Can Skeletons Have a Racial Identity?

A growing number of forensic researchers are questioning how the field interprets the geographic ancestry of human remains.

Forensic anthropologists have relied on features of face and skull bones, known as morphoscopic traits, such as the post-bregmatic depression — a dip on the top of the skull — to estimate ancestry.

By Sabrina Imbler
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Racial reckonings were happening everywhere in the summer of 2020, after George Floyd was killed in Minneapolis by the police. The time felt right, two forensic anthropologists reasoned, to reignite a conversation about the role of race in their own field, where specialists help solve crimes by analyzing skeletons to determine who those people were and how they died.

Dr. Elizabeth DiGangi of Binghamton University and Jonathan Bethard of the University of South Florida published a letter in The Journal of Forensic Science that questioned the longstanding practice of estimating ancestry, or a person's geographic origin, as a proxy for estimating race. Ancestry, along with height, age at death and assigned sex, is one of the key details that many forensic anthropologists try to determine.

That fall, they published a longer paper with a more ambitious call to action: "We urge all forensic anthropologists to abolish the practice of ancestry estimation."

In recent years, a growing number of forensic anthropologists have grown critical of ancestry estimation and want to replace it with something more nuanced.

Criminal cases in which the victim's identity is entirely unknown are rare. But in these instances, some forensic anthropologists argue, a tool like ancestry estimation can be crucial.

The assessment of race has been a part of forensic anthropology since the field's inception a century ago. The earliest scholars were white men who studied human skulls to support racist beliefs. Ales Hrdlicka, a physical anthropologist who joined the Smithsonian Institution in 1903, was a eugenicist who looted human remains for his collections and sought to classify humans into different races based on certain appearances and traits.

An expert on skeletons, Dr. Hrdlicka helped law enforcement identify human remains, laying the blueprint for the professional field. Forensic anthropologists thereafter were expected to produce a profile with the "Big Four" — age at death, sex, height and race.

In the 1990s, as more scientists debunked the myth of biological race — the notion that the humans species is divided into distinct races — anthropologists grew sharply divided over the issue. One survey found that 50 percent of physical anthropologists accepted the idea of a biological concept of race, while 42 rejected it. At the time, some researchers still used terms like "Caucasoid," "Mongoloid" and "Negroid" to describe skeletons, and DNA as a forensic tool was still many years away. Today in the U.S., the field of forensic anthropology is 87 percent white.
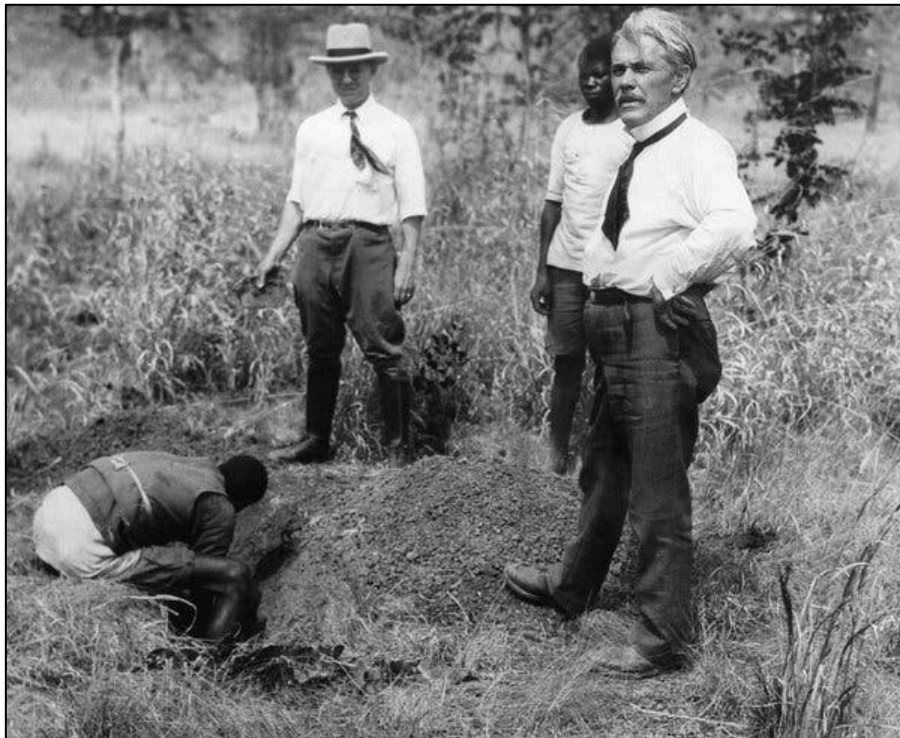
The anthropologist Ales Hrdlicka, right, in 1925.

In 1992, Norman Sauer, an anthropologist at Michigan State University, suggested dropping the term "race," which he considered loaded, and replacing it with "ancestry." The term became universal. But some researchers contend that little changed about the practice.

