# **Shockey DNA Newsletter**

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Hello cousins,

I decided to start this for our Shockey family because all the information that Jeff has found and figured out needs its own newsletter. Especially since we have so many pages already in the regular Newsletter then I felt this would be better. Those who want to read up on the DNA can read it here and get more details. More than what will be posted in the regular Newsletter. Those who are in the Shockey Roots group on Facebook can attest to this with all the amazing information Jeff has posted.

I'm excited about all the information Jeff was able to find and detect for us using DNA. We hope to also try to get proof of lines via autosomal DNA tests as well. There are still plenty of Y-DNA tests we need to have taken to help take this even further but we have a good start. I'll have Jeff do a page immediately after this stating what Y-DNA tests we would love to have done. Please feel free to contact either of us on how to take one with Family Tree DNA.

The group is: <u>https://www.familytreedna.com/groups/shockey-schacke</u>

We also have other projects that Jeff will talk about later in the newsletter.

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# **Y-DNA Test Goals**

Thank you everyone for your participation in this project. Before Lesley passed away, he gave us an amazing Y-DNA foundation to build on and we now have 22 men who have tested their Shockey Y-DNA from 6 of our 7 lineages. I realize that Y-DNA tests can get pricey, so participate if you're able; understand that these are long-term goals that will hopefully help us to build a profile of the Shockey DNA over time. Any Y-DNA test from FamilyTreeDNA adds to our data, but my recommendation for those who can afford it is the Y-111 test, or better yet, the Big-Y 700.

Here are some of our goals for each lineage. Our basic goals are to have one Big-Y 700 test from each of Johann's son's, two Y-111 tests from each of his grandsons, and ultimately one from each of his great-grandsons along each male line. If you or your loved one already have a Y-12, Y-37, or Y-67 test they can be upgraded at a discount.

#### Valentine (1739-1810)

- 2 Y-111 tests for Valentine Jr. (c.1756-1800)
- 1 Y-111 test for Christian (1756-1829)
- 2 Y-111 tests for Abraham (c.1760-1782)
- **1 Y-111 test for Joseph** (sons other than Samuel) will help us see if variant DYS510=16 happened with Joseph himself or later on one of his lines. This could potentially be a marker that identifies the family of Valentine.
- **Tests from other lineages** might help confirm whether these other rumored lines are real or not (John, Edward, Isaac, Jacob and Lewis Shockey)

#### John Aaron (1743-1820)

- 1 Big Y-700 test
- 1 Y-111 test for Jacob Sr. (1762-1818)
- 1 Y-111 test for John Aaron Jr. (1764-1837)
- **1 Y-111 test for Lewis** (sons other than Robert) will help us see if variant DYS461=15 happened with John Aaron himself or later on one of his lines.
- **Tests from other lineages** might help confirm whether these other rumored lines are real or not (David, Christian and Isaac Shockey)

#### Jacob Sr. (1749-1803)

- 1 Big Y-700 test
- 2 Y-111 tests for Jacob Jr. (1770-1833)
- 1 Y-111 test for Isaac (1774-1843)
- 1 Y-111 test for Christian (1775-1863)

#### Isaac Sr. (1752-1801)

- 1 Big Y-700
- 2 Y-111 tests for Abraham Sr. (1771-1846)
- 1 Y-111 test for Isaac Jr. (1773-1844)
- 2 Y-111 tests for Daniel Sr. (1775-1863)

#### Abraham Sr. (1755-1861)

- 2 Y-111 test for Abraham Jr.'s line (1788-1863)
- 1 Y-111 test for John (1796-1886)
- 1 Y-111 test for Jacob (1806-1903) (sons other than Ira would help)
- **Tests from other lineages** might help confirm whether these other rumored lines are real or not (Valentine Shockey)

#### Christopher (1756-1779)

- 1 Big Y-700
- 1 Y-111 test for John (1775-1859)
- **2 Y-111 tests for Henry (1780-1859)** even a Y-67 test from the line of Henry would help us see if variants DYS576=17 and DYS481=25 happened with Christopher himself or later on John's line. These could potentially be markers that identify the family of Christopher.
- **Tests from other lineages** might help confirm whether these other rumored lines are real or not (Abraham Shockey)

#### Samuel Christian (1774-)

- Any tests from Samuel Christian would help. This is the only untested line.
- 1 Big Y-700
- 2 Y-111 test for Abraham (1808-1838)

We would love to see Y-DNA tests from Johann's sons-in-law and grandsons-in-law as well. Contact us if you are familiar with descendants or groups on FamilyTreeDNA that represent any of the men from these maternal lines. We would love to put Elizabeth, Barbara and Magdalena on the map. So far, we only have one granddaughter represented (Mary Shockey-Smith, Christopher's daughter).

# Let's Talk about DNA

The Human Genome Project was completed twenty years ago this month. This ambitious 13-year endeavor that set out to map all 3.2 billion base pairs in the human genome was completed two years early. DNA science has since ushered in countless advances in medicine, biotechnology, and numerous scientific fields that never existed before the project began in 1990. Who could have imagined the research that each of us would be doing with this technology just to better unravel our family tree in 2023?

We could discuss multiple applications of the genetic technology available to us, but for the Shockey clan we are primarily pursuing our ancestry with the help of three kinds of DNA. This article is intended to be a short primer about autosomal DNA and two kinds of Y-DNA data (STRs and SNPs); and how you can participate.

#### What is Autosomal DNA?

Many of you have already been introduced to the autosomal DNA when you took an ancestry test from companies like:

- Ancestry.com (best overall)
- 23andMe (best for health data)
- FamilyTreeDNA (best for serious genealogists)
- or MyHeritage (best budget)

You swab your saliva, send in your kit, they shake it up (and other stuff) and walla, you get an ancestry report estimating your heritage, who you're related to, what your health risks might be ... you've just participated in sequencing your autosomal DNA.

Essentially, autosomal DNA is the mix of genetic material that you have inherited from your ancestors; conveniently for family historians some of that autosomal DNA has also been inherited by tens of thousands of your distant cousins. Here's how it basically works.

You were conceived with 23 pairs of chromosomes, one pair of X & Y sex-chromosomes and then 22 autosomal (non-sex) pairs that you inherited from your parents. 50% of each chromosome was inherited from your mother and 50% was inherited from your father. The other half of their DNA gets lost and it is for this reason that you roughly share 25% of your autosomal DNA with your full-siblings.



Follow the math and you have received roughly 25% of your autosomal DNA from each grandparent; 12.5% from each great-grandparent; 6.25% from each 2nd-great-grandparent ... well, you get the idea. But the math becomes even more fun when you start comparing your autosomal DNA with your cousins. Thankfully, platforms like the ones listed above science the nucleotides out of it for you and give you some tidy reports that you can compare and study, or if you prefer, just post on social media for the world to see.

One of the greatest benefits of autosomal DNA for family research is that you are able to isolate specific strands of DNA (measured in centimorgans, cM) and you can discover ancestors that the paper trail leaves cold. Or maybe you want to meet new cousins. Perhaps you'd like to color your DNA and visually diagram what DNA you received from whom (yes you can do this). Autosomal DNA will connect you not only to your second and third cousins, but often your sixth, seventh and eighth cousins as well. I've even isolated one section of DNA on what is called a pile-up region and been able to trace that section back to Nottingham where my 10th to 12th-great-grandparents came from before immigrating to Connecticut (don't ask me who they were; I just know they came from Nottingham based on the DNA).

However, one of the greatest limitations of autosomal DNA due to the recombination that happens is that in every generation we lose 50% of the data. Therefore, it can get tricky trying to trace your ancestors past your 5th-great-grandparents; we just don't retain large enough sections of DNA. Remember you have 256 sixth-great-grandparents and your DNA is not only inherited from each of them, but your autosomal DNA is also not equally received from each of them. Add to this that it has been chopped up and recombined eight times before you got your shot at it.

Still, it's a fun puzzle for those of us that like the challenge.

#### How the Shockey Clan Is Using Autosomal DNA?

There are multiple projects that many of us are working on using tools like DNA Matches and ThruLines (with Ancestry.com subscriptions), DNA Relatives (with 23andMe) and GEDMatch (where you can upload your data for comparison across platforms. Most hobbyists and genealogists use autosomal DNA for comparing common segments that are shared by cousins in order to break through some of those brick-walls in your family tree. 23andMe will even tell you how much Neanderthal ancestry you have. And because you're asking, I have 231 Neanderthal variants, two of which apparently make me sweat when I work out and two which are supposed to make me sneeze when I eat dark chocolate. Thank you very much for asking!

I'd like to point you to some projects that you can be a part of with others that will specifically help advance *Shockey research*, though.

First, if you have taken a DNA test, be sure to make your results visible to others, unless of course privacy regarding your ancestry is needed for some reason. Others can't collaborate with you if they can't see you.

Secondly, if you have taken a DNA test from any of the abovementioned companies (and others), please consider uploading your "raw data" to GEDMatch.com and joining the "Shockey - Schacke - Jaggi - Jacky - Jacob" Ancestor Project. This project enables us to compare specific autosomal DNA segments and ideally to triangulate common ancestors. The more Shockey family members we have participating, the more data we will be able to break through some of those Shockey mysteries.

And finally, I (Jeff) am personally working on a project comparing autosomal DNA with the ThruLines tool on Ancestry.com. We're trying to establish evidence for how different Shockey lines are related to one another genetically ... or in some cases how they are not related to one another. If you would be willing to provide "Viewer" access to your DNA results on Ancestry, please use the DNA tab under "Account Settings" then go to "DNA test sharing" to send an invite to "JeffreyNiles@gmail.com". Don't select "collaborator" or "manager;" I only need to be able to see your matches to make this project work (never select more than "viewer" unless you know the person well).

If you have not taken a DNA test yet and are interested, feel free to contact one of us if you have questions or need some guidance for which company would be best for you.

#### What is Y-DNA?

Whereas your autosomal DNA is inherited from every branch of your ancestry, our sex chromosomes are transmitted differently. You may remember from your biology class

that males receive an X chromosome from their mother and a Y chromosome from their father. Conversely, females receive an X chromosome from both parents. Our X chromosomes get chopped up and recombined in a similar fashion as we observed with autosomal DNA, though not into as many pieces.

However, the Y-chromosome never goes through the process of recombination because it is passed directly from father to son. There is another type of DNA testing called mitochondrial DNA which is passed along the maternal line, but that's another study altogether. Back to Y-DNA, this is of particular interest to us because the Y-DNA remains mostly unchanged from generation to generation. Only small mutations produce variations between a father and his son's Y chromosome.

These small variations provide us with a special tool that allows us to trace our ancestry not just a few generations, but all the way back to the beginning of the human race. In fact, genetic scientists have labeled the first man "Y-Adam." Now of course we won't be able to name all of those individual men, but we can use this data to trace those small mutations and even estimate certain migration patterns throughout human history.

There are two major limitations to Y-DNA, however. First, only half of the human race inherits a Y chromosome; the other half inherits a pair of X chromosomes.<sup>1</sup> Therefore only half of us can even test our Y-DNA. Sorry ladies (yeah ... but mitochondrial DNA:).



<sup>1</sup> Jordi picart, "Herència del cromosoma Y humà" (2020), <u>https://commons.wikimedia.org/wiki/File:Y-DNA\_inheritance.svg</u>. The other major limitation of Y-DNA is that it remains confined to the one line of our ancestry. Your autosomal DNA is inherited from all of your ancestors and allows you to compare your DNA with, for example, cousins from all 256 sixth-great-grandparents. Your Y-DNA (if you inherited it) only comes from one of those 256 people. Still, it is that limitation which gives us a unique opportunity to trace how all of our paternal lines are related to one another.

An important term that you should learn is "haplogroup." It is not a common word that you hear in everyday speech today, but I believe that in 50 years it will be as common as talking about your blood-type. The International Society of Genetic Genealogy defines the term in this way:

A haplogroup is a genetic population group of people who share a common ancestor on the patriline or the matriline. Top-level haplogroups are assigned letters of the alphabet, and deeper refinements consist of additional number and letter combinations.<sup>2</sup>

Johann Shockey (and thus all Shockey males on that direct patriline) was a part of the Q Haplogroup. Our specific subclade is Q-BZ224 which includes all Shockey males descended directly from Johann. We'll discuss this in another article.

In summary, Y-DNA is the male chromosome that is passed down the male line and only that line of descent. Rare mutations in that Y-DNA lineage are also passed down which creates a unique opportunity for us to trace one particular line of our ancestry much further back than autosomal DNA can. The Shockey clan is in the Q Haplogroup and our specific marker on the Y-haplotree is Q-BZ224. If the Y-haplotree was a map of the human race, then Q-BZ224 is the pin that says, "Mr. Shockey, you are here!"

#### **SNP Variations**

When tracing the variations in our Y-DNA there are essentially two kinds of variations that we look at: SNPs and STRs.

The abbreviation SNP stands for "Single Nucleotide Polymorphism" and is pronounced "snip." SNP mutations are simple changes in our DNA where one nucleotide (i.e. "G" "A" "T" or "C") is replaced with another. Most of these SNP variants appear in noncoding regions of our DNA and occur about 1 in every 1000 SNPs (and not just in our Y-DNA). They are common and usually harmless; we're not talking about the five-armed

<sup>&</sup>lt;sup>2</sup> "Haplogroup," in *International Society of Genetic Genealogy Wiki* (ISOGG, 2022), accessed 16 Feb 2023, <u>https://isogg.org/wiki/Haplogroup</u>.

