

Recent Results from the Jackson Brigade DNA Project



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Early History of Jackson Brigade DNA Project

- **October 2011** – Jackson Brigade’s Board approved of the Jackson Brigade DNA Project with the following goals:
 - To establish a base of DNA knowledge for others to compare to.
 - To find cousins to whom we could reach out and invite to become members of Jackson Brigade.
 - To gather DNA evidence to aid in proving family connections of interest to the Jackson Brigade.
- **November 2011** – We identified two **direct line** Jackson males who are descendants of John Jackson and Elizabeth Cummins but from separate Jackson lines - John M. Jackson (Henry Line) and Robert Lee Jackson (John Jr. line). John and Lee took **Y-DNA 67 tests**.
- **January 2012** – We discovered interpreting test results were daunting!
- **Summer 2012** – To unravel the meaning, Dan Hyde studied DNA testing.
- **July 2012** – Dan created a DNA Project web page on which he posted and explained the results of John and Lee’s Y-DNA tests.

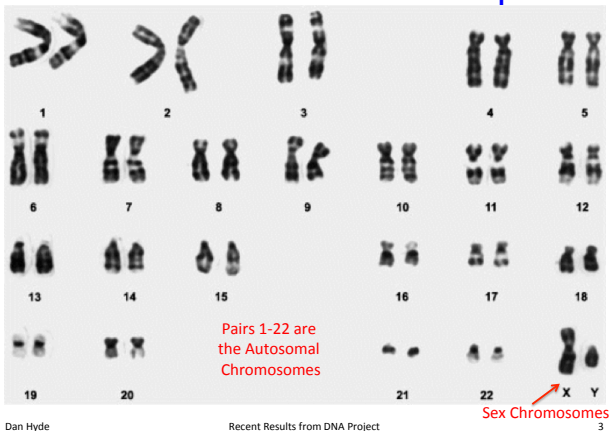
Some background in DNA testing before explaining the results.

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Human Chromosomes – 23 pairs



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Facts about Nuclear DNA

- 23 pairs of Chromosomes make up **Nuclear DNA**
 - Over 3 billion **base pairs** or **nucleotides**.
 - Adenine (A), Cytosine (C), Guanine(G), and Thymine(T)
 - DNA is a long sequence of **nucleotides**.
 - The **A-C-G-T** letters
 - **Single Nucleotide Polymorphism (SNP)** “snip” – a small genetic change that occurs within a DNA sequence, e.g., an **A** to a **G**. Occurs infrequently, e.g., once in several thousand years - used to determine your **Haplogroup** (your ancient ancestry).
 - All humans share 99.5% of same DNA.

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Y-DNA test

- Men pass on their Y-chromosome only to sons.
- Test looks at markers on man’s Y-chromosome.
- Can test 12, 25, 37, 67, 111 markers.
- Markers are **Short Tandem Repeats (STR)**
 - In a non-coding region, a pattern such as “AGAT” is repeated. E.g., AGATAGATAGAT has 3 repeats.
 - STRs mutate relatively fast, say, once in 150 years.
 - Ex: marker **DYS 393** is known to repeat “AGAT” from 9 to 17 times. John and Lee Jackson both have a 13.
- Only males can take a Y-DNA test.
- Y-DNA **67** test costs about \$265 per male.

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More on Y-DNA Test

Advantage: Y-DNA follows **surname** path in most cultures.

Limitation: Only supplies information on a few ancestors!

Ex: 5 generations back, a male has 62 ancestors (parents, grandparents, etc.).

Y-DNA test is only useful for the **six direct males** (man, his Dad, his Dad, his Dad, etc.).

Y-DNA testing provides **no** information on the other **56 ancestors!**

A test result on its own reveals little. **Matches** with others are key!

Y-DNA test is still very useful!

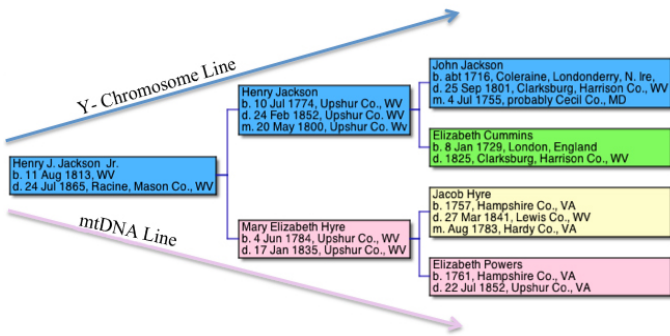
- Can verify paper trail along surname path.
- Can show two surname lines are closely related.
- Can help determine father in an adoption or illegitimacy case.
- Can help identify the **Most Recent Common Ancestor (MRCA)**.

