

**Exciting Possibilities from DNA Testing**

# Family Chronicle

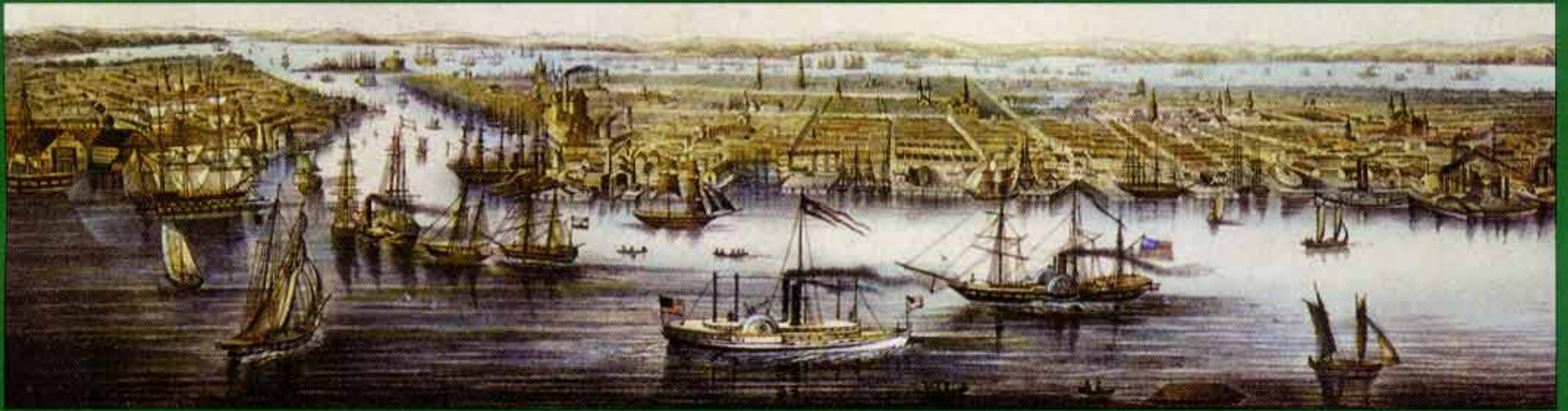
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# What's Next in the World of DNA Testing?

Megan Smolenyak Smolenyak considers some of the possibilities of "genetealogy".

OVER THE LAST COUPLE of years, genealogists have started to dabble in the world of genetic genealogy, or as I like to call it, genetealogy. When it finally became available on the individual consumer level, a few curious souls ventured forth to be the first in line to experiment on their own families with this new technology. As they began posting their early results on the Internet and costs slid from one-time splurge to a more affordable range, others joined the pioneers and launched their own projects.