Shockey family members right now, so don't panic when we talk about your family's mutations.

The great news when it comes to Y-DNA is that we can observe the distribution of SNPs in male chromosomes. We can build this family tree of the human race based on these variations which have occurred over many thousands of years. We can observe these variations even within the Shockey clan.

Allow me to illustrate this in another way. Imagine that the Y-DNA of Johann Christoffel Schacke is like a city, a great city with many skyscrapers, roads, businesses and apartment buildings. Now imagine cloning that city and making seven exact copies. Every building is in the same place, every road has the same name, every apartment has the same number of stories ... millions of buildings and we now have seven exact copies of the original. Except for one building. One apartment complex in the original city and six of the clone cities was replaced with a twenty-story Wells Fargo Bank that shows up in the second clone, and the second clone only.

Those seven clones are the Y-DNA of Johann's seven sons. They all remained practically identical, but one mutation was inherited by one of the sons in this hypothetical example. But now let's make seven clones of each clone city. In our hypothetical third generation we now have 49 clone cities of Johann's Y-DNA. Seven of those new cities are exact copies which contain the same Wells Fargo Bank. Forty of the new cities are exact copies of their parents and of Johann. But two more cities have new mutations: one city with a YMCA instead of a grocery store and one city with an IHOP instead of a bowling alley. So now we have 57 cities representing the Y-DNA of three generations. All the cities are exactly the same except for one bank that now exists in eight cities, a YMCA in one city, and an IHOP in another.

In a way, this is what SNPs act like. Any change in one generation will be passed on to all future generations. And this is a great thing for genealogy. This is a great thing for Shockey genealogy. The next article will be about our Shockey SNP, Q-BZ224.

#### **STR Variations**

The second kind of Y-DNA analysis measures repeated sequences in the DNA. STRs stand for "Short Tandem Repeats" which are repetitions that were designed into our DNA for redundancy. Basically, the DNA repeats itself in various locations and when the DNA is transcribed into the RNA, the enzyme only needs to read one of those repeats (sometimes you'll hear them referred to as "alleles"). If you only had one copy of that DNA and it mutated ... uh oh, we just lost a part of our coding! What do we do now? "No spleen for you!"

No worries, though, you have extra copies of the DNA. So when you lose an "allele" you still have other copies and the enzyme can still read its manuscript to make RNA. Sometimes, our DNA mutates by losing an allele and sometimes it mutates by gaining one.

Let's go back to our cloned cities illustration. Again, let's start with our first city, the Y-DNA of Johann Christoffel Schacke. Note that every building in this city has multiple stories; one has twenty floors and another only has thirteen. Again, let's clone our first city and make seven more that once again are exact replicas of the first. However, once again one of those cities experienced a single change, but this time the variation was in a separate apartment building. It's still the same complex as it's cloned city, but instead of 14 stories this variant now has 15. All 15 stories look exactly the same (they even all have the same olive green paint in the bathrooms ... yuck!). You can guess how the rest of the illustration goes and how the new mutation gets passed onto future generations.

STRs are similar to SNPs, but instead of a change in the code we have a change in the number of times that the code is repeated. STR variations are less stable than SNP variations in that STRs might mutate again after a few generations, or even revert back to the original number of alleles. STRs also happen more frequently. It's also cheaper to test STR variations which is why the Y-37 test is four times less expensive than the Big Y-700 test (which includes testing millions of SNPs).

FamilyTreeDNA is the main platform where both of these kinds of variants are tested and where all of the Shockey tests have taken place. When it comes to testing the STRs I recommend at least buying the Y-111 test. We have millions of other markers, but FamilyTreeDNA evaluates 111 particular markers (imagine 111 buildings that have a higher tendency to add or remove stories from one generation to the next). We can ignore a few million which would just overwhelm us anyway, but thus we are able to trace changes in ancestry by focusing on 37 or 111 or 700 (depending on which test you buy). All the tests are helpful, but the ones with 111 or more markers just give us better data to work with.

On these 111 markers that we evaluate, mutations do not happen often. I've estimated about a 2% chance that a given son will have one mutation out of 111 STRs from a given father, but when it does that mutation will be passed down to future generations until another mutation changes it again many generations later. Again, this is good news for us because it helps us compare different lineages of male descendants. We can often pinpoint what particular son a person descends from using this data..

#### How the Shockey Clan Is Using Y-DNA?

The other articles in this volume will specifically address this, but in short we have had 22 men test their Y-DNA with FamilyTreeDNA.com. This has enabled us to start seeing patterns in both the SNP and STR variations. Six of the seven sons of Johann are represented in our study so far; we still need a descendant of Samuel Christian Shockey to get on board.

We are analyzing the STRs to demonstrate how variations have appeared throughout the seven Shockey lineages. If you are a member of Shockey Roots Facebook group or have been on our FamilyTreeDNA site then you can see the analysis there as well as the charts we've developed showing where the mutations have occurred.

We are also analyzing the SNPs to demonstrate how the Shockey clan fits into the bigger picture. Eventually, we hope to complete more analysis on the specific variations within this category. So far we only have two who have taken the Big Y-700 test.

#### **Mitochondrial DNA**

I'll keep this one brief, but it's worthy of inclusion as we're talking about DNA. Just as we are able to trace that one patrilineal branch of our DNA by tracing Y-DNA, there is a separate kind of DNA that comes from our mothers and enables us to trace our one matrilineal branch. Mitochondrial DNA (note this is not the same as our X chromosomes) is different from autosomal DNA and Y-DNA because examining it isn't as easy as observing one of your 23 chromosomes. You have to examine the mitochondria (the cell's energy producer) instead of the nucleus. This is kind of cool because the mitochondria actually has its own DNA so we're looking at the DNA of an organelle in our cells.

So you can take DNA tests that specifically trace the mothers of the mother of your mother. It's harder to do usually because of surname changes and because mitochondrial DNA is smaller, but it can show us a different kind of migration pattern in our ancient family history. Our maternal haplogroup tends to show us where our ancestors settled for several centuries or millennia, whereas the Y-DNA tends to show us from where our warmongering fathers had come to conquer from.

I've included this here because ... well our mothers are important too. However, in most of our Shockey studies the mitochondrial DNA will be different for all of us depending on who our Shockey ancestors married. But if you're looking for answers about your maternal line, this may be a tool you want to look into at some point.

## **Before We Were Shockeys**

We have known that our common ancestor was a man named Johann Christoffel Schacke who was born early in the 18th century in the Holy Roman Empire. He immigrated to America in 1737 on a small ship named "Molly" via Amsterdam and Dover, married a year later and had at least three daughters and seven sons (one by his second wife). He died in 1796 in Mount Pleasant, Pennsylvania.

We have some evidence suggesting he may have been born in Pfalz (Germany) and that his parents had come from Switzerland before that. We have some theories about his Jaggi grandparents and their origins in Bern. But can we trace our Shockey ancestry further than that? Who were we before 1600? Who were our ancestors before they adopted the surnames Jäcob/Jaggi/Schacke/Shockey?

Y-DNA research has removed the ceiling so that we can now study our one patrilineal lineage thousands of years into the past. We don't know the names of these individuals, of course, but thanks to the DNA they have passed on to us we can now trace the migration story of our ancient ancestors.

#### Q-BZ224

This is who we are on the Y-haplotree of the human race. I've discussed the terminology of haplogroups, SNPs and Y-DNA in the previous article, but the long and short of it is that the Shockey clan is part of the Q-Haplogroup and can be identified by the mutation that Johann passed down to all of his male descendants. That mutation has been labeled Q-BZ224.<sup>3</sup>

The intention of this article is to walk us through our ancient history and to point out a few landmarks (i.e., ancient cousins) along the way. Thanks to the nature of Y-DNA and the hundreds of thousands of individuals who have had theirs tested, we can trace much of the history of where that Y-DNA came from. So sit back and enjoy the story of our ancient ancestors.

#### "Bob"

Let us begin our journey with a map. Maps are wonderful because they let you see where you're going before you get on the road. This map is not a geographical one, however, but a map of the paternal heritage that extends thousands of years before

<sup>&</sup>lt;sup>3</sup> BZ is an abbreviation given to SNPs named in honor of Barry Zwick. BZ mutations are part of the Q-M242 Project, Family Tree DNA, Houston, TX. Zwick was a news editor for *Los Angeles Times* and largely responsible for organizing Jewish Y-DNA Q men. 224 is the sequence in mutations discovered in the above project

Johann Schacke was born. Specifically, this is the sequence of branches in our Shockey male history; these are mutations that currently define our branch, going from the most ancient to the most recent:



This phylogenetic tree<sup>4</sup> demonstrates the lineage that existed before our Shockey clan took their name. The green variants represent our path of descent and the gray variants represent cousin branches. These are mutations based on SNP testing (the Big Y-700

<sup>&</sup>lt;sup>4</sup> Family Tree DNA, Houston, TX.

test) and we have two Shockeys from Valentine and Abraham's lineages that have tested positive for the Q-BZ224 mutation. If this is our family tree, think of BZ224 as the outer small branch and each of our families are the twigs. The Q-M242 mutation at the top is the main branch that connects our male line to the Y-Tree of the human race. Again, this is only the direct line of male descendance; it does not include our maternal ancestors.

Also remember that the above list is not a list of 12 generations, but there are multiple generations likely between each mutation. The top Q-M242 mutation started with one man who lived at some point during the last ice age. We'll name him "Bob." From what we can tell, "Bob" lived somewhere in the region west of Lake Baikal (north of Mongolia). Q is a branch of the human race that seems to have been living in Central to Northern Asia at this time.<sup>5</sup>



Like all families, the descendants of "Bob" went their separate ways and this eventually led to major splits in the Q story. So what happened to "Bob's" great-grandchildren?

The first major split happened around the time of the last ice age. Q1 (also known as Q-MEH21 and is <u>not our branch</u>) migrated north and crossed the Bering Strait. His descendants mostly crossed into North America and gave rise to several people groups from Canada to the Navajo Nation and mostly into Central and South America. Again, and I need to stress this, we are <u>not</u> Q1. I stress this a third time because someone is

(<u>https://en.wikipedia.org/wiki/Lake\_Baikal#/media/File:Baikal.A2001296.0420.250m-NASA.jpg</u>: accessed 23 February 2023), "Lake Baikal" page, citing Jacques Descloitres, MODIS Land Rapid Response Team - Visible Earth v1 ID 10671. Public Domain.

(https://www.beautifulworld.com/asia/russia/lake-baikal accessed 23 February 2023).

<sup>&</sup>lt;sup>5</sup> Image 1: Wikipedia: The Free Encyclopedia

Image 2: "Map of Lake Baikal," in "Lake Baikal," Beautiful World

going to speed read this, see the word "Navajo," and then the next thing we know someone is claiming that Uncle John Shockey was a Native American. We are not Q1 ... but many of the Native American tribes are our very, very, very distant cousins ... very!

Q2 (<u>us</u>, and also known as Q-L275) migrated the other direction and ended up scattering around Central Asia and down into the Middle East. This is the major branch we come from.

#### Jewish Roots?

Fast forward many generations and mutations later (four steps in our chart above) and we come to another major split in our branch. Q-YP745 seems to have multiple branches of Jewish heritage. In fact, our branch of Q seems to be very Jewish; not the original nation of Israel, but likely a family that moved into Israel and converted to Judaism at some point.

I need to put a disclaimer in at this point. Most of my Shockey research has focused on Johann, his seven sons and their descendants. I have not yet delved too deeply into the particulars of our Y-DNA going the other direction, though I plan to. I am still researching how these all connect together and the timing of these mutations.

I am not saying that the men of Q-YP745 are the original descendants of Abraham, Isaac, and Jacob. That is highly unlikely, but it is very possible that our branch was incorporated at some point into the people of Israel. Again, when? No idea at this point! I'm just getting started on analyzing mutation rates and global coverage, but for now let's just call ourselves the "Scythian Hordes" and one of our boys settled down with a good Jewish girl and made Samaritan babies that later went Kosher. Pure speculation! Please don't quote me on that! But you get the idea of the variables and possibilities we're looking at.

The next major split is Q-YP1095/96. Whatever happened to this group of our ancestors, it caused them to scatter across the world, mostly around the Mediterranean and Persian Seas (perhaps during the Greek or Roman Empire? Again, just a guess!). Cousins from this branch are now located in Algeria (they migrated to Peru in the last 80 years), Morocco (they migrated to Paris in the last 80 years), Israel, United Arab Emirates, and India ... and then there's us ... in what is now the region of Switzerland. It is pretty rare for Q descendants to be found in Europe, but the Shockeys' ancestors are one of the few families that did.



It is noteworthy that several of our cousin branches still claim ancestry of Jewish heritage and their families fled North Africa in the mid-20th century because of religious persecution. The common ancestor of these families and the Shockeys was probably born many generations before Johann.

What about Johann and his family, though? Some Shockey researchers are still examining possible records that might belong to Johann, his parents and grandparents. If the records that we have found are the correct Johann Schacke then they were members of the Lutheran church by 1720. However, there are some hints that do point to our Jewish roots.

First, just examine the list of Johann's children, grandchildren and great-grandchildren. He named five of his sons Abraham, Isaac, Jacob, Aaron and Samuel. I have counted at least 23 Abraham Shockeys born into the family just between 1755 and 1850; I haven't tried counting Isaacs and Jacobs, but there are more than I have fingers and toes.

