

4 DNA AND SOCIETY

DNA and Music

What do they have to do with each other? Both share the so-called "1/f correlation" structure. Musicians have scored DNA sequences, and you can now hear what the secret code of life sounds like on a Moog synthesizer. A good place to start is the DNA and Protein Music site, which has samples, links, literature and CD suggestions.

April 26, 2005

Don't Ask If You Don't Want to Be Told

Hidden African Ancestors: Hidden secrets of your ancestors

Peter de Knijff

European Journal of Human Genetics 51 (2007) 509-510

The finding of a rare African male line in Yorkshire, England, demonstrates that a Y-chromosome-only reconstruction of geographic origins can be seriously misleading. It also illustrates how a hitherto unknown secret pops up during a rather innocent pedigree reconstruction by means of Y-chromosome testing. As such, it once again shows the importance of a general concept often ignored by participants of pedigree-based Y-testing: If you do not want to know, do not have yourself tested.

August 30, 2007

DONALD N. YATES and TERESA A. YATES

Cousin Marriages Produce More Children

An Association Between the Kinship and Fertility of Human Couples
Agnar Helgason et al.

Science, vol. 319, no. 5864 (2008) 813 - 816

"Previous studies have reported that related human couples tend to produce more children than unrelated couples but have been unable to determine whether this difference is biological or stems from socioeconomic variables. Our results, drawn from all known couples of the Icelandic population born between 1800 and 1965, show a significant positive association between kinship and fertility, with the greatest reproductive success observed for couples related at the level of third and fourth cousins. Owing to the relative socioeconomic homogeneity of Icelanders, and the observation of highly significant differences in the fertility of couples separated by very fine intervals of kinship, we conclude that this association is likely to have a biological basis."

February 8, 2008

King Tut's Inquest

In 2009-2010, an analysis of 11 royal mummies from around 1300 B.C.E. was carried out by an Egyptian team under the country's chief archeologist, Zahi Hawass. A television special was produced, titled "Unwrapping King Tut." Hawass and his colleagues published "Ancestry and Pathology in King Tutankhamun's Family," in *JAMA*, vol. 303, no. 7, (Feb. 17, 2010).

In a fun review article earlier this year, British journal *New Scientist's* Jo Marchant summarized much of the resulting controversy in her "Royal rumpus over King Tutankhamun's Ancestry."

We'd be interested in seeing Tut and the other putative family members' DNA fingerprint scores at the bottom of the mystery but are not aware that Hawass and his team actually published the bona fides of their investigations. From a cursory look, it is evident to us that Amenhotep and his descendants, including Akhenaten, Tutankhamun and his unidentified mother (Tiye?), all bore our marker Asian III.

Unsurprisingly, none of the royal mummies seems to have carried a Jewish marker.

It is unclear from the limited data revealed to the world by Hawass whether any had Sub-Saharan African markers.

The new Tut tiff swirls around the question of the pharaohs' African and Western European ethnicity. Without being able to shed light on that, our 18 Marker Ethnic predictor at least suggests they had Asian. Of course, this is not to say they were Asian primarily, since all peoples, ancient and modern, are mixed and may exhibit a variety of ethnic markers in their autosomal DNA.

June 13, 2011

Romanov Remains Verified

Courtney Weaver

New York Times, 07/17/2008, p.12

After extensive DNA testing, Russian officials gave final confirmation that remains found last summer in Yekaterinburg belonged to two children of Czar Nicholas II, his only son, Alexei and his daughter Maria. The remains were located about 70 yards from where the rest of the family's remains were exhumed in 1991. Laboratories in Russia, the United States and Austria conducted the testing.

July 17, 2008

Those Pesky Hunter-Gatherers Again

We have seen there was discontinuity in the genetic record between medieval and contemporary Tuscans. Contradictions keep popping up whenever geneticists seek to show continuity in human populations. The human facts are not obedient to scientific models. The latest example is an article, "Genetic Discontinuity between Local Hunter-Gathers and Central Europe's First Farmers," appearing in *Science* 326/5949:137-40 in October 2009. The authors are B. Bramanti, M. G. Thomas, W. Haak, M. Unterlaender, P. Jores, K. Tambets, I. Antanaitis-Jacobs, M. N. Haidle, R. Jankauskas, C.-J. Kind, F. Lueth, T. Terberger, J. Hiller, S. Matsumura, P. Forster and J. Burger.