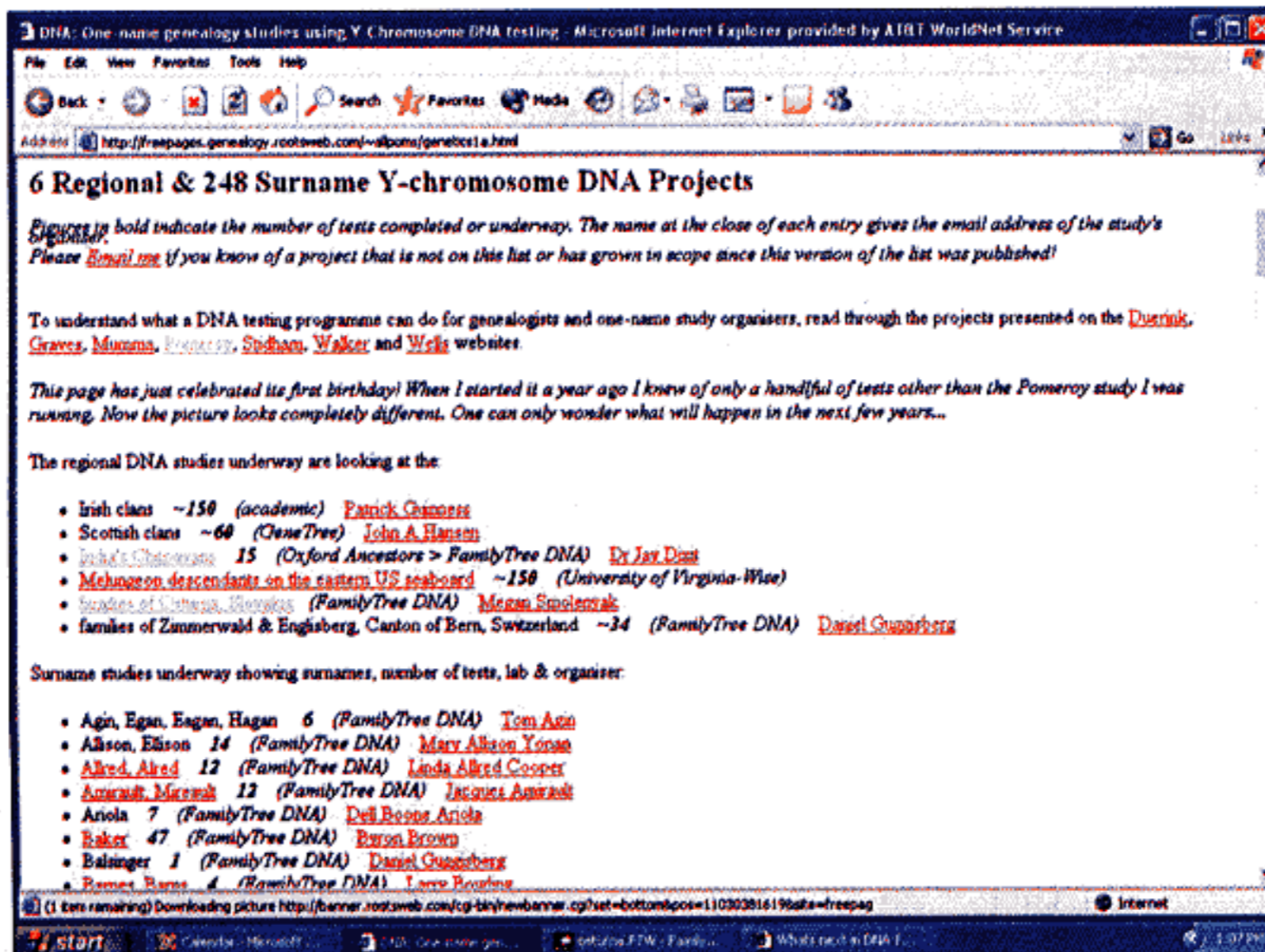
Very quickly, a pattern revealed itself. Virtually everyone was doing Y chromosome-based surname studies to determine if people of the same last name were descended from a common ancestor. In fact, Chris Pomery's DNA Portal (<http://freepages.genealogy.rootsweb.com/~allpoms/genetics1a.html>) now lists almost 250 such projects.

This is a logical result of the fact that Y chromosome testing provides for such a convenient and genealogically interesting inquiry. Passed from father to son through the generations, Y chromosome DNA tidily maps to the uppermost line of a pedigree chart. Regarded in terms of a descendant tree, this means that men centuries removed from a potential common forebear at the top of a chart can test to confirm descent and earn a position at the bottom of the chart, even if the exact lineage cannot be ascertained through the paper trail. Women can also participate by enlisting the help of their father or a brother, uncle or appropriate

male cousin. Of course, some test results cause the hopeful descendant to be bumped from the chart altogether, but even this is progress as it saves the researcher from years of trying to prove a blood connection that does not exist.

I was among the so-called early adapters who decided to use her family for experimental purposes. Recruiting participants from each of four Smolenyak lines who all hailed from a tiny, Slovak village, I tested to prove once and for all that we had a common ancestor. When the results came back, we all suffered from unlinking trauma as *none* of the four lines matched. Somewhat incredulous, but grateful to have avoided devoting several more decades to proving what was apparently a myth, I began looking for ways to use DNA testing to address other genealogical questions.

I quickly discovered that I was in new territory and very few of us have even pondered what else we might be able to learn, but I finally found some researchers taking baby steps in this direction.



Chris Pomery's DNA Portal lists over 250 surname and regional DNA studies currently underway.

Although most such instances are so new that results are not yet available, I thought it would be useful to write about these ground-breakers because they are mostly dealing with scenarios that apply to some branch of almost everyone's family tree.