The prolific use of the Old Testament names of the patriarchs probably occurred because of family tradition and their use in previous generations (e.g., "Let's name him after Uncle Abe"). I doubt that his sons were trying to hold onto their Jewish heritage; otherwise, we would likely have had some reference to it at some point in those first few

generations. But the prolific use of the names in the family very possibly may have happened because the generations before Johann were more intentional about it.

Second, the surname Shockey seems to be rooted in the name "Jacob," according to Les Shockey.<sup>6</sup> As our ancestors migrated out of Switzerland to Germany and then to Pennsylvania the name changed form. Before Shockey, Johann was Schäcke; before the German Schäcke the family was the Swiss Jäggi and Jäcky; and apparently that form came from the surname Jäcob. And if you are familiar with the account in Genesis, remember where the nation got their name:

Then he said, "Your name shall *no longer be called Jacob, but Israel*, for you have striven with God and with men, and have prevailed."<sup>7</sup>

We don't know when the family converted to Protestant Christianity, but several lines of evidence indicate that our heritage was deeply rooted in Israel before they were dispersed around the Mediterranean and Persian region with a few branches reaching as far as India and Pennsylvania. First, we are distantly related to many branches that have a common Jewish heritage. Second, the use of Old Testament names indicates a tradition of those names in our history. Third, the very name Schacke is a German derivation of the name Jacob who was the father of the Israelites. So whatever brought them to Switzerland it does seem that before that our ancestors were part of the Jewish Diaspora.

#### **Our Swiss Cousins**

Thus far, the variant Q-BZ6 seems to include only our distant relatives that trace their ancestry back to Switzerland, and then from Switzerland some of them migrated into Germany and France. Sometime in the 1500-1700s there seems to have been another split in the Swiss branch of our ancestry.

One branch that descended from our common Swiss ancestor comes from a man that had the Q-BZ4 mutation. So far this variant has only been represented by descendants with the last name Baysinger. These are our closest cousins that we know of so far.

Our branch (Q-BZ224) contains two samples and they are both Shockey men that have since passed away. All Shockey men will test positive for this mutation because Johann Christophel Schacke passed it on to his sons and they likewise have passed it down to all their patrilineal descendants. We are Q-BZ224.

<sup>&</sup>lt;sup>6</sup> Based on Shockey email group correspondence between Barbara Shockey Stevenson and Les Shockey on 8 July 2011; [SHOCKEY] Christian jacky--b:15 Oct 1643.

<sup>&</sup>lt;sup>7</sup> Genesis 32:28 (ESV), italics mine.

Q-BZ224 is the Shockeys' most recent branch on the Y-haplotree of the human race. The first man with that variant was either Johann, himself, or more likely someone born in the couple centuries before him. Our closest cousins come from the branch Q-BZ4 so far represented by the Baysingers. Their common ancestor was a man living in Switzerland who was likely of Jewish origin. His ancestors represent some stage of the dispersion of the Jews. And before that we came from a family that had migrated into the Middle East from central or northern Asia around the time of the last ice age.

Welcome to the Q-Haplogroup!

### **Shockey Mutants**

Cinema has filled our heads with many different stories about genetic mutation. There's Jeff Goldbloom mixing his DNA with that of a fly. Or maybe your mind conjures a picture of teenagers turtles crawling through glowing ooze from Techno Global Research Industries. Most of us probably picture mutant children born into the world of X-Men or scientific experiments on Chris Evans. Or maybe it's the variety discovered in the hospital on your favorite episode of *House* where the life of an 8-year old boy hangs in the balance.

Most mutations, however, are not nearly as dramatic. When we hear the word, we usually think of disease causing genes, extra appendages, or in the best scenario having special superpowers that give one superspeed. The SNP and STR mutations that we are discussing here are simply DNA variations rather than the major disfigurements that we normally associate with the word *mutation*.

The first article in this volume serves as a primer about these different kinds of mutations, but very simply, SNP (pronounced "snip") mutations like the ones discussed in the last article are simple variations in our DNA where one nucleotide (i.e. "G" "A" "T" or "C") was replaced with another. Most of these SNP variants appear in noncoding regions of our DNA and occur about 1 in every 1000 SNPs of our DNA. So they are common and most usually rather harmless. These mutations are actually our friends for the sake of genealogy and for the purpose of breaking through brick walls in your family history.

STR mutations are also simple variations in our DNA, but the change occurs when a repetition in our DNA (called an "allele") is altered. Instead of repeating itself 15 times in our genetic code, for example, the mutation causes the DNA to lose or gain an allele so that it repeats itself 14 or 16 times. This is also good news for us because it helps us

compare different lineages of male descendants. Given enough time we can actually trace those mutations throughout a particular clan (e.g. the descendants of Johann Shockey).

This article will focus on these STR mutations and what we can learn from them about the Shockey clan. I'll start with a more simple summary of what we have learned so far and then I'll follow up with a more technical analysis for those of you who want some real data so that you can repeat the science. Finally, I'll include some charts so that you can see the data visually.

#### What We've Learned So Far

Lesley Shockey and several of our relatives have been contributing to this study over the last two decades. Ten of these men have passed away, the last of which was Lesley, himself in 2022. I've worked on some other projects for different branches of my own tree and I just want to say from the start that these 22 Shockey men have given us a great gift by laying such a solid foundation for future DNA research. In a field that is only 30-years old, this science is still in its infancy, but the Shockeys have a head start and are nearing the first bend while most families are still taking their first steps from the starting line. So thank you to those of you who have already participated or who have upgraded your father's DNA test so that we have better data to work with.

FamilyTreeDNA.com is the platform where all Shockey Y-DNA research is taking place today. Other platforms like Ancestry.com and 23andMe will give you access to a much larger database of cousins that share your autosomal DNA, but when it comes to studying the Y-DNA, FamilyTreeDNA is where things are happening. They currently offer different levels of testing and the more expensive tests examine more STR markers. The base level kit in 2023 is their Y-37 test and gives us a starting point that looks at 37 STR markers that have a fairly high mutation rate. The better test (but twice as expensive) is their Y-111 test which examines 111 STR markers. And then they have the Big Y-700 test which not only examines 700 STR markers, but also evaluates a few million SNPs and tells you where your Y-DNA fits into the Y-Haplotree.

Currently the Shockey clan has 22 participants. Two have taken the big-Y test, but all of them have given us STR data that helps us to evaluate some of the variations in our Y-DNA which has taken place over the last 300 years. So far, we have traced 20 separate mutations that have occurred. Here's what we have learned so far:

1) STR mutations now prove (not just probabilities) that Johannes Christoffel Schacke was the father of at least six of the seven sons. We have at least two participants

from five of the lineages (Valentine, John Aaron, Jacob, Isaac, and Abraham) and one participant from the lineage of Christopher Shockey.

- 2) We presume that their half-brother, Samuel Christian, is also related, but at this point we do not have any participants from that line who have joined the study. Keep in mind that Samuel only had one son who also only had one son; so the pool of Shockey men is not large to start with from his line. Autosomal DNA will also help this study as well, so if you're from this line, please help us with any DNA research you've participated in. We would love to connect.
- 3) These STR mutations also prove the ancestry of 13 grandsons of Johann Schacke. The tests of these 22 Shockey descendants prove an unbroken paternal line between Johann and each of those who took a Y-DNA test.

For Valentine (1739-1810), we have paternal proof for Christian and Joseph. Note that this is not proof that Valentine was Christian's father; we think that this is where he belongs based on autosomal tests and the history that we have re-examined. But he certainly descended from Johann.

For John Aaron (c.1743-c.1820), we have paternal proof for Jacob, John Aaron Jr. and Lewis.

For Jacob (1749-1803), we have paternal proof for Isaac and Christian.

For Isaac (1752-1801), we have paternal proof for all three of his sons, Abraham, Isaac, and Daniel.

For Abraham (1755-1861), we have paternal proof for John and Jacob.

For Christopher (1757-1779), we have paternal proof for John.

4) Perhaps the greatest revelation that we have from this study comes from a specific mutation that occurred with John Aaron Shockey that he inherited in 1743. Four of the men who took a Y-DNA test come from his line and all four of them have the exact same mutation at marker DYS557 where the alleles increased from 17 to 18. Here's how that benefits us. If someone does not know their paternal history but knows that they are connected to the Shockey clan, and if their Y-DNA test indicates that they have this mutation, then there is a moderate probability that we can point them to John Aaron Shockey as their ancestor.

It is moderately probable because it is possible for the same mutation to occur independently along a different lineage. In fact, we have seen the same mutation occur in one other place: Valentine, the son of Christian, the son of Valentine Sr also has a descendant with the same variant on marker DYS557. Still, that mutation does give us a way of distinguishing the descendants of John Aaron at the beginning of that line's history.

- 5) We have enough data to claim that Johann passed a pure copy of his DNA to his sons Valentine, Isaac and Abraham at least as far as those 111 STR markers tell us (keep in mind that there are millions more markers not tested).
- 6) We need more data before we can make the same claim for Jacob because the two samples we have only have 67 STR markers, but up to that point Jacob received the same values from Johann.

We also only have one sample from a descendant of Christopher that shows us the first 67 STR markers, and that sample has two mutations. We need other men from Christopher's line to test before we can determine when those variants occurred, with Christopher himself or in a later generation.

Again, we do not have any data at this point from the lineage of Samuel Christian, the half-brother of the above six men.

- 7) We can trace one other mutation that was inherited by Daniel Shockey (1785-1886), the son of Isaac. He has a variant at marker DYS481 where the allele has increased from 24 to 25. Because multiple descendants of Isaac and Daniel have tested, we can conclude that this mutation was original to Daniel himself. The same mutation does occur in Christopher's line, so keep in mind that this is not a foolproof test to determine Daniel's line–but it does give us a nice clue.
- 8) The other 18 mutations which we have observed thus far occur on individual lines; there is not enough data yet to specify when those mutations occurred other than they happened between the late 1700s and the early 1900s. We'll list those variants below in the technical section of this article. Most of these occurred after the first two generations.

#### The Technical Stuff

These are the STR variants for those that want to take a more detailed look at the data. Good science mandates that experiments and research is repeatable, so I'm trying to put this out there with few changes other than highlighting where I have observed the variants to have occurred.

This first chart is a list of the 111 STR markers and their values as they most likely would have appeared if Johann would have taken a Y-DNA test. These alleles are based on the mode values of 22 tests taken by his descendants. Values in light gray represent markers where mutations have been observed on one or two of his grandsons' lines.

		Johann Christoffel Schacke (d.1796)														
Markers 1-12	DYS393 13	DYS390 22	DYS19 13	DYS391 10		5385 -16	DYS426 12	DYS388 12	DYS439 12	DYS3891 13	DYS392 15	DYS38911 28				
Markers 13-25	DYS458 17		\$459 }-9	DYS455 11	DYS454 11	DYS447 25	DYS437 14	DYS448 19	DYS449 29		DY 14-19					
Markers 26-37	DYS460 11	Y-GATA-H4 9	YC 19	AII -19	DYS456 15	DYS607 14	DYS576 16	DYS570 16	CE 34	)Ү -37	DYS442 12	DYS438 11				
Markers 38-67	DYS531 11	DYS578 8		95S1 -17	DYS590 8	DYS537 10	DYS641 10	DYS472 8	DYF406S1 12	DYS511 10						
	DYS425 0	17.5	DYS413 DYS557 22-22 17		DYS594 11	DYS436 12	DYS490 12	DYS534 17	DYS450 8	DYS444 13	DYS481 24	DYS520 16	DYS446 14			
	DYS617 12	DYS568 11	DYS487 13	DYS572 10	DYS640 12	DYS492 13	DYS565 12									
	DYS710 35	DYS485 14	DYS632 9	DYS495 15	DYS540 11	DYS714 26	DYS716 28	DYS717 18								
	DYS505 11	DYS556 12	DYS549 12	DYS589 11	DYS522 10	DYS494 9	DYS533 11	DYS636 11	DYS575 10	DYS638 11						
Markers 68-111	DYS462 11	DYS452 32	DYS445 11	'-GATA-A1( 13	DYS463 27	DYS441 15	GGAAT-1B 11	DYS525 9		4						
	DYS712 19	DYS593 15	DYS650 20	DYS532 15	DYS715 24	DYS504 16	DYS513 13	DYS561 16	DYS552 24							
	DYS726 12	DYS635 22	DYS587 17	DYS643 12	DYS497 15	DYS510 17	DYS434 9	DYS461 14	DYS435 11	1						

Out of 111 markers, 91 of them appear identical on every test from the participants in our study. Three of those, however, only tested 37 markers; thirteen only tested 67 markers; six have tested all 111 markers. As noted above, this does limit our study especially in determining the values for Jacob and Christopher. Still, this gives us a great amount of data to work with and we have noted 20 variants from all of the tests.

The table on the following two pages represents the 20 mutations that have occurred at 14 markers. They are organized into the seven families of the Shockey clan. The list includes missing grandchildren who are not yet represented. There are other names that are rumored to have been born to these families or who died young. I have only included the grandchildren of Johann Schacke which I have been able to find historical or genetic evidence for.

Purple cells represent alleles that have decreased in repetitions; pink represent those that increased. The rows containing the mode for each column are calculated for each son of Johann, not for the entire table.