Abstract. After the domestication of animals and crops in the Near East some 11,000 years ago, farming had reached much of central Europe by 7,500 years before the present. The extent to which these early European farmers were immigrants or descendants of resident hunter-gatherers who had adopted farming has been widely debated. We compared new mitochondrial DNA (mtDNA) sequences from late European hunter-gatherer skeletons with those from early farmers and from modern Europeans. We find large genetic differences between all three groups that cannot be explained by population continuity alone. Most (82 percent) of the ancient hunter-gatherers share mtDNA types that are relatively rare in central Europeans today. Together, these analyses provide persuasive evidence that the first farmers were not the descendants of local hunter-gatherers but immigrated into central Europe at the onset of the Neolithic.

It is not often that the august personages who collaborate in the field of population genetics admit to surprise, but this study exhibits a few wavering moments of—I don't want to say "humility," but perhaps—slight uncertainty. The main intransigence concerns the large presence of mitochondrial haplogroup U in the skeletons analyzed from Central Europe, 13,400 to 2300 BCE. Whereas these types of U are relatively uncommon in Europe today, they were the dominant population then. Germany and surrounding regions were still very much in the Stone Age. Conversely, the Neolithic types H, T and J, which were supposed to be sweeping across the hinterlands and introducing agriculture from the Middle East (along with a characteristic pottery called Linearbandceramik, German for "linear band ceramics," or LBK) were evidently thin on the ground and held their distance. Nowhere did the twain meet, for "we found no U5 or U4 types in that early farmer sample. Conversely, no N1a or H types were observed in our hunter-gatherer sample, confirming the genetic distinctiveness of these two ancient population samples." In other words, even the entrenched types of populations living as neighbors, U and N1a, were not mixing with each other.

Clinging stubbornly to the "classic model of European ancestry components (contrasting hunter-gatherers with early Neolithic farming pioneers)," the authors explain away the facts in simplistic fashion. With

brehtaking generalizations, they assume, and then prove, that the "U types in our hunter-gatherer samples (and their not mixing with the other haplogroups) ... extend beyond the local scale." Do they forget that a study they wrote in the same journal four years ago found a predominance of N1a in skeletons in the same region and time? See Wolfgang Haak, Peter Forster, Barbara Bramanti, Shuichi Matsumura, Guido Brandt, Marc Tänzler, Richard Villems, Colin Renfrew, Detlef Gronenborn, Kurt Werner Alt, and Joachim Burger, "Ancient DNA from the First European Farmers in 7500-Year-Old Neolithic Sites," *Science* 11 November 2005: Vol. 310, no. 5750, pp. 1016—1018.

As T.S. Eliot said, "My end is in my beginning." Thus, the venture ends where it began, with the assumption that there is but one compelling story to be told in Europe for thousands of years after about 6,000 B.C.E., and that is the triumphal march of agriculturalists across the genetic landscape. With false humility, the authors conclude, "The extent to which modern Europeans are descended from incoming farmers, their hunter-gatherer forerunners, or later incoming groups remains unsolved." But circular reasoning is circular reasoning even if it does not beget a strong conclusion.

All such studies presume a starlike and gradual diffusion of people. Hence, they expect to see broad patterns of continuity in time and space. Unfortunately, human history is fraught with disjoint as well as discontinuous phenomena. The ant farm models of population genetics cannot begin to comprehend the complexity of the past or do it justice.

October 1, 2009

Gypsy Migrations

The Gypsies, or Roma, or Romani (so called because of their concentration in Romania) are a far-flung distinctive population with a lot of diversity. In our database, we have samples of four Gypsy populations, plus samples for Romania, Macedonia and Hungary that you can match if you have even a small degree of Gypsy/Romani.

Gypsy DNA can sometimes be conflated or confused with Jewish DNA because both populations originated in the Middle East and often lived in the same Central European areas in modern times, but true Gypsy matches usually come with Indian, especially north Indian

matches, because that's where the Gypsies lived around the 900s before they backtracked into Iran and Turkey and eventually crossed the Bosphorus into Europe.

The Gypsy language, Romani, shows a strong Romanian influence but its basic vocabulary and grammar point to a north Indian origin.

The Gypsy religion, on the other hand, is not Indian or Hindu but closest to Jewish, Persian and Zoroastrian forms of monotheism.