**Uncertain Parentage**  
While I found applications that might be categorized as ethnicity detection, history mystery resolution and forensic identification, I felt that those most directly applicable to

the greatest number of genealogists were cases involving uncertain parentage. It's difficult to find a family history researcher who hasn't at some point been frustrated by such circumstances which include instances of illegitimacy and casual or formal adoption, and somewhat less obviously, blended families involving multiple spouses. As you read about the following scenarios, I invite you to consider whether you don't have a similar situation lurking in your family tree.

## Illegitimacy

Those of us who have been genealogists for any period of time realize that illegitimacy is much more common than generally thought, or at least, was more prevalent in the past than many of us had imagined. Usually, encountering an illegitimacy brings a line of research to a screeching halt, most often by preventing us from learning anything about the father. The following are actual research scenarios where DNA testing might be able to break the impasse.

## Scenario 1: Suspected Father

Mary Jo Martin knows that her great-grandfather was illegitimate and is fortunate in that family lore has preserved likely surnames of the biological father: Strand or Strouse. For reasons that are no longer known, the mother's parents would not allow her to marry the unborn child's father and forced her to marry another man. Mary Jo researched census records for Strand and Strouse males in the appropriate timeframe and state where the birth occurred. She then used phone directories and other resources to locate descendants of these men still living in the area.

Mary Jo is obviously still confronted with a hurdle as she needs to deal with the rather delicate question of how to approach possible DNA test candidates who are

## Scenario 2: Suspected Pre-Marital Child

In my own research, I encountered the illegitimate birth of a child named Gregory in October 1824. In February 1825, his mother married a man named Alex Smolenyak and the couple went on to have four children. While it may be that Alex was a kind soul who stepped in to help a single mother, I have always suspected that Gregory was the pre-marital offspring of this same union. Perhaps, I theorized, Alex was away serving in the military and wasn't able to get back in time to make an "honest woman" of his bride.

Until DNA testing became available, I had no means of ever discerning whether Gregory was Alex's son or not, but now the possibility exists. I have already tested

given a match and the marriage four months after Gregory's birth, I would at least have a circumstantial case.

## Scenario 3: Unknown Father

As part of my own village research, I routinely help other families from Osturna, Slovakia trace their roots and recently tripped across a common scenario. An extended family now numbering in the hundreds ties itself back to an ancestor named Paul who was born in 1844. Paul was illegitimate, and as is so often the case, no father's name is given in his baptismal record.

After testing the various Smolenyak lines from this village, I opened our study to anyone with roots in Osturna. At a recent reunion, one of Paul's descendants agreed to participate in our study.



*As with other aspects of DNA testing, collection techniques continue to evolve. Participants in a recent village reunion are seen here sipping mouthwash to swish for 45 seconds and provide samples to BYU's Molecular Genealogy project.*

strangers to her. But with some diplomacy and the watered-down sensitivity to family scandal that comes with passing generations, she just may find a few men willing to undergo Y chromosome testing to see if they are related. If she is especially lucky, she may find a fellow genealogist who is just as curious about the prospect of a previously unknown cousin as she is. Assuming she is successful in gaining agreement, she will also have to have a male in her direct line tested for comparison purposes. If a match is found, her family riddle will be solved.

a couple of Gregory's descendants and know his markers or allele values. Fortunately, his mother's marriage produced another son named Jan, so I am now in the process of tracing Jan's line forward to find prospects for Y chromosome testing to compare to Gregory's line. Of course, obstacles remain. I may find that Jan's line dries up in terms of eligible males for testing. And even if I find a candidate and a resulting match, I cannot rule out the possibility that Gregory was the son of a male relative of Alex's, such as his brother (much like the Jefferson/Hemmings case). But

Osturna is still rather isolated today and only sports about 50 surnames in its records. Since our project just recently evolved from a surname to village study, only seven of these 50 names are currently represented in our database, but Paul's descendant may just match one of these seven. If he does, we will learn the family name of the birth father — and what would have been the name of all the curious descendants. And even if we do not find an immediate match, the likelihood increases as we continue to add to our surname representation.

## Casual or Formal Adoption

Adoption has a similar effect on genealogical research to illegitimacy in that it frequently brings a biological line to a dead end.

Whether we know of a formal adoption or have only heard family tales of such a situation, the information leaves us stranded in "what now?" territory. The following are early examples of researchers using DNA testing to try to knock down this particular brickwall.