Haplogroup Q > L275 > L245 > YP745 > YP1095 > BZ6>BZ224																
			D	D	D	D	D	D	D	С	D	D	D	D	D	D
			Y S	D Y	Y S	Y S	Y S	Y S								
			3	3	4	4	4	5	5	a	4	5	5	4		
			9	8	4	6	6	7	7		4	5	3	8		
			1	5 a	9	4 a	0	6	0		2	7	4	1		
MIN			10	14	28	14	11	16	16	34	12	17	17	24	16	14
MAX			10	15	29	14	12	16	16	34	13	18	17	24	17	14
MODE			10	15	29	14	11	16	16	34	12	17	17	24	17	14
	Valentine Shockey (1	739-1810)	10	15	29	14	11	16	16	34	12	17	17	24	17	14
N/A	Valentine Jr. (1756-1800)	No participants yet														
137432	Christian (1756-1829)	Valentine (1785-1865)	10	14	29	14	11	16	16	34	12	18	17	24	17	14
132437		Christian (1788-1844)	10	15	29	14	11	16	16	34	12	17	17	24		
N/A	Abraham (1758-1782)	No participants yet														
MI45969	Joseph (c.1767-1861)	Jacob (1804-1869)	10	15	29	14	11	16	16	34	12	17	17	24		
205420		Abraham (1812-1892)	10	15	29	14	11	16	16	34	13					
393948		Samuel (1820-1890)	10	15	29	14	11	16	16	34	12	17	17	24	16	14
152558		William (1832-1907)	10	15	28	14	11	16	16	34	12	17	17	24		
122585		William (1832-1907)	10	15	29	14	12	16	16	34	12					
122954		Jobe (1834-1887)	10	15	29	14	11	16	16	34	12	17	17	24		
															_	-
MIN			10	15	29	14	11	16	16	34	12	18	16	24	17	15
MAX			10	15	29	14	11	16	17	34	12	18	17	24	17	15
MODE			10	15	29	14	11	16	17	34	12	18	17	24	17	15
	John Aaron Shockey,	Sr. (1743-c1820)	10	15	-	14	11	16	16	34	12	18	17	24	17	?
119556	Jacob (1762-1818)	John (1789-1857)	10	15		14		16		34	12	18	17	24		
707510	John Aaron (1764-1837)	Jacob (1789-1846)	10	15		14	11	16	16	34	12	18	16	24		
179058	Lewis (1782-1852)	Darius (b.1819)	10	15	29	14	11	16	17	34	12	18	17	24		<u> </u>
120859	20113 (1102 1032)	Robert (1829-1905)	10	15		14		16	16	34	12	18	17	24	17	15
120033		Robert (1023-1303)	110	13	23	14			10	194	12	10		24		15
MIN			10	15	29	14	11	16	16	33	12	17	16	24		
MAX			10	16	29	14	12	16	17	34	12	17	17	24		
MODE			10	15	29	14	11	16	17	34	12	17	17	24		
	Jacob Shockey, Sr. (1	750-1803)	10	15	29	14	11	16	16	34	12	17	17	24	?	?
N/A	Jacob Jr. (1770-1833)	No participants yet														
151567	Isaac (1774-1843)	Jacob (1799-1861)	10	15	29	14	12	16	17	33	12	17	17	24		
184450	Christian (1775-1863)	Elias (1810-1886)	10	16	29	14	11	16	16	34	12	17	16	24		
MIN			10	15	29	14	11	16	16	34	12	17	17	24	17	14
MAX			10	15	29	15	11	16	16	34	12	17	17	25	17	14
MODE			10	15	29	14	11	16	16	34	12	17	17	25	17	14
	Isaac Shockey, Sr. (1)	752-1801)	10	15	29	14	11	16	16	34	12	17	17	24	17	14
132578	Abraham (1771-1846)	Isaac (1811-1907)	10	15	-	14		16	16	34	12	17	17	24		
467027	Isaac (1773-1844)	Henry (1794-1847)	10	15				16	16	34	12	17	17	24	17	14
309286		Henry (1794-1847)	10		29			16		34	12					
249000	Daniel (1785-1886)	John (1831-1922)	10		29	14		16	16	34	12	17	17	25		
163316		Henry (1833-1913)	10		29	—		16			12			25		
103310		Henry (1055-1815)	10	15	29	14		10	10	54	12	-17	-17	20		

Haplog	roup Q > L275 > L245 >	YP745 > YP1095 > I	3Z6>	BZ2	24											
			D	D	D	D	D	D	D	С	D	D	D	D	D	D
			Y	Y	Y	Y	Y	Y	Y	D	Y	Y	Y	Y		
			S	S	S	S	S	S	S	Y	S	S	S	S		
			3 9	3 8	4	4 6	4 6	5 7	5 7	а	4 4	5 5	5 3	4 8		
			9 1	5	9	4	0	6	0		2	7	3 4	° 1		
				a		a										
MIN			10	15	29	14	11	16	16	34	12	17	17	24	17	14
MAX			11	15	29	14	11	16	16	34	12	17	17	24	17	14
MODE			11	15	29	14	11	16	16	34	12	17	17	24	17	14
	Abraham Shockey, Sr	. (1755-1861)	10	15	29	14	11	16	16	34	12	17	17	24	17	14
N/A	Abraham Jr. (1788-1863)	No participants yet														
115454	John (1796-1886)	Abraham (1820-1879)	11	15	29	14	11	16	16	34	12	17	17	24	17	14
120860	Jacob (1806-1903)	Ira (1842-1937)	10	15	29	14	11	16	16	34	12	17	17	24	17	14
MIN			10	15	29	14	11	17	16	34	12	17	17	25		
MAX			10	15	29	14	11	17	16	34	12	17	17	25		
MODE			10	15	29	14	11	17	16	34	12	17	17	25		
	Christopher Shockey	(1757-1779)	10	15	29	14	11	?	16	34	12	17	17	?	?	?
124773	John (1775-1859)	George (c.1818)	10	15	29	14	11	17	16	34	12	17	17	25		
N/A	Henry (1779-1859)	No participants yet														
MIN																
MAX																
MODE																
	Samuel Christian Sho	ockey (c.1774)	?	?	?	?	?	?	?	?	?	?	?	?	?	?
N/A	Abraham (1808-1838)	No participants yet														

We only have two Big Y-700 tests that have been taken on FamilyTreeDNA.com from the lines of Valentine and Abraham. The results only contain three variants from 738 additional markers, but are reproduced here for future comparison

One variant occurred on marker FTY1070 where one test (Valentine's line) returned at 10 alleles and the other (Abraham's line) returned at 11. Another variant occurred on marker DYS685u1 where one test (Valentine's line) returned at 17 alleles and the other (Abraham's line) returned at 16. And the third variant occurred on marker FTY814 where one test (Valentine's line) returned at 12 alleles and the other (Abraham's line) returned at 13. Without more results, it is impossible to know when these mutations occurred; whether with the Johann's son, a generation between, or with the participant.

"No call" results were returned for 23 markers, which means that they did "not have enough information ... to confirm a value." Thirty-nine markers also returned a "no call" on one of the tests, but a value on the other and have also been highlighted. FamilyTreeDNA only guarantees for 589, though they test up to an additional 727. Future tests may show us more complete results for these "no calls."

