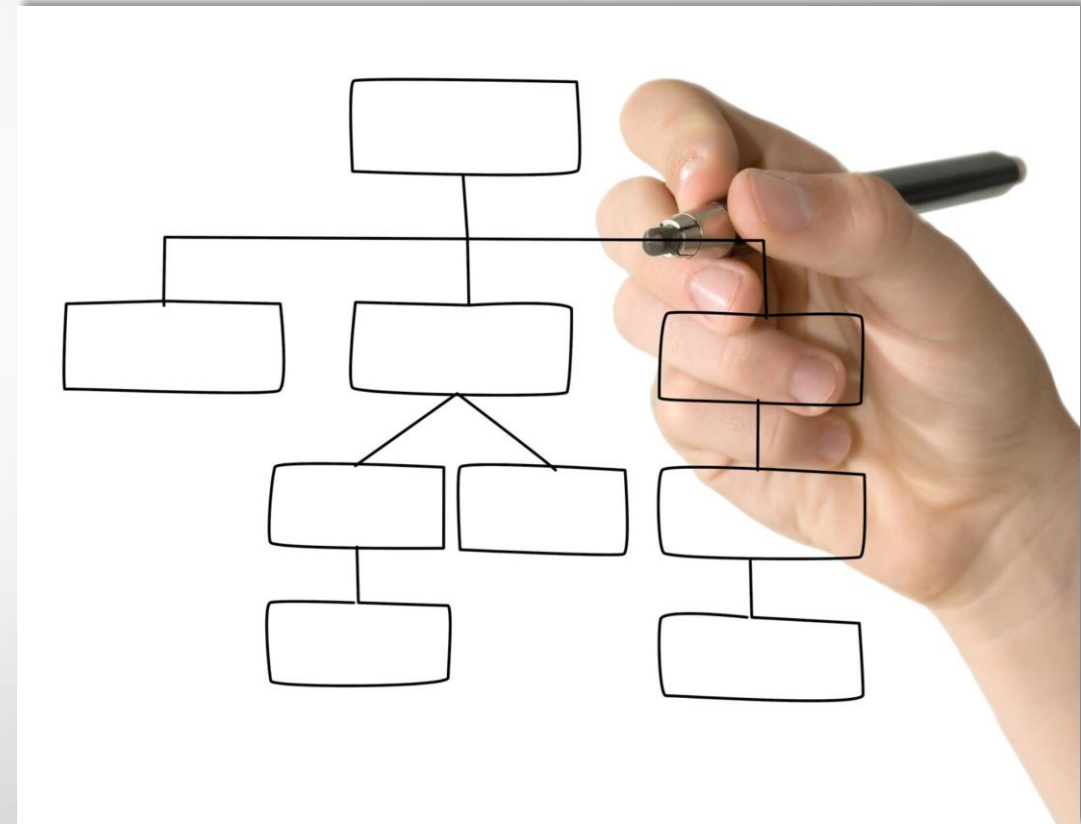
**JESUS**  
*who is called Christ.*





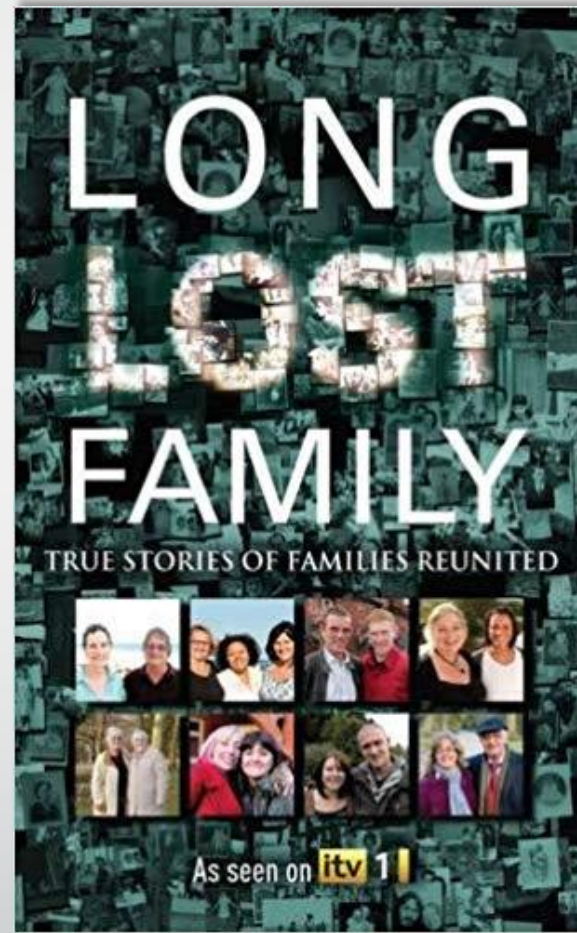
# Recent surge in interest in compiling family trees

- interesting hobby
- accessibility of records on the internet
- feel older age approaching
- interest in (social) history generally
- forced fragmentation from family
- gives personal background context
- can leave a legacy for our descendants
- surge in TV 'searching' programmes
- saturated advertising of DNA testing
- adoptees may now feel 'forced' to search
- perhaps the (over?) use of the internet & social media has made us feel lonely?