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Pedigree Chart



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Y-DNA Results of John M. and Lee

First 25 markers of 67 for Lee Jackson (first line) and John M. Jackson (second line):

Haplogroup	DTYS393	DTYS390	DTYS19	DTYS91	DTYS385	DTYS426	DTYS388	DTYS439	DTYS391	DTYS391I	DTYS458	DTYS459	DTYS455	DTYS454	DTYS447	DTYS437	DTYS448	DTYS449	DTYS464	
R-M269	13	23	14	11	11-14	12	12	12	13	13	29	19	9-10	11	11	24	15	19	29	15-15-17-18
R-M269	13	23	14	11	11-14	12	12	12	13	13	29	19	9-10	11	11	24	15	19	29	15-15-17-18

66 of 67 markers are the same. Marker DYS534 differs. Lee: 14 John: 15

66/67 means with 95% probability MRCA in last 8 generations.

From paper trail:

Lee is descended from John Jackson, Jr. and 6 generations from John Jackson. John M. is descended from Henry Jackson and 8 generations from John Jackson. **Confirms paper trails for both Lee and John M. to John Jackson** – no “hidden” adoptions, hanky-panky, surname changes, or major research errors.

Confirms John Jackson's Y-DNA and all his **direct male descendants** including Thomas “Stonewall” Jackson.

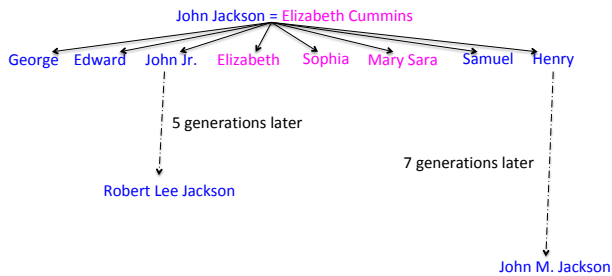
Confirms John Jackson's Y-DNA for matches to his **direct male ancestors**, e.g., his father, grandfather, etc. However, none found so far! But we are hopeful!

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Direct Male Lines of John Jackson



All the **direct** males (in blue) share the same Y-Chromosome with possible mutations. Since 66 of the 67 markers of John M. and Lee are the same, there is one mutation somewhere up the chain from Lee to John Jackson and down the chain to John M.

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Other Sons of John Jackson?

- After listening to my DNA talk at the 2016 Reunion, Ted and Betsy Wieber identified Franklin “Frank” Earl Jackson, a direct-male descendant of Betsy’s ancestor Col. Edward Jackson. Frank agreed to take a Y-DNA 67 test.
- A little later, Branch Advocate Juliann Lumpkin identified Lowell Wayne Jackson of the Samuel Jackson line. Wayne agreed to take a Y-DNA 67 test.
- Much like the first two tests, the new Y-DNA test results **confirm the paper trails back from Frank and Wayne to John Jackson are correct!** Important news for the Edward and Samuel Jackson descendants!
- That covers four of the five sons of John Jackson. We have yet to identify a living direct male Jackson of the George Jackson line to ask him to take a Y-DNA 67 test.

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Y-DNA Test Results from Four of John Jackson's Male Lines

Frank's Y-DNA matches 66 of the 67 markers with John M. and 65 of the 67 markers with Lee. Wayne's Y-DNA matches 65 of John M.'s 67 markers. Below is a table of the three Y-DNA 67 markers that are different among the four tested individuals. The other 64 markers are the same for all four men.

Kit#	Name of Tester	CDY	DYS413	DYS534	Descends from
219736	John M. Jackson	36-38	23	15	Henry Jackson
219737	Robert Lee Jackson	36-38	23	14	John Jackson Jr.
550996	Franklin Earl Jackson	36-39	23	15	Edward Jackson
559510	Lowell Wayne Jackson	36-37	21	15	Samuel Jackson

This is consistent with one Y-chromosome mutation on the branch from our ancestor John Jackson to Lee; one Y-chromosome mutation on the branch from our ancestor John Jackson to Frank; and two mutations on the branch from our ancestor John Jackson to Wayne.