5         4         4         7         5         4         11         12           FTY254         FTY19         FTY4         DY5577         FTY24         FTY360         FTY52         FTY400         FT           4         5         4         9         4         6         6         4           FTY265         FTY265         FTY365         FTY37         FTY81         FTY387         FTY81         FTY387         FTY81         FTY387         FTY81         FTY387         FTY816         FTY155         FTY400         FTY152         FT           7         4         5         4         4         5         6         4         4         7         5         6         7         7         4         5         6         7	FTY220 4 FTY114 4 FTY330 5 FTY55 5 FTY374 6 FTY227 7 FTY277 7 FTY179 5 FTY195 7 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279 4
FTY254         FTY19         FTY4         DVS577         FTY24         FTY360         FTY260         FTY400         FT           4         5         4         9         4         4         6         6         4           FTY246         FTY266         FTY368         FTY173         FTY209         FTY337         FTY81         FTY367         FTY361         FT           5         4         5         5         5         5         4         5         6         6         7           7         4         5         4         4         5         6         4         4         9           FTY297         FTY307         FTY103         FTY64         FTY121         FTY312         FTY322         FTY324         FTY121         FTY320         FTY121         FTY320         FTY121         FTY320         FTY121         FTY320         FTY121         FTY320         FTY121         FTY321         FTY123         FTY121         FTY321         FTY123         FTY121         FTY323         FTY123         FTY121         FTY324         FTY325         FTY121         FTY326         FTY121         FTY326         FTY121         FTY326         FTY1226         FT	FTY114 4 FTY330 5 FTY55 5 FTY374 6 FTY227 7 FTY179 5 FTY195 7 FTY195 7 FTY329 5 FTY329 5 DYS475 8 FTY46 6 FTY279
4         5         4         9         4         4         6         6         4           FTY246         FTY266         FTY368         FTY173         FTY209         FTY337         FTY81         FTY387         FTY361         FT           5         4         5         5         5         4         5         6           FTY65         FTY168         FTY171         FTY180         FTY386         FTY100         FTY152           7         4         5         4         4         6         10         4         4         9           112-211         FTY316         FTY101         FTY204         DYS477         FTY310         PTY341         DYS439         FTY161         FTY204           PTY316         FTY391         FTY353         FTY323         FTY343         DYS439         FTY170         FTY204         DYS502         FTY341         DYS501         FTY274         FTY276         FT           8         7         5         5         5         12         4         4         5         5         5         5         5         5         5         5         5         5         5         5         5         5	4 FTY330 5 FTY55 FTY374 6 FTY227 7 FTY227 5 FTY195 7 FTY195 7 FTY329 5 FTY25 8 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY246         FTY266         FTY368         FTY173         FTY209         FTY317         FTY387         FTY361         FTY367         FTY361         FTY367         FTY361         FTY367         FTY100         FTY367         FTY100         FTY367         FTY100         FTY367         FTY367         FTY367         FTY303         FTY367         FTY315         FTY367         FTY303         FTY315         FTY367         FTY315         FTY325         FTY315         FTY325         FTY325         FTY325         FTY325         FTY325         FTY325         FTY326         FTY326         FTY326         FTY326         FTY325         FTY326         FTY326         FTY326         FTY326         FTY326         FTY326         FTY326<	FTY330 5 FTY55 5 FTY374 6 FTY277 7 FTY279 5 FTY195 7 FTY329 5 FTY329 5 FTY329 5 DYS475 8 FTY46 6 FTY279
5         4         5         5         5         4         5         6           FTY65         FTY168         FTY111         FTY136         FTY53         FTY40         FTY386         FTY100         FTY152         FT           7         4         5         4         4         5         6         4         4           FTY277         FTY307         FTY103         FTY64         FTY131         FTY322         FTY161         FT           5         4         4         4         6         10         4         4         9           112-211         FTY316         FTY101         FTY204         DYS477         FTY192         DYS502         FTY341         DYS493         FTY1         FT           8         7         5         5         5         12         4         4         8           7         5         5         5         12         4         4         5	5 FTY374 6 FTY277 7 FTY179 5 FTY179 7 FTY323 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY65         FTY168         FTY171         FTY136         FTY53         FTY40         FTY386         FTY100         FTY152         F           7         4         5         4         4         5         6         4         4           FTY297         FTY370         FTY103         FTY64         FTY313         FTY362         FTY341         FTY161         FT           5         4         4         4         6         10         4         4         9         1           112-211         FTY316         FTY101         FTY204         DYS477         FTY132         DYS493         FTY171         FT           5         4         5         8         5         8         5         10         7           5         4         5         5         5         12         4         4         8         8           FTY188         FTY356         FTY215         FTY105         FTY224         FTY214         FTY123         FTY262         FT           6         6         7         5         5         5         5         9         6           FTY208         DYF398B         FTY135         FTY137	FTY55 5 FTY374 6 FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
7         4         5         4         4         5         6         4         4           FTV297         FTY370         FTY103         FTY64         FTY174         FTY313         FTY362         FTY342         FTY161         FT           112-211         FTY316         FTY101         FTY204         DYS477         FTY192         DYS502         FTY341         DYS493         FTY1 <ft< td="">         FT           5         4         5         8         5         10         7         7           DYS499         FTY301         FTY353         FTY322         FTY163         DYS483         FTY177         FTY265         FT           8         7         5         5         5         12         4         4         8         7           5         7         11         5         12         5         9         6         7         5         6         12         4         5         5         <t< td=""><td>5 FTY374 6 FTY227 7 FTY179 5 FTY195 7 FTY329 5 FTY329 5 DYS475 8 FTY46 6 FTY279</td></t<></ft<>	5 FTY374 6 FTY227 7 FTY179 5 FTY195 7 FTY329 5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY297         FTY370         FTY103         FTY64         FTY174         FTY313         FTY362         FTY342         FTY161         FT           112-211         FTY316         FTY101         FTY204         DYS477         FTY192         DYS502         FTY341         DYS493         FTY1         FT           5         4         5         8         5         8         5         10         7           DYS499         FTY353         FTY322         FTY163         DYS433         FTY1272         FTY180         DYS581         FT           8         7         5         5         12         4         4         8           FTY188         FTY369         FTY70         FTY63         DYS508         FTY347         FTY237         FTY276         FT           5         7         11         5         12         5	FTY374 6 FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
Markers         5         4         4         4         6         10         4         4         9           112-211         FTY316         FTY101         FTY204         DYS477         FTY192         DYS502         FTY341         DYS493         FTY1         FT           5         4         5         8         5         8         5         10         7           DYS499         FTY391         FTY353         FTY163         DYS483         FTY12         FTY180         DYS508         FTY267         FT           8         7         5         5         5         12         4         4         8           FTY188         FTY369         FTY205         FTY163         DYS508         FTY247         FTY262         FT           6         6         6         7         5         6         12         4         5         5           FTY109         FTY356         FTY215         FTY105         FTY113         FTY11         DYS608         FTY39         FTY27         FTY25         DYS512         FT           4         5         5         5         5         5         5         8         9         6	6 FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
Markers         5         4         4         4         6         10         4         4         9           112-211         FTY316         FTY101         FTY204         DYS477         FTY122         DYS502         FTY341         DYS493         FTY1         FT           5         4         5         8         5         8         5         10         7           DYS499         FTY391         FTY353         FTY363         DYS483         FTY127         FTY280         DYS506         FTY276         FTY276         FT           8         7         5         5         5         12         4         4         8           FTY188         FTY369         FTY205         FTY163         DYS508         FTY247         FTY212         FTY262         FT           6         6         6         7         5         6         12         4         5         5           FTY109         FTY356         FTY135         FTY113         FTY11         DYS608         FTY353         FTY274         FTY274         FTY275         DYS512         FT           6         6         9         5         4         4         4	6 FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
112-211         FTY316         FTY101         FTY204         DYS477         FTY192         DYS502         FTY311         DYS493         FTY1         FT           5         4         5         8         5         8         5         10         7           DYS499         FTY391         FTY353         FTY322         FTY163         DYS483         FTY127         FTY180         DYS581         FT           8         7         5         5         12         4         4         8           FTY188         FTY369         FTY70         FTY63         DYS508         FTY347         FTY277         FTY266         FT           5         7         11         5         12         5         7         5         6 </td <td>FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279</td>	FTY227 7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
5         4         5         8         5         8         5         10         7           DYS499         FTY391         FTY353         FTY322         FTY163         DYS483         FTY172         FTY180         DYS581         FT           8         7         5         5         12         4         4         8           FTY188         FTY369         FTY70         FTY63         DYS508         FTY47         FTY83         FTY276         FT           5         7         11         5         12         5         5         5         5           FTY109         FTY356         FTY215         FTY105         FTY123         FTY242         FTY214         FTY132         FTY267         FT           6         6         6         7         5         6         12         4         5         5           FTY208         DYF3988         FTY43         FTY166         FTY113         DYS508         FTY37         FTY75         DYS512         FT           4         5         5         5         5         8         4         4         4         4           FTY388         FTY284         FTY247	7 FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
DYS499         FTY391         FTY353         FTY322         FTY163         DYS483         FTY122         FTY180         DYS581         FT           8         7         5         5         12         4         4         8           FTY188         FTY369         FTY70         FTY63         DYS508         FTY377         FTY277         FTY276         FT           5         7         11         5         12         5         5         5         5           FTY109         FTY356         FTY215         FTY105         FTY123         FTY242         FTY214         FTY32         FTY262         FT           6         6         6         7         5         5         5         8         9         6           7         5         5         5         5         8         9         6         6           4         5         5         5         5         8         9         6         6           7         FTY388         FTY264         FTY38         FTY370         FTY375         DY5569         FTy30         FT           5         6         6         4         4         4	FTY179 5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
8         7         5         5         12         4         4         8           FTY188         FTY369         FTY70         FTY63         DYS508         FTY347         FTY83         FTY277         FTY276         FT           5         7         11         5         12         5         5         5         5           FTY109         FTY356         FTY215         FTY105         FTY123         FTY242         FTY214         FTY132         FTY262         FT           6         6         6         7         5         6         12         4         5           7         9         FTY388         FTY256         DYS580         FTY38         DYS680         FTY95         FT           4         5         5         5         5         5         5         9         6           FTY388         FTY256         DYS580         FTY284         FTY268         FTY39         FTY37         DYS512         FT           6         6         9         5         4         4         4         4         4         4           FTY380         FTY281         FTY287         FTY375         DYS512	5 FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY188         FTY369         FTY70         FTY63         DYS508         FTY347         FTY83         FTY277         FTY276         FT           5         7         11         5         12         5         5         5         5           FTY109         FTY356         FTY215         FTY105         FTY123         FTY242         FTY214         FTY132         FTY262         FT           6         6         6         7         5         6         12         4         5           FTY208         DYF398B         FTY43         FTY166         FTY13         FTY11         DYS584         DYS608         FTY95         FT           4         5         5         5         5         8         9         6         7           6         6         9         5         4         4         5         5         9         7           6         6         9         5         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         5         5         6         6         4	FTY195 7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
5         7         11         5         12         5         5         5           FTY109         FTY356         FTY215         FTY105         FTY123         FTY242         FTY214         FTY32         FTY262         FT           6         6         6         7         5         6         12         4         5           FTY208         DYF3988         FTY43         FTY166         FTY13         FTY11         DYS584         DYS608         FTY95         FT           4         5         5         5         5         8         9         6           7         FTY288         FTY256         DYS580         FTY244         FTY39         FTY27         FTY75         DYS512         FT           6         6         9         5         4         4         5         5         9           FTY388         FTY264         FTY211         DYS474         FTY39         FTY376         FTY37         FTY370         DY           5         5         6         6         4         4         4         5         6         6           FTY138         FTY284         FTY281         FTY185         FTY115	7 FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY109         FTY356         FTY215         FTY105         FTY232         FTY242         FTY214         FTY32         FTY262         FT           6         6         6         7         5         6         12         4         5           FTY208         DYF3988         FTY43         FTY166         FTY13         FTY11         DYS584         DYS608         FTY95         FT           4         5         5         5         5         8         9         6           4         5         5         5         5         8         9         6           6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY37         FTY37         FTY37         DYS573         DY           5         6         6         4         4         4         5         6         6         7         6         6         6         6         7         FTY30         FTY377         FTY373         DY         5         5         6         6         7         7         7         7         7         <	FTY333 4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
6         6         6         7         5         6         12         4         5           FTY208         DYF398B         FTY43         FTY166         FTY13         FTY11         DYS584         DYS608         FTY95         FT           4         5         5         5         5         8         9         6           4         5         5         5         5         8         9         6           6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY37         FTY373         DY           5         5         4         5         8         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY180         FTY115         DYS569         FTY390         FT           6         6         4         4         4         5         6         6         11         4         5           5         6         6         4         4         4         5         11	4 FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY208         DYF398B         FTY43         FTY166         FTY13         FTY11         DYS584         DYS608         FTY95         FT           4         5         5         5         5         5         8         9         6           4         5         5         5         5         8         9         6           FTY388         FTY256         DYS580         FTY244         FTY268         FTY139         FTY27         FTY75         DYS512         FT           6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY37         FTY373         DY           5         5         4         5         8         4         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY180         FTY180         FTY115         DYS569         FTY390         FT           6         6         4         4         4         5         6         6         7           10         4         10         13 </td <td>FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279</td>	FTY151 5 FTY329 5 DYS475 8 FTY46 6 FTY279
4         5         5         5         5         8         9         6           FTY388         FTY256         DYS580         FTY24         FTY268         FTY139         FTY27         FTY75         DYS512         FT           6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY37         FTY373         DY           5         5         4         5         8         4         4         4         4           FTY138         FTY288         FTY264         FTY38         FTY188         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         6         6           YEY243         FTY252         FTY281         FTY153         FTY181         FTY184         FTY203         FTY211         FTY44         FT           6         6         4         4         4         5         6         6         7           Markers         10         4         10         13         4	5 FTY329 5 DYS475 8 FTY46 6 FTY279
FTY388         FTY256         DYS580         FTY234         FTY268         FTY139         FTY27         FTY75         DYS512         FT           6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY37         FTY373         DY           5         5         4         5         8         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY380         FTY18         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         6         6           6         6         4         4         4         5         6         6         6           DYS530         FTY45         DYS573         DYS542         FTY304         FTY203         FTY214         FTY142         FT           10         4         10         13         4         5         5         8         6         6           212-311         FTY183         FTY141	FTY329 5 DYS475 8 FTY46 6 FTY279
6         6         9         5         4         4         5         5         9           FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY377         FTY373         DY           5         5         4         5         8         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY380         FTY18         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         11         4           FTY243         FTY322         FTY281         FTY153         FTY184         FTY205         FTY121         FTY74         FT           6         6         4         4         4         5         6         6         6           OYS530         FTY45         DYS573         DYS542         FTY36         FTY203         FTY201         FTY142         FT           10         4         10         13         4         5         5         8         6         6           212-311         FTY183         FTY141         FTY299	5 DYS475 8 FTY46 6 FTY279
FTY320         FTY7         FTY247         FTY211         DYS474         FTY39         FTY376         FTY377         FTY373         DY           5         5         4         5         8         4         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY380         FTY18         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         11         4           FTY243         FTY322         FTY281         FTY153         FTY184         FTY259         FTY121         FTY74         FT           6         6         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY36         FTY304         FTY203         FTY142         FT           10         4         10         13         4         5         5         8         6         6           212-311         FTY183         FTY141         FTY299         FTY182         FTY334         DYS623         FTY378         FT           6         5         11 <td>DYS475 8 FTY46 6 FTY279</td>	DYS475 8 FTY46 6 FTY279
5         5         4         5         8         4         4         4         4           FTY138         FTY288         FTY264         FTY93         FTY380         FTY18         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         11         4           FTY243         FTY322         FTY281         FTY153         FTY181         FTY184         FTY259         FTY121         FTY74         FT           6         6         4         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY36         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY378         FT           6         5         11         5         6         6         5         8         4         6           FTY397         FTY3	8 FTY46 6 FTY279
FTY138         FTY288         FTY264         FTY93         FTY380         FTY18         FTY115         DYS569         FTY390         FT           5         6         6         4         4         4         5         11         4           FTY243         FTY322         FTY281         FTY153         FTY181         FTY184         FTY359         FTY121         FTY74         FT           6         6         4         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY36         FTY304         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY378         FT           6         5         11         5         6         6         5         8         4         9           6         5         11         5         10         7         5         11         7           4         6	FTY46 6 FTY279
5         6         6         4         4         4         5         11         4           FTY243         FTY322         FTY281         FTY153         FTY181         FTY184         FTY359         FTY121         FTY74         FT           6         6         4         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY304         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY378         FT           6         5         11         5         6         6         5         8         4         6           7TY397         FTY3         FTY67         FTY182         FTY34         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11         7           5         4	6 FTY279
FTY243         FTY322         FTY281         FTY153         FTY181         FTY184         FTY359         FTY121         FTY74         FT           6         6         4         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY36         FTY304         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY185         FTY378         FT           6         5         11         5         6         6         5         8         4           6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11         7           5	FTY279
6         6         4         4         4         4         5         6         6           DYS530         FTY45         DYS573         DYS542         FTY36         FTY304         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY185         FTY378         FT           6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY357         FTY255         FT           4         6         4         4         5         11         7         5         11         7           5         4         10         8         6         12         9         5         4         4           FTY383         FTY253         FTY237         FTY238         FTY305         FTY35         FTY252         FT           5         4 <td< td=""><td></td></td<>	
DYS530         FTY45         DYS573         DYS542         FTY36         FTY304         FTY203         FTY291         FTY142         FT           10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY185         FTY378         FT           6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11         7           5         4         10         8         6         12         9         5         4         7           5         4         10         8         6         12         9         5         4         7           5         5         8         4         6         7         10         4         6         7           5	A
Markers         10         4         10         13         4         5         5         8         6           212-311         FTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY185         FTY378         FT           6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY344         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11         7           5         4         10         8         6         12         9         5         4         7           5         4         10         8         6         12         9         5         4         7           5         5         8         4         6         7         10         4         6           PTY365         FTY301         FTY366         FTY231         DYS618         FTY216         FTY323         FTY155         FT           5         5	4
PTY183         FTY141         FTY299         FTY193         FTY124         FTY16         FTY236         FTY185         FTY378         FT           6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY275         FT           4         6         4         4         5         11         7         5         11           FTY383         FTY253         FTY285         DYS645         FTY17         FTY85         DYS598         FTY375         FTY325         FT           5         4         10         8         6         12         9         5         4         7           5         5         8         4         6         7         10         4         6           PTY365         FTY301         FTY237         FTY238         FTY305         FTY29         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216 <td>FTY191</td>	FTY191
6         5         11         5         6         6         5         8         4           FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11           FTY383         FTY253         FTY285         DYS645         FTY17         FTY85         DYS598         FTY375         FTY325         FT           5         4         10         8         6         12         9         5         4           FTY365         FTY237         FTY238         FTY305         FTY129         FTY352         FTY292         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY32         FTY393         FTY155         FT           10         11         4         5         12         7         4         5         6	10
FTY397         FTY3         FTY67         FTY182         FTY334         DYS623         FTY348         FTY357         FTY275         FT           4         6         4         4         5         11         7         5         11           FTY383         FTY253         FTY285         DYS645         FTY17         FTY85         DYS598         FTY375         FTY325         FT           5         4         10         8         6         12         9         5         4         7         5         4         7         5         4         7         5         6         7         7         5         4         7         5         7	FTY225
4         6         4         4         5         11         7         5         11           FTY383         FTY253         FTY285         DYS645         FTY17         FTY85         DYS598         FTY375         FTY325         FT           5         4         10         8         6         12         9         5         4           FTY365         FTY35         FTY237         FTY288         FTY305         FTY129         FTY352         FTY292         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY293         FTY155         FT           10         11         4         5         12         7         4         5         6	4
FTY383         FTY253         FTY285         DYS645         FTY17         FTY85         DYS598         FTY375         FTY325         FT           5         4         10         8         6         12         9         5         4         7           FTY365         FTY35         FTY237         FTY238         FTY305         FTY129         FTY352         FTY292         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY233         FTY155         FT           10         11         4         5         12         7         4         5         6	FTY306
5         4         10         8         6         12         9         5         4           FTY365         FTY35         FTY237         FTY238         FTY305         FTY56         FTY129         FTY352         FTY292         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY239         FTY155         FT           10         11         4         5         12         7         4         5         6	5
FTY365         FTY237         FTY238         FTY305         FTY129         FTY352         FTY292         FT           5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY233         FTY155         FT           10         11         4         5         12         7         4         5         6	FTY12
5         5         8         4         6         7         10         4         6           DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY82         FTY393         FTY155         FT           10         11         4         5         12         7         4         5         6	4
DYS539         FTY301         FTY366         FTY231         DYS618         FTY216         FTY82         FTY393         FTY155         FT           10         11         4         5         12         7         4         5         6	FTY154
10 11 4 5 12 7 4 5 6	4
10 11 4 5 12 7 4 5 6	FTY68
	11
	DYS541
8 - 5 4 8 5 5 5 9	11
	FTY186
10 6 6 6 8 4 6 4 7	4
	FTY221
7         5         8         5         6         5         7         4         12	5
	FTY2 4
Markers 7 6 5 6 9 5 5 6 9	DYS480
	DYS480 8
6 6 6 4 4 6 4 10 12	DYS480 8 DYS544
	DYS480 8 DYS544 9
6 6 4 6 5 5 5 4 4	DYS480 8 DYS544
FTY112 FTY295 DYS616 FTY338 FTY196 FTY157 FTY162 DYS551 FTY148 FT	DYS480 8 DYS544 9
13 5 13 4 6 8 6 14 10	DYS480 8 DYS544 9 FTY73
FTY52 FTY131 FTY9 FTY194 FTY8 FTY318 FTY317 FTY99 FTY289 FT	DYS480 8 DYS544 9 FTY73 5
5 5 6 12 4 6 7 6 15	DYS480 8 DYS544 9 FTY73 5 FTY94
FTY51 FTY345 FTY398 FTY111 FTY273 FTY382 FTY47 FTY30 FTY147 DY	DYS480 8 DYS544 9 FTY73 5 FTY94 7
11134 111343 111356 111111 1112/3 111362 11147 11130 F11147 D1	DYS480 8 DYS544 9 FTY73 5 FTY94 7 FTY169