"It is not known when or why the Gypsies left India but they were living in Iran by the 10th century A.D. The Iranian poet Firdausi (c. 930-1020) wrote of the Gypsies in his epic history of the Iranians, the *Shah Nama* (Book of Kings), that they were originally a tribe of musicians who had been sent to the ruler of Iran by an Indian king. Once they had eaten the ruler out of house and home, the Gypsies took to the roads. By the 11th century Gypsies were living in the Byzantine empire and soon afterwards were spreading through the Balkans. When the Ottoman Turks began to overrun the Balkans in the 14th century, groups of Gypsies dispersed across western Europe, reaching Bohemia in 1399, Bavaria in 1418, Paris in 1421, Rome in 1423 and Spain in 1425. In the early 16th century Gypsies spread to Britain, Scandinavia, Poland and Russia, but the Balkans remained the main Gypsy centre," wrote John Haywood, *The Great Migrations from the Earliest Humans to the Age of Globalization* (London: Quercus), p. 142.



Shari commented on Oct. 16, 2011: According to my mother's Fingerprint Plus DNA test, both of her parents had Jewish I and Jewish III DNA. One parent had Tatar/Khazar DNA (Jewish IV). India was Mom's Top World Match. Mom's mother was genetically Roma-Gypsy. To date there is no genealogical evidence that Mom's father was either Roma-Gypsy or Jewish. I'm wondering if the combination of Jewish I and Jewish III along with Indian (from India) ancestry is the typical DNA pattern found for persons of Gypsy-Roma ancestry. Perhaps Jewish I and III could also indicate only Jewish ancestry, a possibility for Mom's father's ancestry. Another possibility would be that her father had unconfirmed Gypsy-Roma ancestry. One or the other parent having Jewish IV DNA may provide a clue. I enjoyed reading "Gypsy Migrations."

I've also found the following Internet article to be interesting. Dr. Hancock suggests that Romani had "military" beginnings on the basis of his linguistic and historical research: "An examination of the earliest words in the Romani language suggests a number of things: firstly that there is little in the original, 'first layer' Indian vocabulary that reflects a nomadic or itinerant population, but rather it points to a settled one; and secondly that while there are not many original words for e.g. artisan or agricultural skills, there are quite a few military terms ... " From: "On Romani Origins and Identity," Ian Hancock The Romani Archives and Documentation Center, The University of Texas at Austin, <http://www.radoc.net/>.

Donald Locke commented on Oct. 18, 2011: "Gypsy DNA can sometimes be conflated or confused with Jewish DNA because both populations originated in the Middle East." I would disagree with this opinion that the Romany originated in the Middle East when we clearly originated in South Asia. India, Sri Lanka, Nepal, parts of Pakistan. I am of the English Romanichal vista "clan" and the Romanichal vista Y DNA results clearly show a high average of our male population carrying Y Haplo Group H1a.

More importantly, I am the researcher who discovered the relationship between marker 425 = 0, null to the Romany H1a male lineages. To date, of all the Romany H1a male lineages identified so far, of all those tested to the 67 marker level, 100 percent were found carrying this same null

value marker mutation in common regardless our surnames, and regardless which Romany vista "clan" we hail from. Romany of England, Scotland, Hungary, Bulgaria have found Y Haplo H1a with the 425 = 0 marker mutation, which clearly links the Romanichal vista to the Roma vista's of Europe. mt Haplo Group M5a1, which is also being claimed as South Asian in origin, has also recently been discovered amongst the English Romanichal. I am the administrator of the Y Haplo Group H and Romany DNA projects with FTDNA. To date not a single Asian Y Haplo H1a male has been found carrying the 425 = 0 marker mutation. This mutation, so far, is only found among the European Romany male population. And as far as I am concerned, H1a with the 425 = 0 marker mutation = Romany origins. Donald Locke

Steven commented on May 11, 2012: My name is Steven, and I have found out that my real father was Roma/Gypsy. My mom was Jewish from Morocco. There are a group of people in eastern Turkey called Kurds, and the name Sindh is a common surname with them. I believe they traveled to India, backtracked to Turkey and then went to Germany/Austria. This group became the Sinti Rom of the Rhinelands. That, however, is the Sinti; the other Rom I'm not sure.

Theo commented on July 31, 2013: Hello. While your article is interesting and should be accurate from a scientific point of view, I would like to make some amendments to your cultural references. Back home, gypsies are called Romi, or Rom ethnics, and that distinction makes no linguistic sense in Romanian. This leads me to believe they inherited the name from an older distinction. As a native Romanian, to me the gypsy language makes absolutely no sense. I can't understand a thing until they actually switch to a different language.