# TV programmes successfully search



Make it look easy...

# How many relatives?

- if each of the ancestors in your family tree had **2.5 children** (on average), you'd have about **8 x 1<sup>st</sup> cousins** & more than **110,000 7<sup>th</sup> cousins**
- if your ancestors averaged **4 children**, you'd have over **6 million 7<sup>th</sup> cousins**
- this means that we all must *share* living cousins - our sets of relatives have to overlap
- my ancestors had c12 children (no contraceptives)

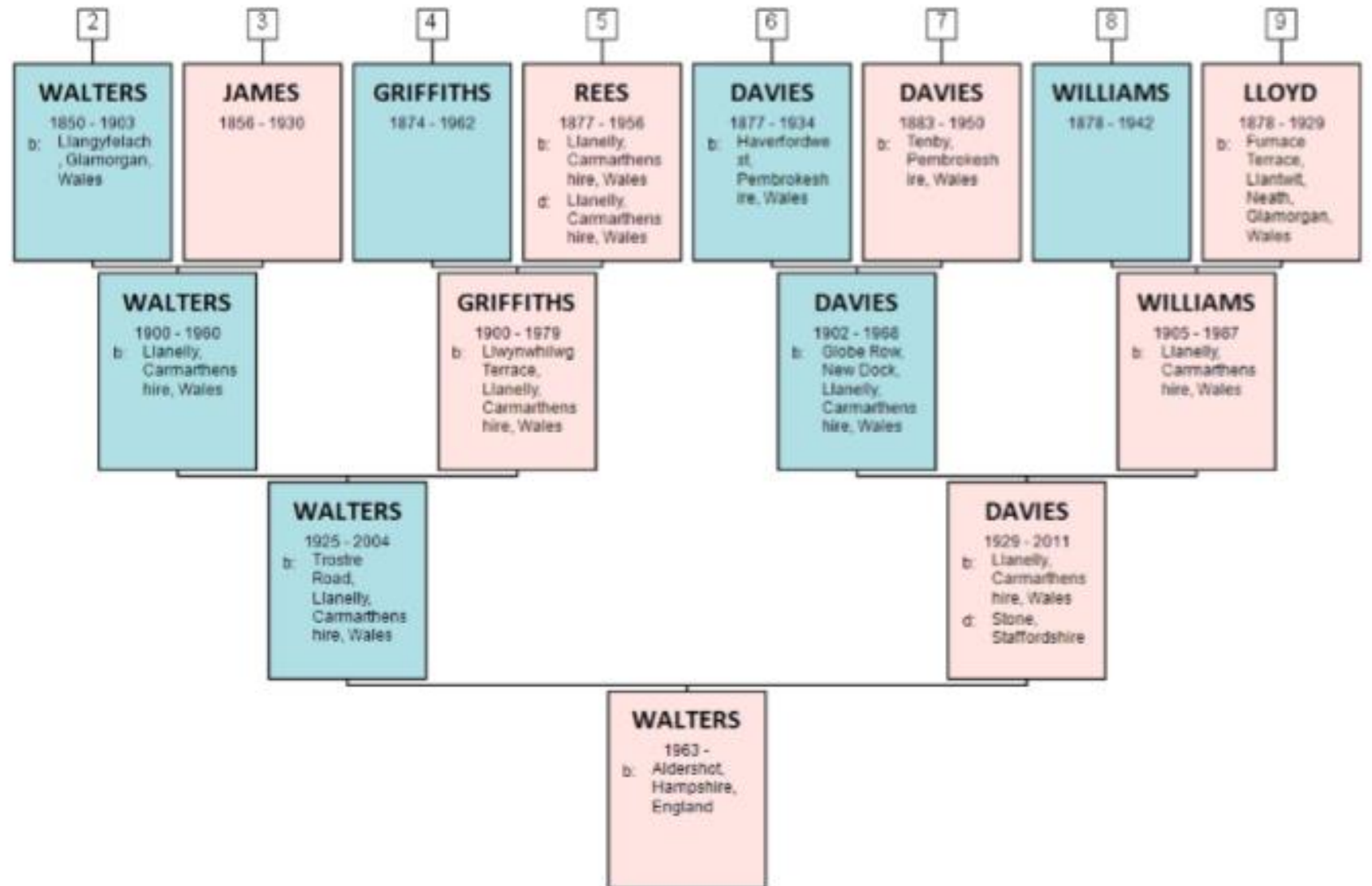


# How many people are family historians searching for? How many people do they want to connect to?

generations ago		% overlap
10	1,024 great great great great great great great great great great grandparents	0.1%
9	512 great great great great great great great great grandparents	0.2%
8	256 great great great great great great grandparents	0.39%
7	128 great great great great great grandparents	0.78%
6	64 great great great great grandparents	1.56%
5	32 great great great grandparents	3.125%
4	16 great great grandparents	6.25%
3	8 great grandparents	12.5%
2	4 grandparents	25%
1	2 parents	50%
	self	