· · · ·									D.10.100	
	FTY302	FTY354	FTY326	FTY88	FTY248	FTY267	FTY170	FTY60	DYS453	FTY249
	9	11	7	4	9	11	7	4	11	4
	FTY167	DYS624	FTY134	FTY235	FTY145	FTY14	FTY80	FTY50	DYS514	FTY340
	5	9	10	8	10	10	5	-	18	5
	DYS585	DYS516	FTY293	FTY207	FTY278	FTY210	DYS523	FTY269	FTY530	FTY1156
	10	15	5	4	7	7	15	11	10	4
	FTY1070	FTY906	FTY1004	FTY331	FTY31	FTY226	FTY335	DYS583	FTY339	FTY113
	10 or 11	5	4	6	5	4	4	8	4	6
	FTY280	FTY255	FTY59	DYS620	FTY349	FTY130	FTY119	DYF398A	FTY58	FTY127
Markers	4	7	5	8	5	4	8	14	11	4
412-511	FTY321	FTY92	FTY392	DYF392	FTY290	FTY312	FTY135	FTY150	FTY294	FTY244
	7	5	8/-	8	4	7	5	9	5	6
	FTY48	FTY282	DYS489	FTY272	FTY239	FTY258	FTY49	DYS574	FTY41	FTY905
	4	6	11	5	4	-/6	4	11	6	6
	FTY1103	FTY502	FTY743	FTY443	FTY670	FTY883	DYS631	FTY1042	FTY510	DYS389B
	4	10	7	6	13	4	- / 11	12	11	- / 10
	FTY512	FTY837	DYS642	FTY407	FTY935	FTY563	FTY1016	FTY1091	FTY1049	FTY1155
	5	5	9	4	4	10	12	4	8	-/5
	DYS602	FTY587	FTY635	FTY904	DYS543	FTY1148	FTY861	FTY742	FTY433	FTY1039
	- / 12	5	9	4	12	4	11	4/-	5/-	5
	FTY71	FTY259	FTY108	FTY336	FTY44	FTY233	FTY274	FTY34	FTY942	FTY1068
	4	5	5	5	11	8	6	5	5	10
	FTY945	FTY1051	FTY658	FTY625	FTY800	FTY818	FTY971	FTY509	FTY1025	FTY835
	4	5	7	4	12	5	4	4	13	4
	FTY984	DYS637	FTY832	FTY689	FTY998	FTY520	FTY445	FTY809	FTY428	FTY562
	5	12	4	11	8	6	10	5	8	9
	FTY897	FTY1064	FTY1088	FTY742	DYF405	FTY310	FTY189	DYS488	FTY283	FTY28
	5/-	7	4	7/-	6	11	5	13	8	7
	FTY578	DYS484	FTY858	FTY596	FTY915	FTY446	FTY452	FTY1006	FTY612	FTY507
Markers	4	13	-/9	4	4	- / 12	4	13	14	9
512-611	FTY614	FTY824	FTY1055	FTY690	FTY2318	FTY981	FTY946	FTY1040	DYS718	FTY15
	5/-	6	-/4	14	4	10	12	7	15	4
[	FTY2025	DYS685u1	DYS596u5	FTY1511	FTY769	FTY923	FTY1167	FTY415	FTY505	FTY241
	6	17 or 16	10	4	9	5	-	5	-	5
	FTY2263	FTY517	FTY2180	FTY775	DYS567	FTY444	FTY691	FTY1120	FTY223	DYF393u3
	5	4	4	14	10	6	6	4/-	6	24
[	FTY1850	FTY645	FTY696	FTY1166	FTY991	FTY912	DYS551u4	FTY447	DYS518u3	FTY875
	5	5	6	9	7	10	4	4	- / 16	6
1	DYS536u1	FTY585	FTY896	FTY731	FTY401	FTY2011	FTY665	FTY814	FTY2050	DYS626u3
	13	6	7	5	5	4	10	12 or 13	6	5
	FTY750	FTY471	FTY985	FTY589	FTY420	FTY921	FTY457	FTY657	FTY1110	FTY485
	10	6	5	7	5	4	12	6	9	-
	FTY315	FTY1852	FTY1107	FTY489	FTY522	FTY654	FTY110	FTY881	DYS470	FTY534
	4	4	- / 12	5	16/-	14	12	6	11	5
	FTY1101	FTY1933	FTY936	FTY772	FTY1047	FTY2351	FTY680	FTY2254		FTY2083
	8	4	5	12	13	4	11	5	-/6	5
	FTY287	FTY797	FTY2366	FTY951	FTY774	FTY1116	DYS621	FTY885		DYF394u1
	4/-	5	5	6	-	5	8	6	4	8
- 1	FTY888	FTY648	FTY725	FTY643	FTY927	FTY1022	DYS559	FTY933	FTY633	FTY900
Markers	6	7	6	- / 11	15	4	9	7	8	4
612-711	FTY1848	FTY478	FTY533	FTY467	FTY1900		DYS612u5		FTY668	FTY1028
	5	5	-	9	4	8	25	8	5	4
	DYS579	FTY646	FTY1026	FTY801	FTY432	FTY2301	FTY466		FTY1083	
	-	11	9	5	5	4	11	18/-	13	11
	FTY1114	FTY830	FTY655	FTY910	FTY1143	FTY572		DYS558u2		FTY712
	14	5	7	9	8	- / 16	4	8	4	4
ł										
	FTY634	FTY499	FTY1094	FTY724	FTY535	FTY552	FTY430	FTY588	DYS609	FTY961
	8 ETV912	7	- / 14	11	14	4	5	6	9 ETV11E7	6
	FTY813	FTY656	FTY839	FTY882	FTY789	FTY459	FTY1037	FTY435	F1Y1157	FTY1546
	-/5	8	17	5		4		7	5	

	FTY2242	FTY720	DYS614u10	FTY887	FTY473	FTY816	FTY1060	FTY472	FTY943	FTY1482
	4	16	18	10	5	9	12	4	-/4	4
	FTY565	DYS629	FTY891	FTY438	DYS582	FTY468	FTY649	FTY606	FTY792	FTY1087
	10	-	10	4	8	6	13 / -	6	14 / -	4
	FTY895	DYS614u3	FTY574	FTY1556	FTY560	FTY694	FTY1097	DYS518u6	FTY876	FTY2443
	13	5/-	12	5	5	6	7	14	15 -	5
	FTY990	FTY934	FTY465	FTY1046	FTY1312	FTY751	FTY1915	FTY678	FTY419	FTY958
	-	4	7	5	4	9	4	6	5	4
	FTY456	DYS592u1	FTY1172	FTY416	FTY650	FTY808	FTY1542	DYS721u1	FTY746	FTY2233
Markers	-/5	4	12 / -	7	8/-	7	6	11	-	6
712-811	FTY892	FTY845	FTY1034	FTY498	DYF382u1	FTY637	DYS588	FTY947	DYS543u3	FTY644
	6	9	4	5	13	6	13	4/-	4	17
]	DYS703	DYS649	FTY212	FTY781	FTY1106	FTY592	FTY848	FTY940	FTY903	FTY1081
	12	-	5	12	4	-	6	4	5	-
	FTY952	DYS706u2	FTY1084	FTY700	FTY482	DYS625u7	FTY960	FTY586	FTY1330	FTY1119
	5	-	5	12	6	4	16	6	4	5
	FTY1762	FTY1010	FTY417	FTY716	DYS627u3	FTY1942	FTY1067	FTY841	FTY1031	FTY1082
	6	6	5	4	19	4	4	5	5	4
	FTY1023	FTY475	FTY222	FTY962	FTY423	FTY664	DYS517u1	FTY1076	FTY1557	FTY1154
	4	10/-	6	- / 12	7/-	5	12	-	5	11
	DYS681	FTY1002	DYS706u1	FTY1174	FTY986	FTY651	FTY886	FTY1078	DYS546u4	FTY1092
	5	5	5	-	10/-	11	8	6	- / 13	7
Markers	FTY2471	FTY1111	FTY461	FTY323	FTY1013	FTY506	FTY550	FTY767	FTY721	DYS548
812-838	7	7	8	5	-	6	7	4	11	13
	FTY559	DYS705	FTY640	FTY613	FTY402	FTY2426	FTY755			
	-/8	-	10	7	5	5	8			

Eventually, with more participants, we will have the ability to note when these variations took place. Ideally, some of the STR variants will provide us with identification markers that set some of the early generations apart. This will serve as a tool for placing unvalidated Shockey lineages into the correct families and for correcting some of the misplaced lineages that have resulted from bad speculation in the past.

For example, this would give us one more line of evidence for placing Christian Shockey (1756-1829) in the family of Valentine Shockey, rather than equating him with his uncle Christopher Shockey who was hanged for counterfeiting (1757-1779). It would give us another line of evidence verifying that Abraham Shockey (1788-1863) was the son of Abraham Shockey (1752-1801) instead of the son of one Abraham Sr's older brothers. Who were Solomon (1813-1878) and Abraham Shockey (1816-1847) that were living in Kentucky in the early 1800s? More Y-DNA testing may give us a clearer answer to those questions.

#### **Shockey Mutations by Family**

Following is a display of some of the same information, but organized by family. These charts are only a display of the Y-DNA tests currently participating in our group; not a complete list of Johann's grandsons. Each generation is displayed according to the decade that they were born. Recent generations are not named for reasons of privacy, but kit numbers from the Shockey Group study are displayed.

The best participation that we have received so far is from the family of Johann's eldest son, **Valentine Shockey**, but only from two of his sons. All of the confirmed SNPs are displayed below though we presume all Shockey males would test positive for Q-BZ224 if they participated at that level.



Obviously, the best data that we have comes from the lineage of Valentine's son, Joseph, with six men participating. All six of the mutations which have been observed from the family of Valentine occurred on five of eight lines and at some point between his grandsons and those who took the DNA test. The exception to this is the mutation at DYS510 which might also have occurred with Joseph, himself; only one of Joseph's descendants has tested at 111 markers so we won't know until we have more participants at that level.

We also have four participants in our study from the family of **John Aaron Shockey**. Each of his confirmed three lines are represented: Jacob, John Jr. and Lewis. There are three other rumored or miscalculated sons that still have not been evidenced by any DNA studies: David, Christian and Isaac.