Mel commented on May 17, 2014: A few corrections ... The word "Romani" has nothing to do with Romania, as stated in the article above. The word is the feminine adjective form of "Rom," which means man in the Romani language. Our religion tends to be Christian, not "Jewish, Persian and Zoroastrian forms of monotheism."

October 5, 2011

The Sea-Changes of American Genealogy

"For most Americans, the story of their nation's origins seems safe, reliable and comforting."

So begins Elizabeth Caldwell Hirschman's Preface to her new collaboration with Donald N. Yates. Their book *Jews and Muslims in British Colonial America* appeared in February 2012 from McFarland & Co.

Subtitled "A Genealogical History," it presents an iconoclastic new narrative of American history beginning with an examination of the shipping companies organized in England to bring settlers to North America and concluding with a chapter on Georgia, the last "and most Jewish" colony.

Perhaps nothing better epitomizes the sea-change that many genealogies underwent in the American experience than the case of Sir Francis Drake. The original family name was Sephardic Jewish, and the family crest featured six-pointed stars. As the story of America evolved, these were converted to more innocuous, less-revealing eight-pointed stars in engraved book plates and other illustrations.

As well as firing a definite shot across the bow to traditional American genealogies, the study also gives us some delicious smoking guns. In the Massachusetts chapter, for instance, the genealogy of many Pilgrims and Puritans is revealed to contain Jewish or Muslim ancestry. In the Virginia chapter, it is pointed out that Patrick Henry's mother was Jewish, and she was married to a Muslim merchant from Aberdeen, Scotland.

Over 5,000 names are evaluated, and capsule etymologies given for them.

There are illustrations, references, notes and an extensive index. *Jews and Muslims in British Colonial America* is the second in a series of historical studies that began with the same authors' *When Scotland Was Jewish*, published in (2007). The series will conclude with *The Early Jews and Muslims of England and Wales*.

Jews and Muslims can be ordered for \$45 from McFarland and Co., Amazon, DNA Consultants Online Bookstore or any bookseller. It is also appearing in an electronic edition that will be available soon.

April 4, 2012

Melungeon Tumult

It used to be that Melungeons (no, I won't give you a link to this hot potato) were seen as a quaint historical ethnic group in the Appalachians. They were followed with a certain quirky interest by a handful of academic researchers and genteel listers on the Internet.

Then the *Journal of Genetic Genetic Genealogy* of the International Society for Genetic Genealogy published an article titled "Melungeons, A Multiethnic Population," by Roberta J. Estes, Jack H. Goins, Penny Ferguson and Janet Lewis Crain. The article got picked up by Fox News and The Associated Press and was trumpeted on one of the genealogy lists like this:

Extra ! Extra ! Read all about it.....

<http://tinyurl.com/cdb8ama>

<http://www.foxnews.com/us/2012/05/24/dna-study-seeks-origin-appalachia-melungeons/>

<http://www.npr.org/templates/story/story.php?storyId=153634685>

<http://tinyurl.com/c5ebfuv>

What ensued was like a box of flying squirrels being dumped in the living room of a trailer during a tornado. Here are some random responses from Melungeon researchers (not to call them Melungeons, per se). We don't have a dog in this fight (or squirrel), but couldn't resist reporting.

*In my opinion this "peer reviewed" report contains more *misinformation* than most of the books and magazines that have been published in the last 20 years.*

This doesn't hold any more water than Brent Kennedy's theory.

Just not possible to to make an R1a or R1b baby out of an E-3 man and a white woman.

These little oversights are the things that can fuel class action lawsuits it would seem to me.

They wouldn't have wrote [sic] what they did in the article if the paper hadn't been published. I have been saying for years Jack was padding that project with the E haplogroups for his own purposes and this proves it.

And again your "'disagreemen'" is with the "media" in this case the AP and all the Newspaper's that published the article, which there appears to be different version.

Since article was based on the "Peer Reviewed" article by JOGG can you tell us how many of the peers were certified genealogist?

Well, I monitor this list, and I ... have not seen any characteristics [sic] among any of the Melungeons on the ridge, to indicate that they were mixed with Africans. No kinky hair, thick lips, large hips, dark eyes, etc. Mine had long straight hair, slim features, long slim fingers, and a bright turquoise shade of eye coloring. I don't see this at all. Look at the pictures of the Bell family that were published. I also did not see any mention of the haplogroup in the articles. How are we, the public going to see the breakdown of who is who?