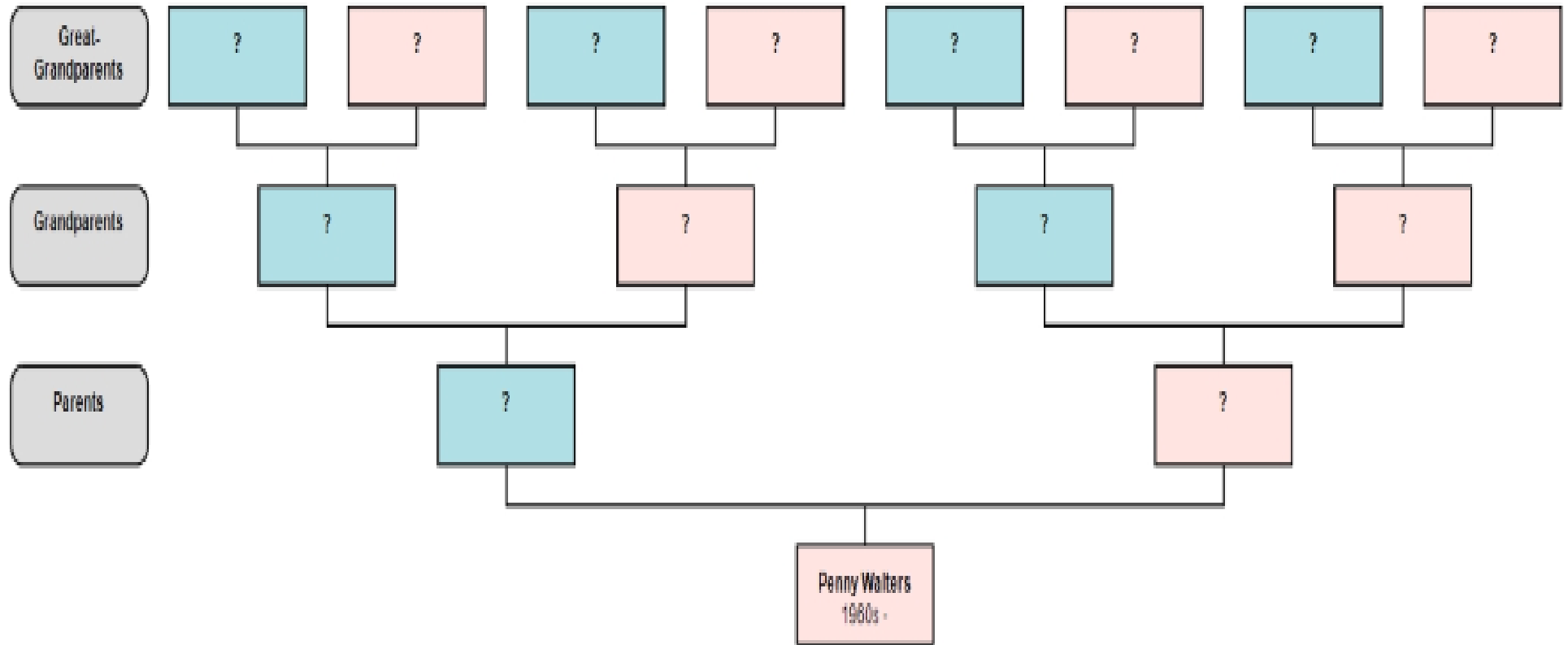
# My family tree

My mother knew about her and my father's parents & grand parents, had many photos, stories, bibles & original certificates