Because the mutation at marker DYS557 has been observed in every participating test from this family, we have deduced that this mutation was original to John Aaron himself in 1743. Thus far in our study, this is probably one of the most helpful fruits we have observed because this gives us a tool to test whether a descendant comes from this family. If the mutation is present on a DNA test then there is good evidence for including them in this family if there is a corroborating paper trail. If the mutation is absent then there is solid evidence to look elsewhere with one of John's siblings.

We also have two Y-DNA tests from the family of **Jacob Shockey**. Both tests have observed 67 markers and they come from two of the three male lineages of this fmaily; we still have no confirmation for the lineage of Jacob's eldest son, Jacob Jr. (1770-1833).

The tests also demonstrate four mutations that occurred, two on each line. All four of these tests occurred at some point between the birth of Jacob's sons and the birth of the individuals who participated in our study in the early 1900s.

This is a good example of how we can demonstrate Jacob's Y-DNA (on 67 markers) remained unchanged from his father, Johann's. The mutations that did happen here had to have taken place later than with Jacob himself in order for him to pass on Johann's alleles to the other lineage.





Five participants from the three sons of **Isaac Shockey** have participated in our study. Two of the tests represent a father and son born in the second half of the 20th century; two of the tests represent distant cousins that both descended from Daniel (1785-1886).

As a whole, these descendants of Isaac almost have an unaltered copy of Johann's Y-DNA, at least on 67 markers. The father and son who tested have one mutation which occurred at some point between the birth of Isaac Jr. and the birth of the father who took the test.

Another mutation has been observed in the tests of both of the cousins mentioned above. This



demonstrates that the mutation at DYS481 where the alleles increased from 24 to 25 most likely occurred in 1785 with the birth of Isaac's son, Daniel himself. Besides the mutation that we mentioned above regarding John Aaron Shockey, this is the only variant that we have been able to identify which we believe happened in the first two generations of Johann's sons and grandsons.

Only two tests have been taken that represent the descendants of **Johann Abraham Shockey**. However, both of these are high-level tests coming from two separate lineages; one was a Big Y-700 and the other tested at 111 markers. We only observed one mutation from the first 111 markers and it only occurred on the line of John. The Big Y-700 test

indicated three other possible variations when compared with the test we have from Valentine's.

The last two families of the Shockey clan still need more participants before we can deduce anything more. One participant of our study comes from the family of **Christopher Shockey**. Two mutations have occurred in that lineage, but without further data we are not able to conclude when these occurred. They potentially could have been introduced with Christopher himself or were as late as the participant who took the DNA test.

The six sons and three daughters of Johann Christoffel and Barbara Schacke also had a half-brother from Johann's second marriage to Anna Maria Compton (Johann also adopted Anna's daughter Catherine). At this point, we do not have any participation from this seventh family. If you descend from **Samuel Christian Shockey**, please let us know so that we can find ways to include you in our research, both autosomal and in our Y-DNA studies.



#### The Smith Family DNA

Thanks to the work of Tyson Smith we also have a great amount of information about the family of Christopher Shockey's daughter, **Mary (Shockey) Smith** (c.1776). One of our long-term goals is to have something like this for each of Johann's daughters and granddaughters noting their husbands' haplogroups and any Y-DNA information that is available. Because women can not inherit or pass along a Y chromosome, we obviously can not collect that data for the mothers of these lines. However, we can collect data from their husbands and sons that helps to validate some rumored lineages. Here is what we have for the Smiths of Virginia.

Jacob Smith and Mary Shockey had five sons and we know the names of four of them: John, Abraham, Henry, and Jacob Jr. They also had two daughters: Hannah and Mary. The Y-DNA evidence demonstrates that the line of John is indeed part of this Smith clan and supports the inclusion of his lineage. Triangulated DNA (see the article below) provides additional evidence that all of these lines were related to the Shockey clan. Mary's husband, Jacob Smith (c.1770) came from the E-BY72435 Haplogroup. Following is a diagram of the Y-DNA lineages that have been tested from the Smith family.



# The ThruLines® Project

Ancestry.com introduced one of their most powerful tools for DNA research in 2019 called ThruLines® which "shows you how you may be related to your DNA matches."<sup>8</sup> The tool displays potential relationships between you and your DNA matches based on family trees that include your common ancestors. Ancestry will display potential ancestors and connections through your 5th great-grandparents.

Keep in mind that the results of the tool are only as accurate as the trees themselves. If you or someone else have made mistakes following the traditional paper trail then the results of your connections will reflect those mistakes. ThruLines® shows DNA relationships, but relies on traditional research to display those relationships.

We use the family tree linked to your test to find people who are in your tree and are also in your matches' linked trees. Eleven Shockey descendants have now shared the results of their Ancestry.com tests. We are currently using that data to build cluster charts of shared relatives.

Sharing your DNA results is *free* if you have already taken a normal DNA test supplied by Ancestry.com; all you need to do is send an invite to <u>JeffreyNiles@gmail.com</u> through your DNA settings on Ancestry.com. Our goal is to find about 50 participants who will represent each of the lineages of Johann Schacke's grandchildren; at this point we have five of his sons and nine of his grandchildren represented in our project.

#### What We Have Learned

**Lesson #1**: Perhaps the greatest help so far has been to show that Christian Shockey (1756-1829), the husband of Mary Ann Welsh, was most probably the son of Valentine (1739-1810) and not his brother. Sharon Wetzel and Shirley Lee Shockey have presented strong evidence that these were two different men. Christopher (1757-1779, the son of Johann) was the individual who was hanged for using counterfeit money and had three or four children who moved with their mother to Virginia after his death. Christian (1756-1829, the son of Valentine) was the individual who settled in Somerset County, married Mary Ann Welsh and had nine or ten children.<sup>9</sup>

(<u>https://support.ancestry.com/s/article/AncestryDNA-ThruLines</u>, accessed 30 March 2023). <sup>9</sup> Shirley Lee Shockey, "Shockey Ancestry" (2010), 26-31; available on Ancestry.com as "Shockey

ANCESTRY 2 from Glen Shockey DNA email 24 Feb 2019,"

<sup>&</sup>lt;sup>8</sup> "AncestryDNA® ThruLines®," AncestrySupport

<sup>(</sup>https://www.ancestry.com/mediaui-viewer/collection/1030/tree/13950694/person/282433889580/media/ff cb4739-2aec-4d32-b731-966854fa5a40, accessed 30 March 2023).

The ThruLines® Project supports their presentation and indicates that the descendants of Christian Shockey (1756-1829) share a great deal of DNA with other descendants of Valentine Shockey and much less DNA with the descendants of Christopher Shockey (1757-1779). Note that this line of traditional and DNA evidence contradicts the information found in both Shockey books and online trees should be adjusted accordingly.

**Lesson #2**: Another mystery that this project is starting to shed light on is the identity of Abraham Shockey (1788-1863). We're working with the theory that he was possibly the son of Abraham Shockey Sr. (1755-1861), perhaps from a previous marriage or possibly a grandson of Valentine Shockey (1739-1810). Descendants of the younger Abraham demonstrate a strong DNA relationship to other descendants of the elder Abraham Shockey and to Valentine Shockey.

We are presently evaluating possible reasons for such a strong connection to both lines. It is possible that Abraham and Valentine simply inherited more shared DNA than the other brothers; we've all seen siblings that could pass for twins. It is also possible that the amount of shared matches merely reflects the greater size of these two families or perhaps that we just have more people participating in DNA research from these two lineages. Another possibility could be shared maternal lineages. Is it possible that Abraham Shockey Sr. was first married to a sister of Barbara Bixler, Valentine's wife? Perhaps. We obviously have more work to do here and we need more participants in this project.

**Lesson #3**: The evidence is very scant thus far, but we are seeing a few shared connections that might help us confirm the descendants of Magdalena Shockey, one of the three daughters of Johann Schacke. We also have several DNA connections confirming the lineage of Samuel Christian Shockey (b.1774), the half-brother of the other nine Shockey siblings.

#### Help Us Fix Inaccuracies

We need your help to make ThruLines® a more accurate tool. Errors in any family tree can skew the results so that the tool spits out faulty suggestions for DNA connections. Below are some observed discrepancies that are often repeated in user trees. Please check your tree and help us clean these up a bit.

**Christopher, Samuel Christian and 4 Christian Shockeys**: Yes, this does get confusing; there are so many men in the early generations with the same names. However, these six individuals are really messing up online trees and are

messing up the results of ThruLines®. Check your tree and make sure they are differentiated.

- Christopher (1757-1779) Johann Christoffel Schacke named his sixth son Christopher. This is the man who was hanged in Carlisle, Pennsylvania on 11 December 1779, was likely married to Rosanna, and had three or four children (Abraham?, John, Mary (Smith) and Henry). He is never called "Christian" in any of the records we currently have.
- Samuel Christian (b.1774) Johann named his seventh son Samuel Christian, who was born to his second wife, Anna Maria Compton. He was commonly known as just "Christian" and had at least five children (Catharine, Susannah?, Abraham, Nancy? and Rachel).
- Christian Sr. (1756-1829), Valentine's second son was also named "Christian." This is the man who married Mary Ann Welsh and had ten children (Valentine, William, Christian Jr, Mary Susanna, Abraham, Barbara, Levi, Margaret, Nancy and Drusilla). This Christian settled in Somerset County, Pennsylvania.
- Christian Jr. (1788-1844), son of Christian Sr. listed directly above. He married Miriah Eckenberger and they had at least six children (Mahalah, Lavina, Jeremiah, Catherine, Susanna, Eli, Mitilda? and Hulda Lee?).
- Christian Sr. (1775-1863), Jacob Shockey's third son. He married Catherine and they had twelve children (Martha, Jacob, Solomon, Christian Jr, Elias, Susan, Abraham, Anna Elizabeth, Catharine, Mary, Margaret and Sarah A). This Christian settled in Franklin County.
- Christian Jr. (1816-1896), son of Christian Sr. listed directly above. He married Mary Young and they had seven children (John, Sarah Anne, Mary, Julian, Jonas, Daniel and Jane "Jennie"). He also settled in Franklin County.

Probably the worst part of this whole Christopher/Christian mess is that Christopher's children have been randomly placed somewhere else in the family, usually under Isaac or Abraham (Christopher's brothers). So search for his children and make sure they aren't floating somewhere else in your tree. Watch for John Shockey (c.1775-1859), Mary Shockey (c.1776) wife of Jacob Smith, Henry Shockey (c.1780-1859). Note that Henry would have been born around the time of Christopher's death; they probably had another older brother named Abraham (c.1775). Christopher's wife remarried and also had two more children that are often included as Christopher's children, but were not (Eva and Jacob Shilling Jr.)

**Nancy Shockey (1802-1893)**: Nancy was the daughter of Christian (1756-1829) and granddaughter of Valentine (1739-1810). She married Adam Shultz and they had around 14 children. There are some trees that incorrectly place Nancy as the daughter of Samuel Christian Shockey, Christian's half-brother.

**Ann Shockey (1780-1867)**: Ann was the daughter of Abraham (1760-1782) and granddaughter of Valentine (1739-1810). Her father died in the Revolutionary War leaving three small children, including Ann. She later married William Barrick. There are some trees that incorrectly put Ann Shockey under John Aaron, Valentine's brother.

**Daniel Hullinger Jr. (1786-1856)**: Daniel was the son of Daniel Hullinger Sr and Nancy Ann Shockey (1767-1836), the daughter of Valentine (1739-1810). Some older resources and online sources incorrectly have Daniel Hullinger (1786-1856) confused with his nephew (b.1808), the son of Christopher Hullinger.

**Abraham Shockey (1788-1863)**: OK, so we are all confused by the overuse of the name "Abraham Shockey." Forget counterfeiting; some of these parents should have been hanged for replicating this name. There were at least 24 men named Abraham Shockey born between 1755 and 1850. Yikes! However, the Abraham Shockey who died in 1863 is the one who gets floated all over the place.

What's really messing up ThruLines are the trees that put him under John Aaron. Almost certainly, he was not the son of that lineage. DNA as evidenced by his descendants demonstrates that he was from either the line of Abraham (1755-1861) or Valentine (1739-1810). I believe that there are two scenarios that explain the plethora of matches his line has to those two families:

- He was perhaps the son of Abraham Sr. through a first marriage and perhaps (just a working theory) that wife was related to the Bixlers. Maybe! The problem is that Abraham Jr. was never counted in a census with Abraham Sr. and is never mentioned in connection to him.
- 2) He was perhaps the son of Christian Shockey (1756-1829), the son of Valentine. The problem with this theory is that his birth date on his headstone (22 Feb 1788) is five years and one day different than the birthday of Christian's son, according to Christian's pension records (21 Feb 1793). Some of his other children have this same issue, so this is a possibility that would explain some of the DNA connections.

Either way, this Abraham was not the son of John Aaron and our trees should be fixed to reflect that.

**Henry Thomas Shockey (1830-1906)**: Henry was the son of Jacob Shockey (1806-1903) and the grandson of Abraham Shockey (1755-1861). Some trees have inaccurately made him the son of his great-uncle, Jacob (1749/50-1803). An 80 year old papa! Zoikes!

**John Shockey (1775-1859)**: John was the son of Christopher Shockey (1757-1779). Some of his daughters and granddaughters are often conflated with women who shared similar names.

- Susannah Shockey (c.1803) His daughter Susannah first had a son (Allen Shockey) with William Gannon, married Andrew Burton with whom she had about ten children, and then later married Andrew Martin and Adam Birchfield. She is often conflated with a certain Anna Polly Birch.
- Elizabeth (Galloway) Blankenship, daughter of Catherine Shockey, has been conflated with a different woman of the same name who also married a certain Hiram Blankenship.
- Caroline (Maynard) Keesee (1860-1930), daughter of Eva Shockey, is often conflated with her niece, Caroline Eva (Maynard) Keesee (1865-1905).