## Scenario 4: Casual Adoption

Justin Howery began researching his roots about 30 years ago while still a teenager. According to Justin, "We Howerys (Howrys, Hauris, Haurys, Howreys) supposedly all descend from a single ancestor who lived circa 1400 in the Swiss village of Beromünster", but his branch of the family had preserved a tradition that they weren't really Howerys and had "just adopted a stepfather's surname somewhere along the line." More specifically, he had been led to believe that one of his paternal grandfathers (perhaps his third great-grandfather) was adopted and that his birth name may have been Hamilton.

While his research hadn't shown any substantiation of the Hamilton connection, he thought that the tradition probably held an element of truth, as family stories so frequently do. So when assorted participants on the Howery mailing list began discussing Y chromosome testing, Justin was keen to join the forming study so he could at least prove the accidental-Howery aspect of the family tale. Unlike most of us who anticipate a match, then, he hypothesized that he would not match any others tested.

His opportunity to prove this theory seemed slender as only one other Howery followed through with the initial round of testing. As Justin explained in an Internet posting, "I was expecting a dramatic disconnect between my test results and those of my test partner. Then, with a heavy sigh, I would turn from Howery research and start looking for that elusive

step-father".

But Justin was astonished to discover that the two of them were a perfect match. As he puts it, "I now have the first real evidence that my descent is really through the Howerys . . . The test results of just two guys — albeit the right two guys — dramatically swept aside a lot of meaningless and irrelevant what-ifs."

## Scenario 5: Formal Adoption

Susan King, well known president and founder of JewishGen, Inc. (<http://www.jewishgen.org>), which has done so much to help others find their roots, ironically knows very little about her natural ancestry on her mother's side. This is because her mother was adopted.

Non-identifying information provided by The Cradle Society in Chicago stated that the father of Susan's mother was a German immigrant, and a few years ago, Susan was able to have the adoption records unsealed by the courts in Cook County. All she was able to glean, however, was the name of the birth mother, Libbie Marks. Records at the time apparently did not ask for the name of the father if the child was born out of wedlock.

Susan's mother was adopted by a German Jewish family, but there were no indications whether her birth mother, Libbie, was of the same heritage. Susan suspected as much, but was having difficulty picking up Libbie's trail.

Using the DNA testing offered through JewishGen, one of Susan's brothers took the mitochondrial (mtDNA) test to seek matches for their mutual maternal line (Susan could have done the mtDNA test as well, but would not have been able to be tested for the Y chromosome). To date, four matches for her brother have been found in the Family Tree DNA database and three others were discovered in an Israeli database. All are linked to individuals of German Jewish origin, supporting Susan's postulated ethnic heritage.

A brief detour is warranted here on the topic of mtDNA testing. Experts admit that mtDNA is the scientifically challenged step-

sibling to male DNA testing for now. As more regions become available for testing on a commercial basis (and the cost of such testing drifts down to the range most genealogists would be willing to pay), the timeframe for results can conceivably be tightened. For now, however, while results can establish descent from a common female ancestor, they can usually do so only much more broadly than Y chromosome testing (unless the person's mtDNA is rare, either by haplogroup or motif) — in other words, not within what many would consider to be a genealogically relevant time span.

Because of this, those who have already participated in both Y chromosome and mtDNA testing have likely found more exact maternal matches than paternal. And since more of us match in terms of mtDNA, it is somewhat less useful as a means of distinguishing various lineages. Scientists working for the US military learned this, for instance, when testing the remains of 10 servicemen from a recently discovered crash site. Mitochondrial DNA is frequently used as a tool for forensic identification in such situations because it is more plentiful and therefore apt to survive in degraded remains. When mtDNA testing was done to help identify the men from this particular crash site, three of the 10 in this essentially random sample were found to match. While this is an extreme case, it demonstrates that under current testing parameters, mtDNA matches are not quite as genealogically meaningful as Y chromosome ones (except when used in differentiation cases as will be described in the multiple spouses scenario shortly).

Given all this, it's not that surprising that none of those matching Susan's family so far was researching Marks families. However, Susan now has evidence to support her hunch about her mother's heritage, and as she points out, "It's not much to go on yet, but if I can find a possible connection, testing that family and seeing if they match may be the only way to

prove that we are blood relatives."

