

Scientists are using new forensic techniques on historical figures to uncover...

Secrets *of the* Grave

By Lori Andrews

EARLIER THIS YEAR, Italian researchers announced the results of an unusual homicide investigation. They had collected evidence in a unique place—a chapel—and the victims (Francesco I de' Medici, Grand Duke of Tuscany, and his second wife, Bianca Cappello) had been dead for more than 400 years. Modern forensic science showed they'd been poisoned by arsenic and had not died of malaria, as reported at the time.

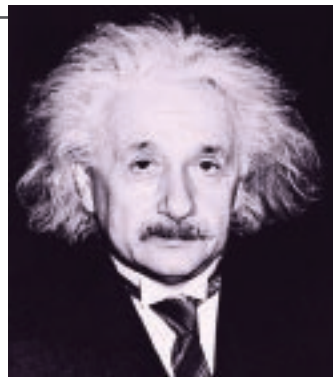
Across the globe, scientists are using the latest medical and forensic techniques to investigate the behavior, diseases, causes of death and lineage of historical figures. Beethoven's hair has been analyzed to locate genes related to musical ability and to see if lead poisoning caused his eccentricities. Einstein's brain was tested for a genetic predisposition to aneurysm. And DNA analysis indicated that Thomas Jefferson fathered a child with his slave Sally Hemings.

"Biohistory"—the combination of biological



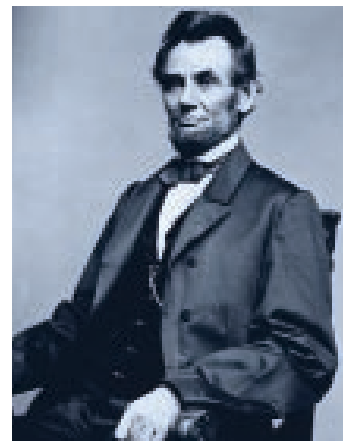
Do we have the right to know about diseases or lineage a leader may have wanted to hide?

testing and history—is one of the most exciting new fields of scientific inquiry. But it also raises serious ethical questions. I entered the field when officials of the Chicago History Museum asked me to help create guidelines for genetic



research. The museum's collection includes the blood-drenched cloak that Mary Todd Lincoln apparently wore on the night of her husband's assassination. Museum officials wondered whether it was legal—or ethical—to do DNA testing on the cloak's blood.

As I worked with historians, lawyers and forensic experts, many



questions arose: Who should have a voice in the decision to do testing? Should living relatives be tracked down? What reasons justify DNA testing of historic figures, and what use should we make of the results?

Testing can reveal useful information. Lincoln's tall stature, loose joints and abnormally shaped chest have led

The brain of Einstein (top) has been genetically tested. Could the DNA of Lincoln, Napoleon (l) and Marilyn Monroe yield new information about them?



doctors to speculate that he may have had the genetic condition Marfan syndrome. In fact, it was the family of a person with Marfan syndrome that asked the museum to allow genetic testing on the cloak to search for the disease gene. A finding that Lincoln had the disease might stimulate more funding for research into cures. On the other hand, a finding that Lincoln had a predisposition to depression, as some historians suggest, might change how we

view his political achievements.

Some people have been inspired by genetic testing to seek a link with historic figures. Already, Illinois residents are clamoring to compare their DNA to that of Lincoln. Others have tried to prove they are related to Robert E. Lee, the Romanovs, even Genghis Khan.

DNA testing could change the way we view our local history. Politicians in New Mexico battled over plans to use forensic technologies to determine if Billy the Kid was actually killed

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Gov. Arnold Schwarzenegger's chewed cough drop was (briefly) offered on eBay.

in Fort Sumner, N.M., in 1881—or if he escaped and lived until 1950 in Texas under the identity “Brushy Bill” Roberts. New Mexico Gov. Bill Richardson supported the sheriff’s plan to exhume the graves of Billy the Kid and his mother to perform DNA analyses to authenticate the remains. But the Fort Sumner Chamber of Commerce and the mayor successfully opposed the investigation. If it had turned out that Billy the Kid was not buried in the 1881 grave, the town would have lost its most famous tourist site.

Genetic testing could lead to questionable products. Nobel laureate Kary Mullis, who created the technological foundation for DNA forensics, came up with a plan to market jewelry with Abe Lincoln’s DNA in it. LifeGem, a company in Elk Grove Village, Ill., is creating three diamonds using carbon from Beethoven’s hair.

Biohistory has also put a new spin on collecting. You can buy hair from historic figures at auctions. But when eBay received postings offering DNA from living celebrities—Kelly Clarkson (from her discarded water bottle), Britney Spears (from her used pumice stone) and Gov. Arnold Schwarzenegger (a chewed cough drop), the company asserted that its policy against the sale of human body parts included DNA as well.

PHOTO BY BUCHANAN/GETTY

John Reznikoff began his extensive collection of celebrity tresses—from Einstein, Napoleon, Marilyn Monroe, Elvis and others—years ago, as an investment in memorabilia. But Neil Armstrong felt betrayed when his barber sold the astronaut's locks to Reznikoff. No wonder. Today it's possible to analyze hair for drug use, paternity and disease. Such an analysis can reveal information that the person had never shared with anyone—or even knew.

These uses are raising new questions: Should a person be allowed to take his secrets to the grave? The revelation of an inheritable disease might lead to insurance and employment discrimination against living relatives. Should descendants be asked for permission to undertake these analyses? What if they refuse?

Eleven states prohibit DNA testing without consent, in most cases.

Policymakers have begun to answer these questions. Eleven states prohibit DNA testing without consent, except in rare instances, such as when the person has been accused of a crime. Responding to requests to exhume the bodies of public figures, judges have said that mere curiosity is not a good enough reason. But when the DNA is on an artifact outside the grave—such as the Mary Todd Lincoln cape—the rules are less clear.

Historians are moving cautiously. But there is no doubt that, once modern forensics are applied, our history books will need to be rewritten. 

Lori Andrews is a law professor who served as chair of the federal ethics committee advising the Human Genome Project.