# My biological family tree



*not even actually my original name*

# New tool - DNA testing

- 20 billion records
- 100 million family trees
- 11 billion ancestor profiles

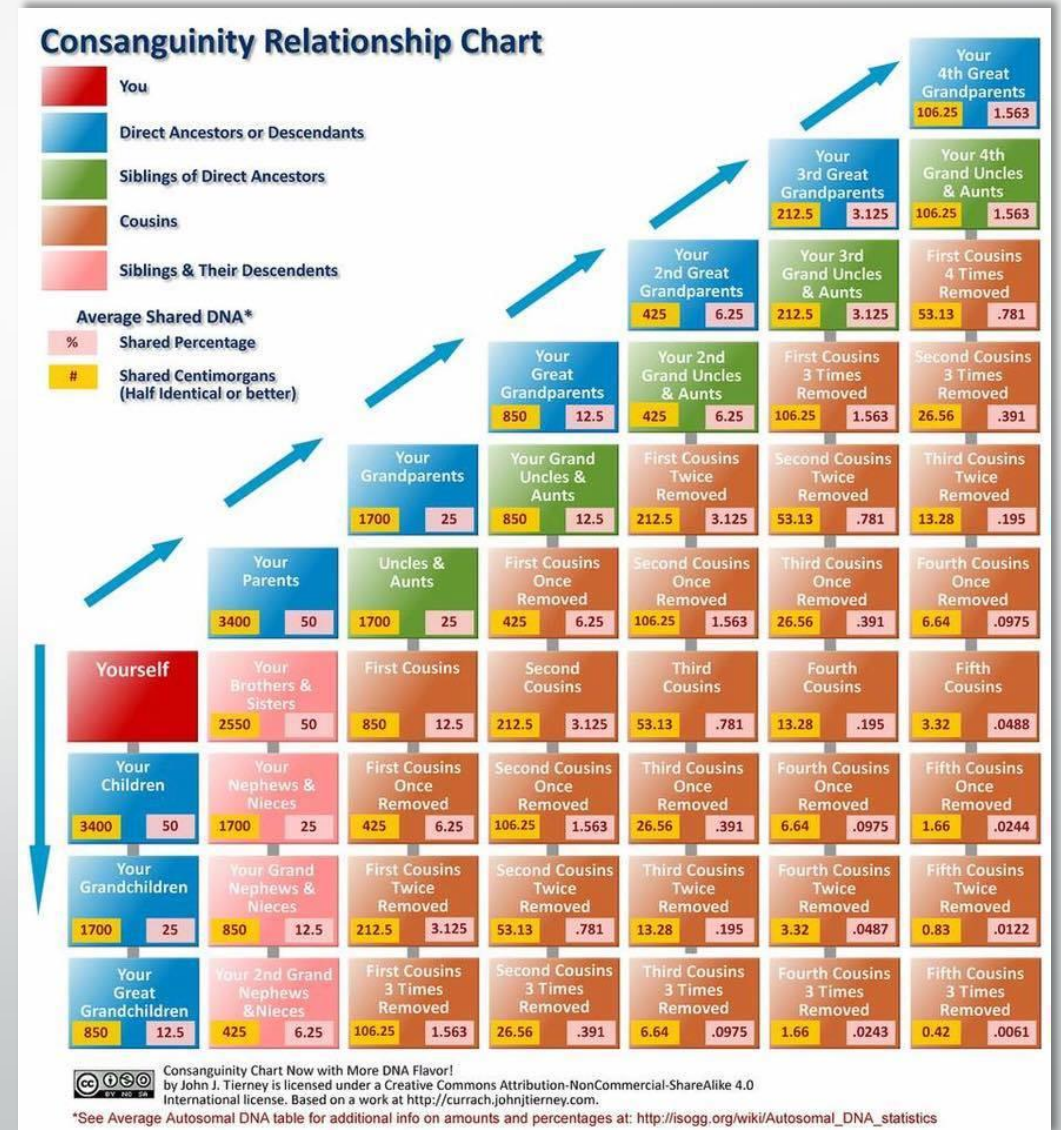
Ancestry® Surpasses 15 Million Members in its DNA Network, Powering Unparalleled Connections and Insights

*Press release today: 23 May, 2019*

# Relationship predictors

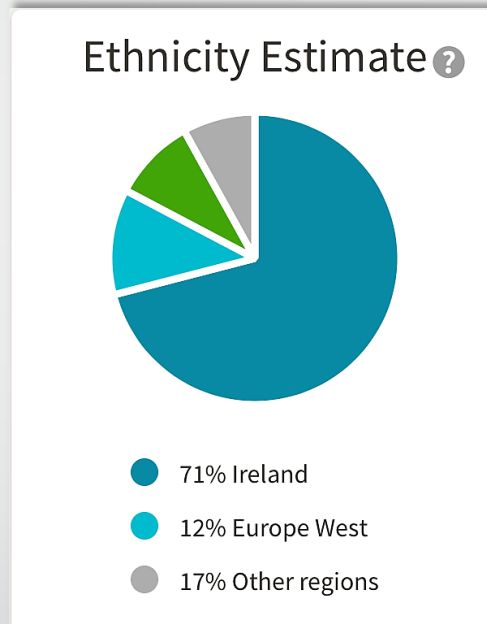
how 'related' are we to matches?...

- named relationships
- percentage overlap/centimorgans
- collaboration
- many people don't understand the jargon or implications & ask for help



# DNA testing

- 'ethnicity' estimates usually very exciting to see
- confirmation (or not) of known relatives
- collaborating with matches
- upload DNA to GEDmatch



A screenshot of a DNA testing website interface showing a list of matches. Each match entry includes a profile picture (a silhouette), a star icon, a redacted name, a relationship estimate (e.g., 'Possible range: 4th - 6th cousins'), a confidence level (e.g., 'Confidence: Good'), and a 'View Match' button. Some matches also have a 'No family tree' icon. The matches are listed in a vertical scrollable view.