My opinion is, I'm not so sure why they have such a personal vendetta to prove the melungeons weren't who they said they were. Maybe it will be solved once and for all now.

They did not bother to mention that they used dna that I had helped to collect for this group or they would never have had any Gibson data. Also they were specifically told on more than one occasion not to use data that I had recruited. Also, secretly, they cut me out of the sharing on this group.

Also, at least one of this group vowed never to agree to have their name attached to it. I guess it isn't any trouble not to keep your word. I think it is past time people stopped trying to make the melungeons to be something they were not and regurgitating old data. When I learned that Roberta and these were doing this article she quickly removed it from her site and represents herself on the site as a "scientist".

DONALD N. YATES and TERESA A. YATES

You can be sure this is not the last of this. They should be expecting it. I can't believe so many families have been assigned ancestors without any evidence at all. I would call it capricious but it's more akin to arrogance.

You write about Jordan Gibson, yet you omitted the one DNA source from his line. Why? Was it because his haplotype was 11 and not African? Between this article and Wayne Winkler's recent radio interview, you have joined the ranks of Plecker (racist public health official Walter Plecker).

Shame on you.

The genealogies are strung together with no documentation. For instance they write the sons of Gilbert Gibson; Jordan, Gideon and George went to Sandy Bluffs when the records show Gilbert's sons on tax list and court records in Louisa County. The Gideon and Jordan Gibson at Sandy Bluffs were clearly different people, born at different times.

I know of no documentation showing the Collins family from the Pee Dee River related to Vardy Collins or the Collins families on Newmans Ridge. There are also no records that I know of that show Jacob Wolf and James Mooney of Baxter County, Arkansas, were ever in Hawkins/Hancock County. These are just a few of the inaccuracies and misinformation from this report, I am getting together the documents to back this up and will be posting it shortly.

I would like to see a serious discussion of this report with questions answered rather than a back and forth on who should be allowed to do research.

Update: The squirrely article was apparently the kiss of death for JOGG, whose webpage lists no articles published after that issue.

May 25, 2012

Elizabeth Hirschman, Modern Pioneer

We interviewed Rutgers University marketing professor Elizabeth Caldwell Hirschman, author of several books and articles incorporating DNA in her research, to hear her personal story in our continuing series about the people behind the scenes in the field of DNA testing.

When did you first get interested in DNA?

ECH: I got interested in DNA testing around 2000 when I discovered I was Melungeon after reading Brent Kennedy's 1994 book. Brent suggested several different ancestries that possibly contributed to the Melungeon population, and I wanted to find out which of these were correct and which ones I had. I already suspected Jewish ancestry because of the naming patterns in my family over the past 300 years, as well as some of their habits -- e.g., not eating pork, getting married in a home instead of a church, cleaning house on Friday afternoon, no eggs with blood spots, washing all meat, etc. We also had some genetic anomalies -- shovel teeth (sinodonty), palatal tori and large rear cranial extensions, as well as polydactylism.

Tell us more.

ECH: Over the course of the past decade I have been found to have Native American, Spanish, Ashkenazi Jewish, African, Mediterranean and Gypsy/Northwestern India ancestry. My Dad turned out to have substantial Gypsy and African ancestry. He and I share a large cranial rear extension that I believe likely comes from the African ancestry—the photos I have seen of the !Kung Bushmen look just like our head shapes. My Mom has Native American and/or Sino-Siberian ancestry. She also possessed the Asian teeth and palatal tori found in this group.

You've written several books and articles with Donald Yates; how did that come about?

ECH: We shared ancestry from the Coopers, a prominent pioneer family in Daniel Boone's time. In 2000, I wrote him out of the blue when he was a professor in Georgia and introduced myself and asked if possibly the Coopers were Jewish. We began to correspond by email. I told him I was sure one of the reasons I was working so hard to figure

out the Melungeon story was because I had to figure out who I am. "Up until last year," I remember telling him, "I thought I was Scotch-Irish, English, white and Presbyterian." It was a big transition to Sephardic, brown and Jewish. It turned out that we were distant cousins and had numerous links in our Melungeon ancestry.

What was a typical publication?

ECH: One article was called "Suddenly Melungeon! Reconstructing Consumer Identity Across the Color Line." This was published by Routledge in 2007 in a handbook on consumer culture theory edited by Russell Belk.

How did the Jewish findings play out?