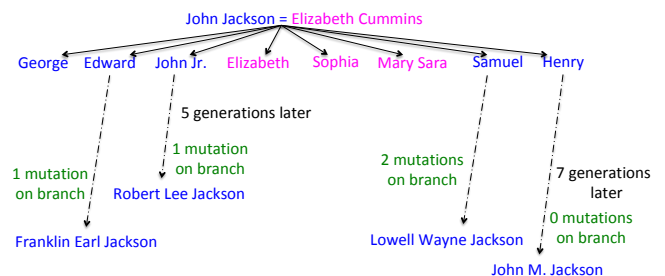
This implies the new conclusion that our ancestor John Jackson had the exact same values of the Y-DNA 67 markers as John M. Jackson!

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Direct Male Lines of John Jackson



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Jackson Ancient Ancestors and “Clan”

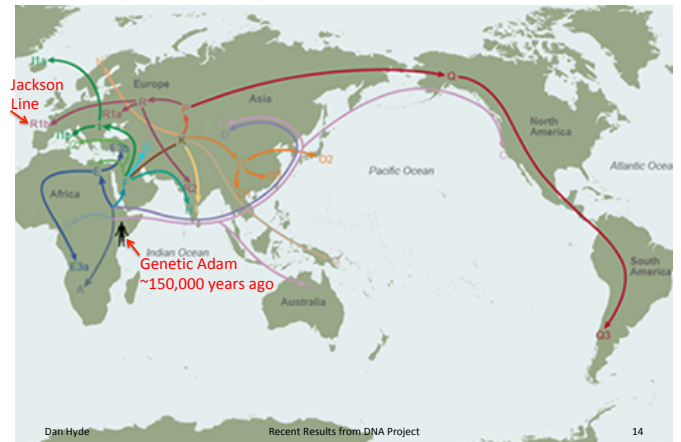
- A **Y-haplogroup** is a group of males with a common (possibly ancient) **direct-male** ancestor. **Direct-male** means along the male line, e.g., father to son, to his son, etc.
- Since 2012 we have known John and Lee’s Y-DNA haplogroup to be R1b1a2 (also R-M269). All males with the defining M269 mutation on their Y-Chromosome are placed in this Y-haplogroup. Unfortunately, the R-M269 haplogroup is the most common European haplogroup! It’s huge with millions of living men in it! It is estimated to contain 110 million European-descent men.
- "The age of the mutation M269 is estimated at roughly 4,000 to 10,000 years ago, and its subclades [sub-trees] can be used to trace the Neolithic expansion into Europe as well [as] founder-effects within European populations due to later (Bronze Age and Iron Age) migrations."

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Human Migration Paths - Males



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Ancient Ancestry – Y-DNA Haplogroups



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Narrowing Down the Haplogroup

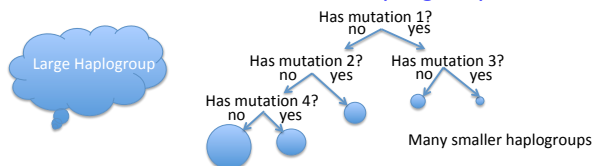
- Being grouped with 110 million other men doesn't provide much insight into one's own personal history!
- We want to identify much smaller sub-groups of this huge R-M269 haplogroup and be able to place individuals such as our ancestor John Jackson in the proper sub-group.
- **Big-Y Project:** Genetic scientists from all over the world are actively working towards this goal! New advances in this genetic research area are happening almost daily.

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How to Narrow the Haplogroup?