## Blended Families/Multiple Spouses

Another cause of confusion in many family trees is a multiple marriage situation. In the not-so-distant past when childbirth deaths were fairly common, many men had several wives. Likewise, other risk factors frequently left young women widows who did their best to remarry as soon as possible for practical reasons.

Consequently, many of us have a legacy of multiple marriages to sort out. Once again, it appears that DNA testing might just offer fresh ammunition for attacking such situations.

### Scenario 6: Blended Family

Returning to my Osturna village study, I have a blended family situation that has defied unraveling through traditional research. In the late 1780s when the church records for Osturna started, a young widow named Anna Kanjuk Smolenyak married a man named Jan Vanecscko. As they merged their households, children from both Anna's first marriage and this second union — who were born as either Smolenyak or Vanecscko — casually bounced back and forth between the two surnames in the ensuing records.

A priest who failed to provide house numbers for an extended period in the early 1800s complicated matters by making it difficult to follow each child with absolute certainty, but it appears that at least one child who had been born a Vanecscko may have eventually settled on the Smolenyak surname. For this reason, when we had the four Smolenyak lines tested, our hypothesis was that this one line would fail to match the other three.

While we hadn't expected the

Husband:	Stephanus Vanecscko Smolenyak	More	Scrapbk	Spouses
Date born:	January 17, 1795	In	Osturna, Spis, Austria-Hungary	s
Died:	October 28, 1851	In	Osturna, Spis, Austria-Hungary	s
Buried:		In		
Wife:	Maria Krupjak	More	Scrapbk	Spouses
Date born:	March 09, 1800	In	Osturna, Spis, Austria-Hungary	s
Died:	August 17, 1885	In	Osturna, Spis, Austria-Hungary	s
Buried:		In		
Marriage date:	February 23, 1824	Beginning status:	Married	
Marriage location:	Osturna, Spis, Austria-Hungary	More	Scrapbk	
Children				
	Children	Sex	Birth dates	
4.	Nicolaus Vanecscko Smolenyak	M	November 09, 1831	s
5.	Anna Vanecscko Smolenyak	F	June 23, 1834	s
6.	Maria Vanecscko Smolenyak	F	September 08, 1836	s
7.	Eva Vanecscko Smolenyak	F	February 23, 1840	s

*Stephan was born to a Vanecscko father in 1795, but bounced between the surnames of Vanecscko and Smolenyak his whole life, as did most of his children. Eventually, most settled on Smolenyak.*

*DNA testing may reveal once and for all whether many present-day Smolenyaks are really Vanecsckos.*

other three lines to disconnect, the Vanecscko-disguised-as-a-Smolenyak theory for this one line is still alive and well. What remains to be done is to conduct additional research addressed at this specific situation. We already know the markers for Smolenyak males from this household, so we are now trying to locate an appropriate Vanecscko to test.

This is proving to be a little challenging since none of the known Vanecscko descendants from this house emigrated to the US, so we are searching for candidates in Slovakia. A couple of lines still had male candidates born circa 1890-1900, so we are trying to track down their children and grandchildren, hoping to discover that they had some sons. Barring success in this attempt, we still have at least an outside chance of testing this theory as some American Vanecko families have begun to participate in our village study. If one of these should happen to match the Smolenyak associated with this household, it would be difficult to ignore such a coincidence.

### Scenario 7: Multiple Spouses

One of the most interesting applications I've encountered is just in its planning stages, but provides an intriguing example of how mtDNA testing can be used to

resolve a family quandary. Keith Harris is dealing with a situation that applies to many of us.

He had an ancestor who was born in 1812 and lived in Tennessee. The family believes that he had three wives, but only knows the name of the third one. Keith explains that there are no church records and courthouse fires destroyed other papers, so hopes for the documentary trail are slim. However, Keith does know the name of the children as listed in the 1850 cen-

sus, and fortunately, there are several daughters. He speculates that the mother listed in this census was the stepmother to the older children and the birth mother of the younger ones.

Keith hit upon the idea of testing the mtDNA of a female descendant of several of the daughters, especially the youngest and oldest, and comparing the results. If they all match, he can't rule out multiple marriages (e.g., the possibility exists that the widowed father remarried to a female relative of his deceased wife or simply another woman of the same mtDNA haplogroup), but if they don't match, Keith can be sure there was more than one wife. And the more daughters' descendants tested, the more precise the assignment of children to the two or three wives can become. As Keith says, "Even though I have limited hope of finding the surnames of the first wife or wives, it would give me a more complete picture of the ancestors I'm researching."