When Shanna Williams, a forensic anthropologist at the University of South Carolina School of Medicine Greenville, was in graduate school around a decade ago, it was still customary to sort skeletons into one of the "Big Three" possible populations — African, Asian or European.

But Dr. Williams grew suspicious of the idea and the way ancestry was often assigned. She saw skulls designated as "Hispanic," a term that refers to a language group and has no biological meaning. She considered how the field might try, and fail, to sort her own skull. "My mom is white, and my dad is Black," she said. "Do I fit that mold? Am I perfectly one thing or the other?"

The body of a skeleton can provide a person's age or height. But the question of ancestry is reserved for the skull — specifically, features of face and skull bones, known as morphoscopic traits, that vary across different groups of humans and can occur more frequently in certain populations.

One trait, called the post-bregmatic depression, is a small indentation located on top of some people's heads. For a long time, forensic anthropologists assumed that if the skull was indented, the person may be Black.

But forensic anthropologists know little else about the post-bregmatic depression. "There's not been any understanding as to why this trait exists, what causes it, and what it means," Dr. Bethard said.

Moreover, the science linking the trait and African ancestry was flawed. In 2003, Joe Hefner, a forensic anthropologist at Michigan State University, used trait lists from a key textbook, "Skeletal Attribution of Race," to examine more than 700 skulls for his masters thesis. He found that the post-bregmatic depression was present in only 40 percent of people with African ancestry, and is actually more common in many other populations.

Of the 17 morphoscopic traits typically used to estimate ancestry, only five have been studied for whether they are heritable, making it unclear why the unstudied traits would correspond with specific populations. "There's been this use and reuse of these traits without a fundamental understanding of what they even are," Dr. Bethard said.

Nonetheless, Dr. Hefner said, if nothing is known about a victim beyond the shape of their skull, ancestry might hold the key to their identity.

He cited a recent example in Michican in which the police had a skull that they believed belonged to a missing woman, one of two who were reported missing in the county at the time. When Dr. Hefner examined it and searched the list of missing people in the area, he concluded that the skull might have come from a missing Southeast Asian male. "They sent us his dental records over and five minutes later we had identified this person," Dr. Hefner said.

Dr. DiGangi worries that these estimations could suggest to the police that biological race is real and increase racial bias. "When I say to the police, 'OK, I took these measurements, I looked at these things on the skull and this person is African-American,' of course they're going to think it's biological," Dr. DiGangi said. "Why would they not?"

To what extent this concern plays out in the real world is hard to measure, however.

Dr. Shanna Williams, a forensic anthropologist and professor in South Carolina, grew suspicious of the idea of the way ancestry was assigned when in graduate school.

For the past two years, Ann Ross, a forensic anthropologist at North Carolina State University, has pushed the American Academy of Forensic Sciences Standards Board to replace ancestry estimation with something new: population affinity.

Whereas ancestry aims to trace back to a continent of origin, population affinity aims to align someone with a population, such as Panamanian. This more nuanced framework looks at how the larger history of a place or community can lead to significant differences between populations that are otherwise geographically close.

A recent paper by Dr. Ross and Dr. Williams, who are close friends, examines Panama and Colombia as a test case. An ancestry estimation might suggest people from both countries would have similarly shaped skulls. But population affinity acknowledges that the trans-Atlantic slave trade and colonization by Spain resulted in new

communities living in Panama that changed the makeup of the country's population. "Because of those historical events, individuals from Panama are very, very different from those from Colombia," said Dr. Ross, who is Panamanian.

Dr. Ross even designed her own software, 3D-ID, in place of Fordisc, the most commonly used forensic software that categorizes skulls into inconsistent terms: White. Black. Hispanic. Guatemalan. Japanese.

Other anthropologists say that, for all practical purposes, their own ancestry estimations have become affinity estimations. Kate Spradley, a forensic anthropologist at Texas State University, works with the unidentified remains of migrants found near the U.S.-Mexico border. "When we reference data that uses local population groups, that's really affinity, not ancestry," Dr. Spradley said.

In her work, Dr. Spradley uses missing persons' databases from multiple countries that do not always share DNA data. The bones are often weathered, fragmenting the DNA. Estimating affinity can "help to provide a preponderance of evidence," Dr. Spradley said.

Still, Dr. DiGangi said that switching to affinity may not address racial biases in law enforcement. Until she sees evidence that bias does not preclude people from becoming identified, she says, she does not want a "checkbox" that gets at ancestry or affinity.

As of mid-October, Dr. Ross is waiting for the American Academy of Forensic Sciences Standards Board to set a vote to determine whether ancestry estimation should be replaced with population affinity. But the larger debate — over how to bridge the gap between a person's bones and identity in real life — is far from settled.

"In 10 or 20 years, we might find a better way to do it," Dr. Williams said. "I hope that's the case."