Match ID	Relationship	Confidence	Last Logged	Family Tree
1	Possible range: 4th - 6th cousins	Good	3 days ago	No family tree
2	Possible range: 4th - 6th cousins	Good	last week	No family tree
3	Possible range: 4th - 6th cousins	Good	Dec 26, 2017	No family tree
4	Possible range: 4th - 6th cousins	Good	Jan 26, 2018	No family tree
5	Possible range: 4th - 6th cousins	Good	Jun 24, 2018	No family tree
6	Possible range: 4th - 6th cousins	Good	Jul 6, 2017	No family tree
7				No family tree



# DNA testing

## advantages:

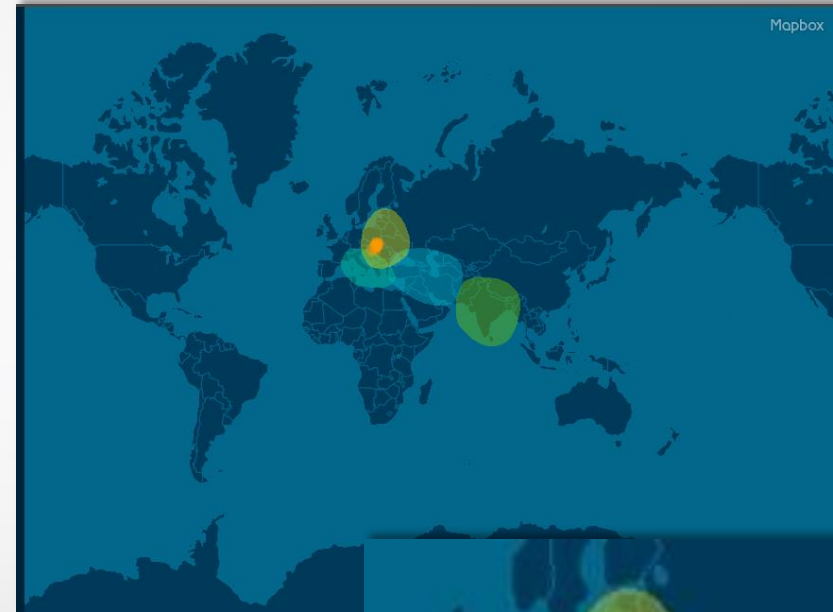
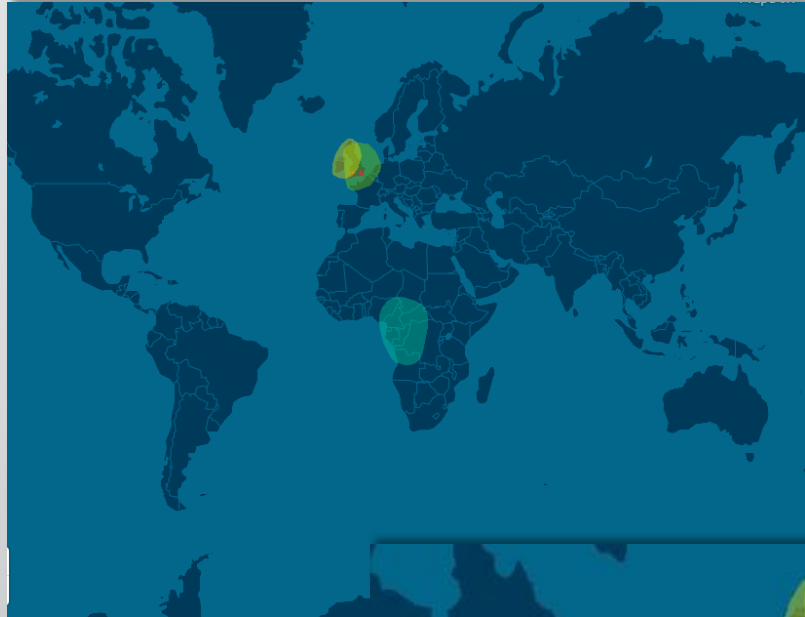
- statistical evidence - how 'related' we are to matches
- named relationships
- percentage overlap
- can collaborate/ form relationships
- gold dust for adoptees



## disadvantages:

- difficult jargon (centimorgans)
- implications
- unexpected results
- ethnicity
- paternity
- **information** → **databases**
- **unexpected uses (police)**