### Where Do We Go from Here?

The seven examples given above are likely just the proverbial tip of the iceberg and represent only cases of uncertain parentage. Not even touched upon in this article are other intriguing possibilities pertaining to ethnicity detection

(e.g., Native American, African, Crypto-Judaic, etc.), history mystery resolution (e.g., the Roanoke Colony study recently launched by Patrick Payne) and forensic identification (e.g., Korean War remains, Hunley descendants, etc.).

Still mastering the skills required for surname studies, very few of us have started playing with other possibilities yet, but it will inevitably happen. As it does, I expect and hope that at least one increasingly popular approach will be that of a village or community study. While it's only natural that those venturing into the world of genetic genealogy would focus first on their own families, there is already an emerging trend of extending limited studies to larger groups of people (e.g., Irish clans, Melungeons, etc.) or an entire village. Chris Pomery's site now lists six such projects underway.

## **Ideally, all the DNA data from assorted resources would eventually be gathered into a master database for all of us to peruse.**

As the group coordinator for a village study for Osturna, Slovakia, I already see advantages to such an approach, particularly for towns or villages that were small or relatively isolated. Many times the answers to genealogical questions reside in the DNA of our ancestors' neighbors.

By extending our study from Smolenyaks to Osturnites, we anticipate being able to resolve a variety of previously unanswerable questions, such as the scenarios addressed in this article. Early results indicate that we may also be able to develop a more complete grasp of the pre-Osturna origins of our ancestors, as clusters are already appearing.

Our approach is to start with a snap shot of the village, in this case, the 1869 census which includes approximately 250 households. Over time, we will attempt to find a DNA sample to represent as many of these households as possible. Even in its infancy, such

an approach has already revealed one unexpected connection and will presumably uncover many others. It also allows for cost-sharing since one man's DNA can usually stand for numerous descendants associated with any one house.

And others are starting to speculate on the potential value of village or community studies. Howery, for instance, whose casual adoption example was presented earlier, offers at least two situations in which such testing could prove especially enlightening:

"It seems to me that there are countless family legends about people who were illegitimate sons of royalty or nobility and that local gentry in the Middle Ages must have left a disproportionate number of illegitimate children, nearly all of which are now invisible without DNA testing. An interesting project would be to take a

village where the local lords were resident for many generations and then test local families who've been in the same village for many generations. In other words, see if a particular Y chromosome is really spread across different surnames.

"Along similar lines, it seems to me that Y chromosome testing will end up being very interesting when applied to Scandinavian families, where the surname changed each generation (e.g., in one of my lines, Pederson to Jonasson to Carlsson). Testing locals whose families have been in the area for generations could help group male lines into "clans", which could lead to further avenues of research. For example, several of my Swedish lines can't be taken back any further because it just isn't clear which of the half-dozen people in the area — all with the same name — might be the one I'm seeking. Starting to identify other descendants of my

same lines might open further avenues of research, just like looking to county histories for all the nephews, nieces, grandchildren, etc., because you never know which one might mention that little snippet of information that will let you take the whole line further back."

### **Master Database**

Finally, I would be remiss if I did not voice the fantasy of every genetealogist — that of a master database. At present, those receiving results can generally search the database of the testing company and some other databases and forums scattered across the Internet. It may be possible in a few years to query the BYU database that now stands at 30,000 samples from across the globe, but that is not yet a reality. Consequently, seeking matches beyond a deliberately tested scenario is still somewhat time-consuming and hit-and-miss.

Ideally, all the data from these assorted resources would eventually be gathered — or entered by zealous genealogists — into a master database for all of us to peruse. Howery sums up the potential if this pipedream were ever to be realized when he says, "If the genealogical community would develop a single point database for genetic information, individual genealogists would surely find ways to use it to solve a zillion types of problems." Yes, it sounds impossible, but then, how many of us imagined we'd be DNA testing our families just five years ago?

*Megan Smolenyak Smolenyak, author of the recently released Honoring Our Ancestors: Inspiring Stories of the Quest for Our Roots (Ancestry) and the PBS Ancestors companion book, In Search of Our Ancestors (Adams Media), can be reached through her website at [www.honoringourancestors.com](http://www.honoringourancestors.com).*