ECH: On a personal level, both Don and I, as well as his wife, Teresa, returned to Judaism, he and Teresa in Savannah and I in New Jersey. On a professional level, we started the Melungeon Surname DNA Project, which focused on Scottish clan and Melungeon surnames (i.e., male or Y chromosome lines), and we later included Native American mitochondrial DNA. Initially, many people in the genetic genealogy community were frustrated that the incoming Jewish DNA results were not originating in the Middle East, as they had strongly believed and hoped they would, but were showing a lot of Khazar, Central Asian, Eastern European and Western European/Spanish/French input.

Can you elaborate?

ECH: Critics were not happy that DNA was proving a wider and more inclusive picture of the Jewish people. Where Don and I have performed a service, I believe, is by just following the DNA trail and accepting new findings (e.g., the Gypsy/Roma) when they come in, instead of clinging to an a priori theory/belief/wish, for instance, the claim of a Middle Eastern origin for the majority of Jews.

What tests have you ordered from DNA Consultants?

ECH: I ordered every test as they became available over the years, first the Y chromosome and mitochondrial or male-line and female-line tests and later the autosomal or DNA fingerprint tests that analyze your total ancestry. I helped organize the first autosomal Melungeon study by

contributing samples from my mother and brother and obtaining samples from well-known Melungeons like Brent Kennedy and his brother Richard. Increasingly, our testing took on the aspect of a family group study. For instance, I was able by comparing multiple results from relatives to reconstruct my father's ancestry quite satisfactorily, even though he died many years ago. I took the Rare Genes from History for all available family members. There is a streak of the Thuya Gene and First Peoples Gene in all of us, as well as the Sinti Gene (which is Gypsy), while my brother Dick got our father's Khoisan Gene, which is African. Incidentally, it has the same source as the !Kung people and head shape I mentioned before.

If you had H.G. Wells' time machine where would you go?

ECH: I would love to be able to visit my ancestors and see what they looked like, where they lived, how they lived and learn how they got to Appalachia from such disparate parts of the world. I wish I could talk with them. My project now is to visit all the places they are known to have come from and see what the architecture, climate, food, and people are like. That is about as close to "meeting" them as I will be able to get. So far, I've traveled to Scotland, Ireland, Wales, England, Spain, Tunisia and Morocco on the trail of my Sephardic Jewish ancestors. I am trying to get to the Silk Road to see Central Asia, Turkey and Northwest India in the near future.

Professor Hirschman has published over 200 journal articles and academic papers in marketing, consumer behavior, sociology, psychology and semiotics. She has been named one of the Most Cited Researchers in Economics and Business.

December 7, 2012

King Tut's Family Reunion

Some moments really are golden. I felt as if I had stepped off Dr. Who's Tardis spaceship into the 18th dynasty of Egypt and into King Tut's golden tomb in the Valley of the Kings when I saw the famous, golden mask at "The Treasures of King Tutankhamen" at the British Museum in London. But that was years ago.

The frail and golden teenage boy, King Tut, who owned "more than 100 walking sticks" and carried about him "medicinal (herbs)" has since been reunited with his family according to Katie Moisse, in her *Scientific American* article, "Tutankhamen's Familial DNA Tells Tale of Boy Pharaoh's Disease And Incest."

Of course, that reunion wasn't like the day Zahi Hawass describes in his *National Geographic* article, "King Tut's Family Secrets," when the young king and his sister/wife, "Ankhesenpaaten (a daughter of Akhenaten and Nefertiti) return to Thebes reopening up the temples (to Amun)... restoring their wealth and glory." Despite having to use a walking cane, the young, royal pair must have viewed that day as glorious if it did mean a return to paganism and the worship of Amun for Egypt. No, the more recent family reunion was in a basement of all places. According to Moisse, that basement is where the modern Indiana Jones of ancient secrets, Secretary General Zahi Hawass of Egypt's Supreme Council of Antiquities teamed up with paleogeneticist Carsten Pusch from the University of Tübingen in Germany. Their quest was to map out King Tut's family tree by DNA testing.

This was conducted in two labs. One in the basement of the Museum of Egyptian Antiquities in Cairo, and the other at Cairo University ("King Tut's Family Secrets"). By then, King Tut along with his golden mask and his royal family had flown back to Egypt. Albeit in parts.

What discoveries did Hawass make of the royal bones according to Moisse? Extracting tiny amounts from the bones and using DNA analysis commonly used in "criminal or paternity investigations" they found his family.