# Some relatively 'hidden' ethnicities



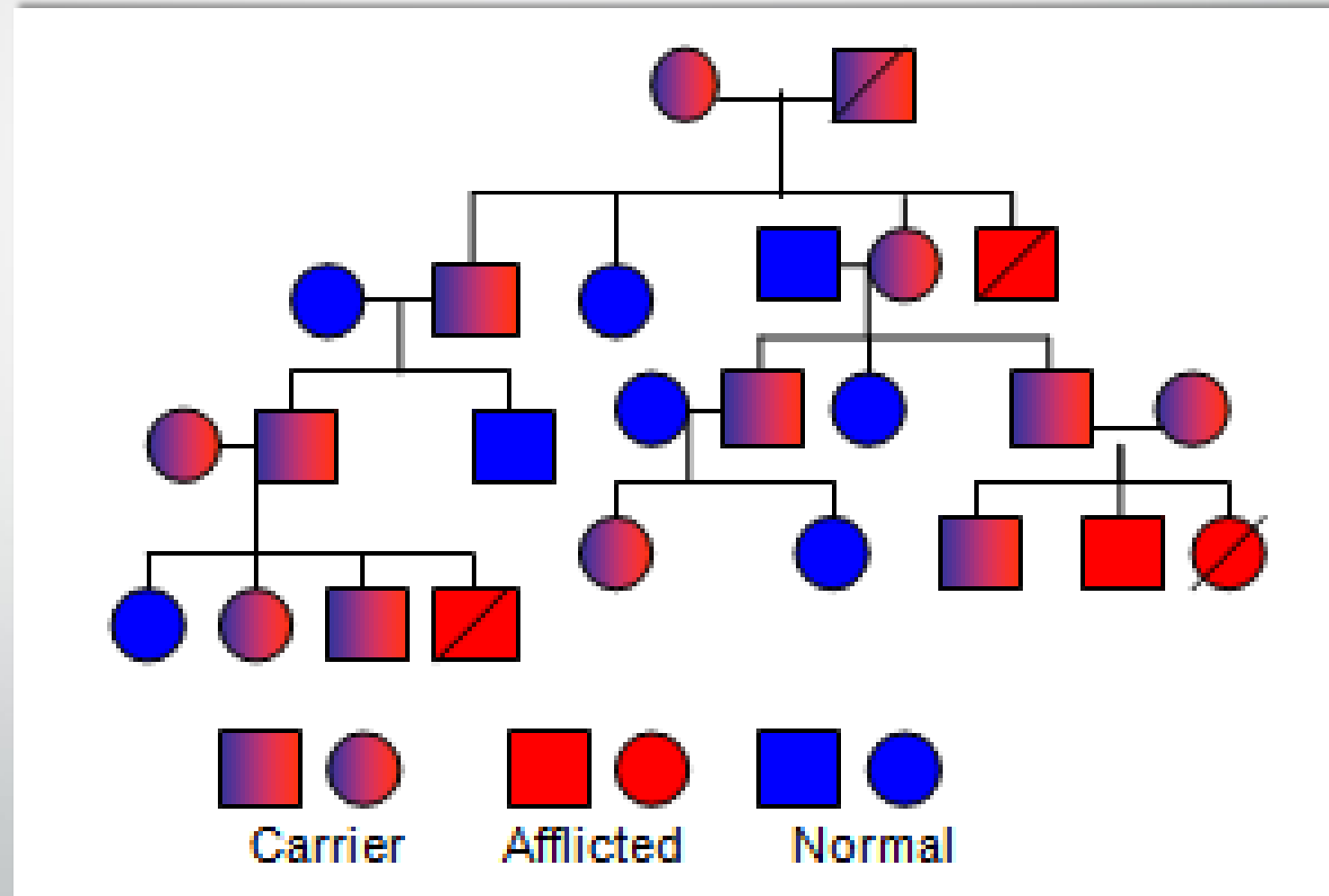
# Non-genealogical uses of DNA: who's tree is it?

- law enforcement utilising DNA & online trees
- apprehended Joseph James DeAngelo, supposedly the 'Golden State Killer'
- any criminals in your family?...



# Non-genealogical uses of DNA: altruistic or intrusion?

people  
contacting you  
with medical  
requests via  
online trees  
because of a  
DNA match







# Health insights from DNA testing

results include information about:

- hereditary breast cancer
- late-onset Alzheimer's disease
- late-onset Parkinson's disease
- heart disease
- type 2 diabetes
- Tay-Sachs disease
- cystic fibrosis

One company's strapline:  
*'Commit to a healthier you,  
inspired by your genes - with  
125+ genetic reports'*

is this information:

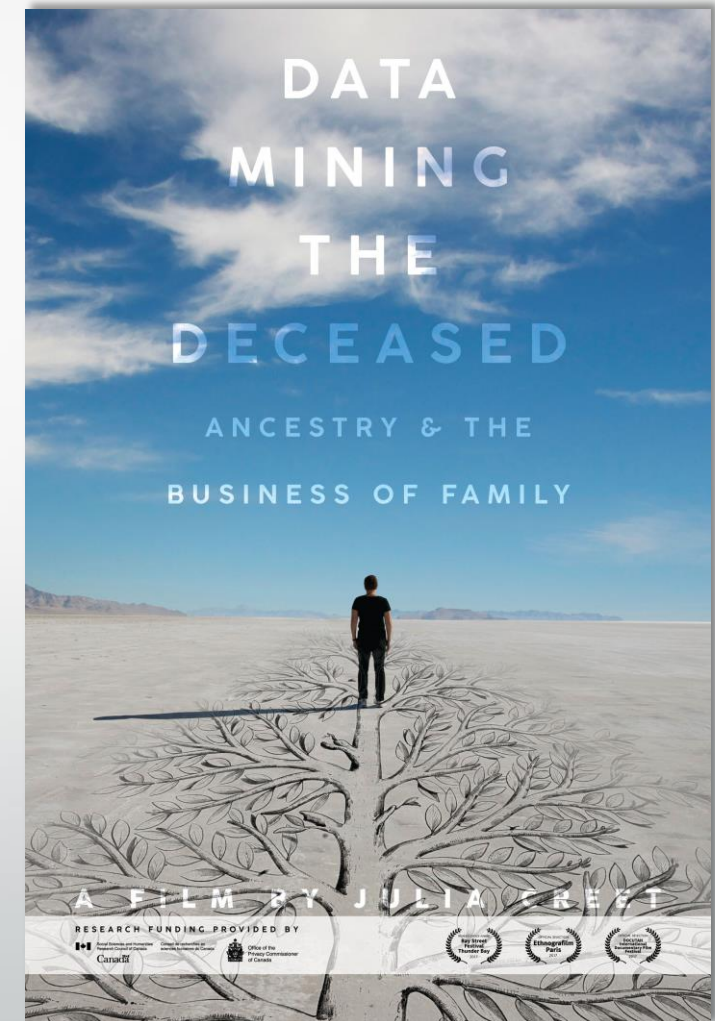
- informative?
- scary?
-  designer babies?
-  eugenics?