#### **Shared Matches**

Following is a chart of the first three Shockey generations in America. I have noted which lines are supported by DNA evidence (note, not proof or confirmation), which lines have met triangulated standards, and which lines are merely rumored to have existed (note, many of these [in gray] are based on poor research, but some probably represent authentic oral traditions). The goal is to expand this chart to the first four generations to include Johann's great-grandchildren, but it's not quite ready and we need more participants in this project.

Please take some time to double-check names and dates. Let us know if something doesn't fit with your research; we'll double-check our work, explain differences, and/or make changes.

Note that participating in the ThruLines® Project is free if you've already taken an Ancestry test. Just send Jeff an invite so that your matches can be evaluated and included in the project.

Children of Johann Christoffel Schacke (1714-1775)	Y-DNA Confirmation	Autosomal DNA Evidence	Triangulate DNA Confirmatio
lentine Shockey (1739-1810)		Scant Light Good Great	Command
Valentine Jr. (c.1756-1800)		Light	-
Christian Sr. (1756-1829)	2	Great	Yes
Abraham (c.1760-1782)		Light	-
Barbara (c.1764), m. Nichols		if she was daughter to Valentine S	r.(probable) or J
Joseph (c.1767-1861)	6	Substantial	Yes
Nancy Ann (1767-1836), m. Hullinger	) Dumor	Substantial	Yes
John (1753), Edward (1761), Isaac (1762), Jacob (1766), Elizabeth (1768), Lewis (1773	) Rumor	ed or Unconfirmed lines	-
zabeth Shockey (c.1741), m. Hollin		None thus far	-
hn Aaron Shockey, Sr. (1743-c1820)	Y-DNA	Scant Light Good Great	Triangulate
Jacob Sr. (c.1762-1818)	1	Scant	Yes
John Aaron Jr. (1764-1837)	1	None thus far	-
Elizabeth (c.1768)		None thus far	-
Lewis (1782-1852)	2	Scant	-
David (1766), Christian (1780), Isaac (1784)	Rumor	ed or Unconfirmed lines	-
rbara Shockey (c.1745)		None thus far	-
gdalena Shockey (c.1747), m. Stombaugh		Scant Light Good Great	Triangulate
Magdalena? (1765), m. Shenefelt		Scant	-
George (1776)		Scant	-
Henry (1762), Michael (1764), Elizabeth (1766), Magdalena (1778)	Rumor	ed or Unconfirmed lines	-
cob Shockey, Sr. (1749-1803)	Y-DNA	Scant Light Good Great	Triangulate
Magdalena (1766), m. Born/Burns, Mowen		Scant	-
Barbara (1767-1841), m. Heck		None thus far	-
Jacob Jr. (1770-1833)		Scant	-
Susanna (c.1772), m. Bigler		None thus far	-
Isaac (1773-1844)	1	Scant	-
Christian (1775-1863)	1	Scant	-
Eve (c.1777), m. Nichols		None thus far	-
Anna, m. Heck		Scant	-
ac Shockey, Sr. (1752-1801)	Y-DNA	Scant Light Good Great	Triangulate
Eve (1769), m. Goshen		None thus far	-
Abraham Sr. (1771-1846)	1	Scant	-
Isaac Jr. (1773-1844)	1	Light	-
Hannah (1777-1788)		None thus far	-
Daniel Sr. (1785-1886)	2	Scant	-
raham Shockey, Sr. (1755-1861)	Y-DNA	Scant Light Good Great	Triangulate
Abraham Jr. (1788-1863)		Good	Yes
Margaret (1793-1890), m. Markley		Light	Yes
Susan (c.1794)		None thus far	-
John (1796-1886)	1	Light	-
Barbara (c.1799)		None thus far	-
Mary (c.1802) Cathorine (c.1805), m. Danley		None thus far	-
Catherine (c.1805), m. Donley Valentine (c.1806)		Light None thus far	-
Valentine (c.1806) Jacob (1806-1903)	1	None thus far	-
Jacob (1806-1903) Joseph (1813-1814)		Good Died in Infancy	-
Rachel Jane (1815-1876), m. Kemp		Scant	-
Elizabeth (1815-1876), m. Kemp			-
Nancy (c.1812), m. Thompson		Light Scant	-
Valentine (1781), Susan (1794), Barbara (1799), Mary (1802), Nancy (1812)	Rumor	ed or Unconfirmed lines	-
ristopher Shockey (1757-1779) Abraham (c.1775)	Y-DNA	Scant Light Good Great None thus far	Triangulate
John (c.1775-1859)	1	Great	Yes
Mary (c.1778), m. Smith		Light	Yes
Henry (1780-1859)		Light	-
therine - his second wife's daughter from a previous marriage		Circumstantial Connections	-
		Silvamotantial Connections	
muel Christian Shockey (1774)		Scant Light Good Great	Triangulat

Samuel Christian Shockey (1774)	Y-DNA	Scant Light	Good Great	Triangulated	
Catherine (c.1797), m. Jenkinson		Light		-	
Susannah (1798-1879), m. Harr		Scant			
Abraham (c. 1808-1838)		Nonet	None thus far		
Rachel (1816-1896), m. Kuhns		Light		-	

# The GEDmatch Project & Triangulated DNA

GEDmatch is a free cross-platform comparison tool that allows you to upload your raw DNA data from other testing companies like Ancestry.com, 23andMe and MyHeritage. With that data you can then compare your DNA to thousands of matches from other platforms and then actually examine which strands of DNA you share. I find it remarkable that Ancestry.com still does not have this capability (even their beta DNA Painter falls far short). However, GEDmatch even allows Ancestry users to access this feature and see what Ancestry won't show you. GEDmatch is being utilized by thousands of users to break through brick walls on family trees, confirm ancestral relationships and even to find biological parents.

The Shockey clan has our own project on GEDmatch and you are invited to join. We can search much faster with users who all know their common ancestry. Then as we identify specific segments of DNA that are shared by individuals we can move past DNA "evidence" to the realm of DNA "confirmation."

Essentially, the difference amounts to this. When you and one other person share DNA and both know where your family trees meet together you have established evidence for those two branches. However, when that connection takes place beyond third cousins, the possibility of you sharing more than one common ancestor begins to grow and the waters start becoming pretty murky. Simply having shared DNA with your fourth cousin is not considered strong enough "evidence" to "confirm" the parentage of your third-great-grandparents.

However, if you can triangulate a shared segment of DNA with a third relative and can demonstrate how each family tree intersects, then you can make the claim that this DNA confirms their common ancestry. For example, I have several cousins whom I know are also related to me two, three, or even four times. We each have Shockey ancestors who married Bittners, Boyers and Schafers (all firmly rooted families that settled in Pennsylvania and Ohio). But simply identifying a segment of DNA that we share is not enough to make the claim that this segment came from our common Shockey ancestor. Often we all have crossovers like this that we are unaware of, especially if your family has a long history that has been established in one geographical region.

However, if that segment of DNA can be demonstrated to be shared with a third distant relative that has Shockey ancestry, then we can pinpoint our common ancestral father and mother, and make the claim that we have confirmed each of those Shockey lineages. And while we don't know which of those two parents that DNA segment came from, it is enough to claim "confidence" that our ancestor had those two parents.

Following are some of the lines we have confirmed with GEDmatch and cited on WikiTree.com.

- Confirmed that Valentine Shockey (1739-1810) and Abraham Shockey, Sr. (1755-1861) have passed shared DNA to their descendants and are both the sons of Johann Schacke and Barbara. This also gives us further evidence supporting the hypothesis that Abraham Shockey (1788-1863) was the son of Abraham Sr.
  - Kaylene Silvester, Daniel Shockey and Susan Sombeck share a 25.1 cM segment on chromosome 2.
  - Glen Shockey, Howard Smith and a half 4th cousin (HH) share a 12.1 cM segment on chromosome 22.
- Confirmed that Valentine Shockey (1739-1810) and John Aaron Shockey (1743-c.1820) have passed shared DNA to their descendants and are both the sons of Johann Schacke and Barbara.
  - Earnest Howard Wotring Jr., Camelia Crapo and Robert Larry Smith share a 7 cM segment on chromosome 12.
- Confirmed that Isaac Shockey (1752-1801) and Christopher Shockey (1757-1779) have passed shared DNA to their descendants and are both the sons of Johann Schacke and Barbara.
  - Latasha Shockey Jackson, Brian Kunde and a 5th cousin 2 times removed (LME) share a 20 cM segment on chromosome 16.
- Confirmed that Valentine Shockey (1739-1810) and his niece, Mary (Shockey) Smith (c.1776), likely the daughter of Christopher Shockey (1757-1779), have passed shared DNA to their descendants. This gives us further evidence supporting the hypothesis that Christopher's wife, Rosanna, moved south presumably with her parents and siblings and took their children to Virginia where they established those lines.
  - Ben Smith and Jeffrey Niles and a 6th cousin (BJH) share a 12.8 cM segment on chromosome 3.
  - KC and Sarah Sears and Jeffrey Niles share a 8.3 cM segment on chromosome 15 (partial of the segment mentioned below).
- Confirmed that Christian Shockey (1756-1829) and Nancy (Shockey) Hullinger (1767-1836) have passed shared DNA to their descendants. This gives us further evidence supporting the hypothesis that they were both the children of Valentine Shockey (1739-1810) and Barbara Bixler; and that Christian should be distinguished from his uncle, Christopher (1757-1779).
  - Sarah Sears and Jeffrey Niles and a 6th cousin (BJH) share a 10.1 cM segment on chromosome 15.

- Confirmed that Jacob Shockey (b.1804), Samuel Vandiver Shockey (1820-1890) and their half-brother, William Henry Shockey (1832-1907)), are all the sons of Joseph Shockey (c.1767-1861).
  - Glen Shockey, Daniel Shockey and a half 4th cousin (HH) share a 7.4 cM segment on chromosome 19.

We have only pursued leads where the triangulation helps us connect the first four generations of Shockeys: Johann, his children, grandchildren and great-grandchildren. More data will become available as more people join the GEDmatch project. However, be sure to check your own matches and compare them to your matches on other platforms that give you access to your DNA (i.e., 23andMe, FamilyTreeDNA, and MyHeritage); you may find overlap with someone on GEDmatch that triangulates with someone elsewhere like I did for my own results.

We would love to see more participating to maybe eventually do a Lazarus kit on each ancestor but we need tons more from each line.

If you have an interest in joining the "Shockey - Schacke - Jaggi - Jacky - Jacob" Ancestor Project, please email Charlotte Shockey (<u>genealogy82@gmail.com</u>) or Jeffrey Niles (<u>JeffreyNiles@gmail.com</u>) with your GEDMatch number and we'll get you set up.

# How to Download RAW DNA

#### Ancestry

- 1. From your DNA Settings, select the test you'd like to download.
- 2. Scroll down to the Download or Delete section and select Download DNA data.
- 3. Select the box to confirm that you understand, and click Continue.
- 4. Verify your account by choosing 1 of 2 methods: ...
- 5. In the email, select Download DNA Data.
- 6. Click the green box that says Download DNA Data.
- 7. Your DNA data will be downloaded to your hard drive in a ZIP file. I suggest right-clicking on it to view it in your downloads folder, then moving it immediately to a dedicated DNA folder in your genealogy files on your computer. Make sure you store the file in a secure location.

#### FamilyTreeDNA (FTDNA)

- 1. Sign in to your kit.
- 2. On your dashboard, locate the Autosomal DNA Results & Tools widget.

- 3. On the Autosomal DNA Results & Tools widget, click the See More button, and select Data Download.
- 4. Choose the 'Build 37 Concatenated Raw data' option.

#### 23andMe

- 1. To download your raw data, click on the Download tab from within the top navigation bar within the Browse Raw Data feature.
- 2. Scroll down until you see the "Submit request" button.
- 3. You will receive an email to the email address associated with your 23andMe account when your raw data download file is ready.

#### Living DNA

- 1. Sign in to your Living DNA account.
- 2. Select your DNA kit. Click "DNA Profiles" in the left sidebar then select your DNA kit.
- 3. Download your DNA data. At the bottom of the page, check the "Consent" checkbox then click "Download autosomal (family ancestry) raw marker data".

#### **MyHeritage**

- 1. Hover over the DNA tab and go to 'Manage DNA kits':
- 2. On the right-hand side of the MyHeritage kit, click on the three dots and choose 'Download':
- 3. A window will pop up with information on what you are about to download.

# How to Upload Your DNA to GEDMatch

GEDmatch does not offer its own DNA testing services but does allow you to upload your DNA test data from testing offered by any of the following test providers:

- 1. Log into <u>GEDMatch</u>
- 2. Click on "Generic uploads (23andMe, FTDNA, AncestryDNA, most others)"
- 3. Provide as much information as you can in the form.
- 4. Fill in your consent.
- 5. Click the upload button and wait until you see the word "Finish."
- 6. Wait for the processing to finish.
- 7. Once you have a GEDMatch number assigned you can join the Project.
- 8. Find the "Free Tools" area and at the bottom click "Ancestor Projects."
- 9. Search for the 'Shockey Schacke Jaggi Jacky Jacob' group to join.