- The idea is to branch off a sub-group whenever a **defining mutation** of the Y-Chromosome occurs and place all the descendants with the **defining mutation** in the new sub-group. Continue to do this splitting into smaller haplogroups.
- This forms a HUGE tree structure potentially holding all men living now and in the past. Called the **Big Y Tree**.
- The chain of **defining mutations** for John Jackson would be:
R > R1 > R1b > ... > R-M269

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John Jackson’s Ancient Ancestral DNA Roots

- We took this journey of discussing **haplogroups** and chains of **defining mutations** on the Y-Chromosome hoping to gain insight into John Jackson's **ancient ancestral DNA roots**.
- We gained this valuable insight when Ted and Betsy Wieber paid to have further DNA testing (SNP testing) on Frank Jackson's Y-DNA sample to refine Frank's haplogroup.
- The result extends the chains of **defining mutations** for Frank:
– M269 > L23 > L51 > U106 > L48 > Z9 > Z30 > Z2 > Z7 > **Z8**
- The important fact for us is that **Z8** is the final haplogroup in the chain.
- Since Frank is a direct-male descendant of our ancestor John Jackson, there is a very high probability that John Jackson is in haplogroup **Z8** and all of his direct-male descendants are as well.
- Think of **Z8** as John Jackson's "clan."

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John Jackson's Ancient Ancestral DNA Roots

- Some quotes on the **Z8** "clan."
- One website states that "... the haplogroup of **R-Z8**, a subgroup of R-M269, that branched off perhaps 2000 years ago from European Germanic tribes, [that arrived] in the British Isles with the 5th-century AD Germanic invasion (all this is still uncertain)."
- A second website states "**Z8** - Age approx.: 1234 BC (range: 1758 BC - 789 BC). Common around the western Baltic from where modern Germanic peoples spread from around 700 BC, Z8 represents the outcome of a major population collapse then expansion, perhaps associated with the late Nordic Bronze Age or at the start of the Iron Age around 1100 - 1000 BC."

John Jackson's Ancient Ancestral DNA Roots

- Note: The company Family Tree DNA has recently updated Frank's Y-haplogroup to R-BY41552, a smaller sub-group of Z8. So they have determined a smaller "clan" for Frank, whose common ancestor lived closer to our present time. However, this common ancestor of the R-BY41552 "clan" probably lived before surnames were used (Surnames started in England about 1200 A.D.)
- Probably because it's a newly designated haplogroup, I have found nothing to report on the R-BY41552 "clan".

Summary

- These are exciting times for genetic science and genealogy!
- We are on the sidelines watching as the genetic scientists make great strides in piecing the puzzle together to explain how humans spread across our planet from eastern Africa.
- Soon the genetic scientists will refine the haplogroups ("clans") to a point where they will be able to match an individual's written records. This is already being accomplished for a few royal families, e.g., the Bourbon Kings (see <https://www.igene.com/en/bourbons>). When this happens on a broader scale, many brick walls will fall!

DNA Testing Companies

- **Family Tree DNA** – focuses on DNA for genealogy.
 - Y-DNA; mtDNA; haplogroups; SNPs; Big Y; atDNA (*Family Finder*) 700,000 markers; swab test
- **Ancestry.com** – focuses on genealogy.
 - atDNA (*AncestryDNA*), 700,000 markers; saliva sample.
- **23andMe** – focuses on health issues and genealogy.
 - atDNA (*Relative Finder*), haplogroups - tens of thousands of markers; saliva sample.
- **Gen 2.0** – focuses on human migration patterns.
 - National Geographic Project
 - SNP tests to determine haplogroups (ancient ancestry)
 - swab test

Resources

Websites

Jackson Brigade's DNA Project - <http://www.jacksonbrigade.com/dna-project/>
International Society of Genetic Genealogy (ISOGG) - <http://www.isogg.org>
Family Tree DNA - <https://www.familytreedna.com>
Ancestry DNA - <http://dna.ancestry.com>
23andMe - <https://www.23andme.com>
Geno 2.0 - <https://genographic.nationalgeographic.com>

Books on Genetic Genealogy

1. **Trace Your Roots with DNA: Using Genetic Tests to Explore your Family Tree** by Megan Smolenyak and Ann Turner, Rodale, 2004. Best single book on subject.
2. **Hey, America, Your Roots are Showing** by Megan Smolenyak, Citadel Press, 2012. Very good follow up of Megan's first book.
3. **DNA and Social Networking: A Guide to Genealogy in the Twenty-First Century** by Debbie Kennett, The History Press, 2011. Very good book.
4. **Genetic Genealogy: The Basics and Beyond** by Emily D. Aulicino, AuthorHouse, 2014. Not as good as Megan and Ann's book but discusses recent developments.