# Who can access your digital genomic data

- soon you might be too scared to have your genome sequenced
- people don't read the **privacy policies** of direct-to-consumer DNA companies
- this is only 1 piece of a puzzle that will get much more **connected**
- as with any kind of personal data, there are a number of concerns regarding **collection, transmission, storage & use**
- unlike most other data, your genome reveals **intimate information** about not only you, but **also the people to whom you are related**

# Data mining the deceased

- there is another side to the rise in genealogy that goes beyond **human interest**
- one of the largest data mining operations driven by big **religion**, big **business** & big **technology**
- '*Data Mining the Deceased*' - documentary that looks at individual & industry stakes in the phenomenon of family history



<https://juliacreet.vhx.tv/>

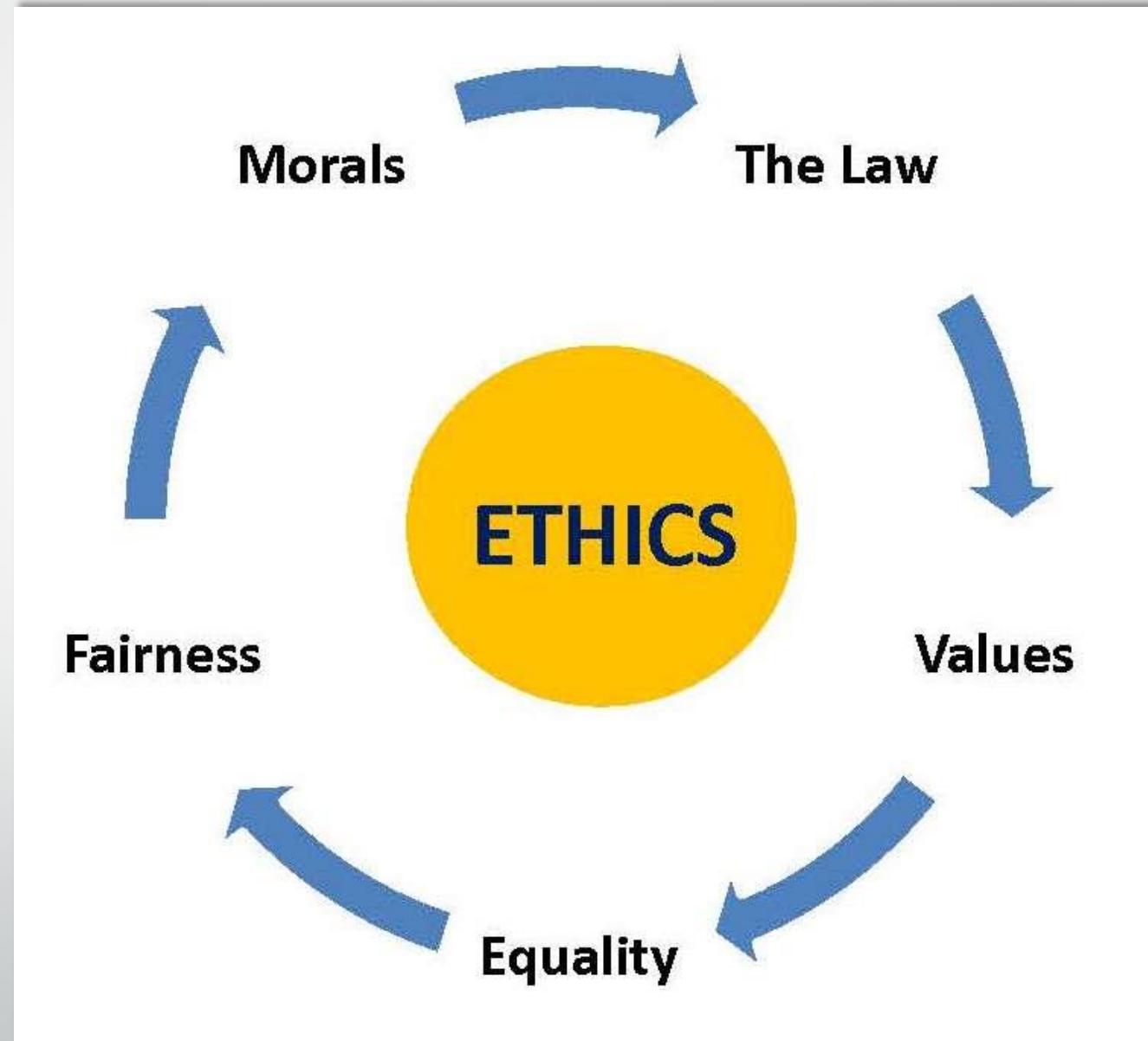
# Ethical dilemmas

- what has ethics got to do with genealogy?
- *'I'm just researching my family, what possible problems could there be?'*
- secrets; lies; errors in trees; DNA results; adoption; ethnicity; non genealogical use of data; solving crimes; health information; **selling data**





**ethical issues  
can have  
legal  
implications**



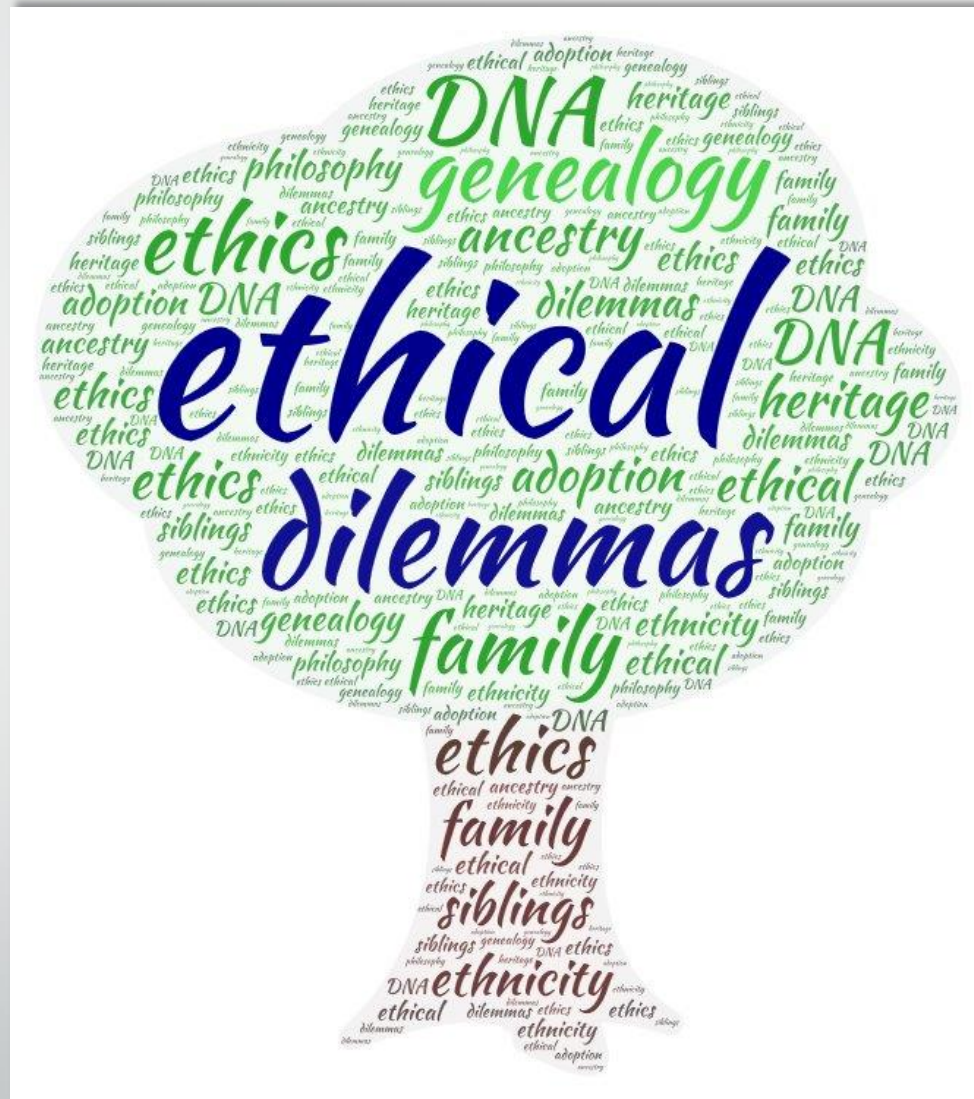
# Stay in touch



- email: [penny\\_walters@talk21.com](mailto:penny_walters@talk21.com)
- website: [www.searchmypast.co.uk](http://www.searchmypast.co.uk)

# 'Ethical Dilemmas in Genealogy'

**Book  
now  
available**



**Amazon:  
paperback  
or kindle**

**ISBN: 9781724038241**