They identified "Tut's grandmother, 'Tiye,'" and his parents. His father was "probably named 'Akhenaten'" which Hawass says "... is the most important discovery since the finding of the tomb of Tutankhamun in 1922." However, they determined that his mother was not, as originally thought, Nefertiti but "one of the daughters of Amenhotep III and Tiye," says Hawass (qtd. by Moisse). They have determined "with a probability of better than 99.99 percent" that Amenhotep III was the father of Akhenaten and, therefore, King Tut's grandfather). Hawass says the "story of Tutankhamun is like a play whose ending is still being written." ("King Tut's Family Secrets").

January 10, 2013

Richard III's New Winter of Discontent

Shakespeare painted the last of the York rulers of England as a murderous maniac who was rightly dispatched to hell by Henry Tudor in 1485. But the story of Richard III's skeleton supposedly dug up in 2012 in a parking lot may top that of the Bard for pulling the wool over our eyes. Or it may be the luckiest archeological find since King Tut.

The last of the York dynasty was buried in Greyfriars, Leicester, but Britons are now talking about re-interring the bones believed to be Richard's in Westminster Abbey with England's other beloved monarchs. In 2012, a writer from Edinburgh, Philippa Langley, was walking over a particular spot in the municipal parking lot when she got goosebumps and "absolutely knew I was walking on his grave." Langley helped fund an archeological excavation and on Feb. 4, 2013, the University of Leicester confirmed that a skeleton found in the excavation was, "beyond reasonable doubt," that of Richard III, based on a combination of evidence from radiocarbon dating, comparison with contemporary reports of his slight frame, and a comparison of his mitochondrial DNA with two matrilineal descendants of Richard III's eldest sister, Anne of York.

Hunches and Hunchbacks

According to a BBC article, "Richard III: The Twisted Bones that Reveal a King," the skeleton had a "striking curvature" that could only be that of the hunchback king. But according to a Daily Beast article, "Unraveling King Richard III's Secrets," Shakespeare wrote a century after the fact and had a pro-Tudor, anti-York political agenda. "Portraits made after his defeat that show Richard with a hump—or at least uneven shoulders—are suspect as Tudor propaganda." There is no historical evidence of Richard III having a "striking curvature" of the spine. Or even "uneven shoulders." There is no evidence beyond Shakespeare of this deformity. In fact, there is historical evidence to the contrary. The article, "Richard's Comeback," quotes the historian, Thomas More, as saying Richard III was of "bodily shape comely enough, onely (sic) of low stature." The Countess of Desmond reported that, at a royal ball, Richard was the "handsomest man in the room . . . except for his brother,

Edward, and was very well made."

Despite historical evidence, most articles that discuss remaining doubts about the case like, "Doubts Remain that the Leicester body is Richard III," miss this point and take it as a historical fact that Richard III had scoliosis as does the skeleton that has been found in the parking lot.

What of historical depictions of Richard III's face? "No portraits made during his lifetime have survived and some later copies show signs of having been altered to make him appear more sinister" ("Richard III: The Twisted Bones"). Nevertheless, a 3D scan of the skull was taken, and a 3D face created and painted. John Ashdown-Hill is quoted as telling the BBC in the article, "Richard III Facial Reconstruction Reveals Slain King More than 500 Years After His Death," that it "largely matched" the "prominent features" in posthumous representations of the king. The artist, Janine Aitken said her part was "interpretive not scientific." At least it is a pleasant face. But is it Richard III's face?

Jumping to Forensic Conclusions

And the skeleton includes 10 battle wounds showing Richard III "met a violent death ..."—eight to the head and two to the body—which they believe were inflicted at or around the time of death. Since he died in a battle, did not other soldiers meet untimely wounds in such a manner?

Not a few scientists are waiting for peer-reviewed results. But there is none. Instead of waiting for a boring academic conference, the sponsors at the Richard III Society chose to release the results via a Hollywood-style press conference.

What kind of DNA analysis was used? Mitochondrial DNA. According to Bryony Jones in his CNN article, "Body Found under Parking Lot is King Richard III, Scientists Prove," "The mitochondrial DNA extracted from the bones was matched to Michael Ibsen, a Canadian cabinetmaker and direct descendant of Richard III's sister, Anne of York, and a second distant relative who wishes to remain anonymous." Well, end of story and close that book. Right? Not so fast. Some scientists believe that the testing done was not sufficient. Why?

Mitochondrial DNA has limitations. It does reflect the deepest ancestry (see *The Seven Daughters of Eve* by Bryan Sykes), but is also

prone to contamination (under such circumstances—LiveScience writer Stephanie Pappas). Especially when we are discussing skeletons reminiscent of “Night of the Living Dead” interred improperly for centuries in damp soil. Timothy Bestor, professor of Genetics and Development at Columbia University Medical Center, is quoted in the New York Academy of Sciences article, “Skeletal Remains of King Richard III Reportedly Discovered,” as saying that the possible quality of the mitochondrial DNA “under the given circumstances” was one of his key reasons for skepticism. After 500 years or more in a wet environment like England’s, “the microbes are going to degrade the DNA. It’s just food to them,” says Bestor. And Pappas quotes Maria Avila, a computational biologist at the Center for GeoGenetics at the Natural History Museum as saying, “The DNA results presented today are too weak, as they stand, to support the claim that (the) DNA (sample) is actually from Richard III ... more in depth DNA analysis summed to the archaeological and osteological (bone analysis) results would make a round story (She is requesting Autosomal DNA analysis akin to what was done with the hominin discovery of the Denisovans).” And she wonders about contamination with the type of DNA testing that was done. Avila says that, “before being convinced of ANY atDNA study, it should be explicit that all possible cautions were taken to avoid contamination” and ... “also warned that people could share mitochondrial DNA even if they share a family tree (Pappas).” In the article, “Doubts Remain that the Leicester Body is Richard III,” Mark Thomas at University College London is quoted as saying that “people can have matching mitochondrial DNA by chance and not be related.”

And Bestor writes there are other reasons to be skeptical, even though “Richard Buckley, lead archeologist from the University of Leicester, asserts ‘this is beyond reasonable doubt’ based on genetic and historical forensic evidence.” Bestor argues that beyond the high risk of sample contamination, there are three other “particularly complicating factors.” Of course, it is often an overlooked fact that “the English aristocracy reproduced within a closed gene pool in order to preserve lineages. This inbreeding results in consanguinity” (“Skeletal Remains of King Richard III”). Bestor is quoted as saying, “You may have the same mitochondrial haplotype, but that does not guarantee a lineal descent from a given individual.” (Mitochondrial DNA analysis is not the same

as Y haplotype DNA analysis because it focuses on deeper ancestry whereas male haplotype DNA analysis is linked to more recent male lines.) He also points out the possibility of adoption. (The chance of an adoption or any type of nonpaternity event increases as one goes back into the distant past of any family tree).

Another confounding factor is that, in the 17-25 generations separating King Richard's sister from her extant relatives, there is a fair chance that children of deceased parents' may have been adopted by their parents' siblings somewhere along the way. After all, medieval lives were short. Such adoptions may have been kept private and excluded from historical or genealogical records.

Moreover, Bestor points out that the "genetic sequences and statistical data are yet to be released" but adds that the "historical evidence is quite compelling." According to this article, forensic evidence of the bones (1455-1540) matches with the time that Richard III was to have died (1485). But didn't many people die at this same time during the same battle with similar wounds?

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The Surprising Story of India's Caste System

DNA testing reveals how truly mixed we are. Most of the world's populations are much more diverse than most people realize. Just get an autosomal DNA test and look at your results. People have been traveling and intermarrying for thousands of years. However, most would assume that the different caste systems in India would have unmixed and dissimilar genetic backgrounds since they have been strictly segregated for thousands of years.

Nevertheless, that is not the case (Tia Ghose, "Genetic Study Reveals Origin of India's Caste System" in Live Science). How is that possible?

Despite a near 2,000-year strict ban on intermarrying between groups, everyone in India, even "isolated tribes," have DNA from the same regions says Priya Moorjani, a geneticist at Harvard University, and the only thing that differs across India "is the proportion of ancestry" from a particular group (Ghose).

What that means is that even the lowest caste, the Untouchables, are related to the highest, priestly caste.

What is interesting is that their most ancient stories say, except for the Untouchables, they are all connected. In an ancient text known as the Rigveda, the division of Indian society was based on Brahma's divine manifestation of four groups. Brahma is a monstrous-looking creator god with four hands and four heads which was said to give birth to all Hindus. He cast priests and teachers "from his mouth, rulers and warriors from his arms, merchants and traders from his thighs, and workers and peasants from his feet" (ushistory.org, "The Caste System," "Ancient Civilizations Online Textbook"). It almost seems as if they knew long ago of their genetic connections. As it turns out, even the Untouchables are their brothers. We could learn a lot from this discovery.

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