Part 2 Your Ancestors are My Ancestors

1. Do some simple calculations. You certainly have 4 biological grandparents, right? (P81 or so)
Grandparents____
Great grandparents____
Great, great grandparents_____
Great, great, great grandparents_____
Great, great, great, great grandparents_____
How many people do you think can fit into our classroom? _____
Approximately what range of years would these 4th great grandparents have lived? (We often assume a generational time of 25 years or so.) _____

NOTE: I am not sure you will totally understand the concept of isopoints and coalescence but hopefully you were curious about it. (p85)

2. Why is there much more genetic diversity within Africa than in the rest of the world put together? Another way of putting this is why are two Africans going to be more different than one another on average than two people from anyone else in the world? (p90)

3. Why does the author use the example of conflict between the Hutu and Tutsi in Rwanda? (p92) In what way did European colonizers initiate this conflict? What is the role of the lactase persistance trait?

4. The author uses Great Britain to illustrate what? (p96)

5. Why is it the case that "Over generations, descendants begin to shed DNA" (p100 bottom-top p101) The author distinguishes the difference between Genetic and Genealogical ancestry. What is his point? (same paragraph)

7. The author then turns to what we call Direct to Consumer genetic testing. (p102)

- Concerns about where the data comes from.
- Concerns about interpretation/misinterpretation of the data.
- Concerns about why people choose to take these tests.
- Concerns about the effect of such tests on the what we think about differences between populations of humans.

8. We used the term essentialism at the start of the semester in what context? How can DTC reinforce the concept of essentialism? (P104)

9.When these tests purport to be able to tell you what part of Africa you are from (p107-110), or what North American Native Tribe (p111) you are from, what concerns does the author highlight?

10. White supremacists also express enthusiasm for these DTC testing kits. Why is this a concern?

Why White Supremacists Are Chugging Milk (and Why Geneticists Are Alarmed)

By Amy Harmon Oct. 17, 2018 New York Times

Nowhere on the agenda of the annual meeting of the American Society of Human Genetics, being held in San Diego this week, is a topic plaguing many of its members: the recurring appropriation of the field's research in the name of white supremacy.

"Sticking your neck out on political issues is difficult," said Jennifer Wagner, a bioethicist and president of the group's social issues committee, who had sought to convene a panel on the racist misuse of genetics and found little traction.

But the specter of the field's ignominious past, which includes support for the American eugenics movement, looms large for many geneticists in light of today's white identity politics. They also worry about how new tools that are allowing them to home in on the genetic basis of hot-button traits like intelligence will be misconstrued to fit racist ideologies.

In recent months, some scientists have spotted distortions of their own academic papers in far-right internet forums. Others have fielded confused queries about claims of white superiority wrapped in the jargon of human genetics. Misconceptions about how genes factor into America's stark racial disparities have surfaced in the nation's increasingly heated arguments over school achievement gaps, immigration and policing.

Instead of long-discounted proxies like skull circumference and family pedigrees, according to experts who track the far-right, today's proponents of racial hierarchy are making their case by misinterpreting research on the human genome itself. And in debates that have largely been limited to ivory-tower forums, the scientists whose job is to mine humanity's genetic variations for the collective good are grappling with how to respond.

"Studying human genetic diversity is easier in a society where diversity is clearly valued and celebrated — right now, that is very much on my mind," said John Novembre, a University of Chicago evolutionary biologist who has taken to concluding his visiting seminars by illustrating how one of the field's textbook examples of natural selection has been adopted for illiberal ends.

One slide Dr. Novembre has folded into his recent talks depicts a group of white nationalists chugging milk at a 2017 gathering to draw attention to a genetic trait known to be more common in white people than others — the ability to digest lactose as adults. It also shows a social media post from an account called "Enter The Milk Zone" with a map lifted from a scientific journal article on the trait's evolutionary history.

In most of the world, the article explains, the gene that allows for the digestion of lactose switches off after childhood. But with the arrival of the first cattle herders in Europe some 5,000 years ago, a chance mutation that left it turned on provided enough of a nutritional leg up that nearly all of those who survived eventually carried it. In the post, the link is accompanied by a snippet of hate speech urging individuals of African ancestry to leave America. "If you can't drink milk," it says in part, "you have to go back."

In an inconvenient truth for white supremacists, a similar bit of evolution turns out to have occurred among cattle breeders in East Africa. Scientists need to be more aware of the racial lens through which some of their basic findings are being filtered, Dr. Novembre says, and do a better job at pointing out how they can be twisted.

But the white nationalist infatuation with dairy also heightened Dr. Novembre's concerns about how to handle new evolutionary studies that deal with behavioral traits, such as how long people stay in school.

Anticipating misinterpretations of a recent study on how genes associated with high education attainment, identified in Europeans, varied in different populations around the world, the lead author, Fernando Racimo, created his own "frequently asked questions" document for nonscientists, which he posted on Twitter.

And in a commentary that accompanied the paper in the journal Genetics, Dr. Novembre warned that such research is "wrapped in numerous caveats" that are likely to get lost in translation.

"Great care," his commentary concludes, "should be taken in communicating results of these studies to general audiences."

Already, some of those audiences are flaunting DNA ancestry test results indicating exclusively European heritage as though they were racial ID cards. They are celebrating traces of Neanderthal DNA not found in people with only African ancestry. And they are trading messages with the coded term "race realism," which takes oxygen from the claim that the liberal scientific establishment has obscured the truth about biological racial differences.

Some scientists suggest that engaging with racists would simply lend credibility to obviously specious claims. Many say that they do not study race, in any case: The racial categories used by the United States census correlate only imperfectly with the geographic ancestry groupings of interest to evolutionary geneticists. "Black," for instance, is a socially defined term that includes many Americans who have a majority of European ancestry.

But as the pace of human population genetics research has accelerated, it has yielded results that, to many nonscientists, appear to challenge the idea of race as a wholly social construction.

Genetic ancestry tests advertise "ethnicity estimates" (Senator Elizabeth Warren appealed to the perceived authority of DNA this week to demonstrate her Native American heritage, in response to mocking by President Trump), and some disease-risk genes have turned out to be more common among certain genetic ancestry groups. Doctors use patients' self-identified race as a proxy for geographic ancestry, because individual readouts of DNA are costly, and though the correlation is imperfect, it exists.

As DNA databases tied to medical records and personal questionnaires have reached a critical mass for individuals of European descent, moreover, so-called polygenic scores that synthesize the hundreds or thousands of genes that contribute to many human traits into a single number are being developed to predict health risks, and in some cases, behavior.

Last summer, researchers developed a score that can roughly predict the level of formal education completed by white Americans by looking at their DNA. And while those scores cannot yet be compared among racial or population groups, the new techniques have prompted some scientists to feel it is the field's responsibility to head off predictable misrepresentations.

"You have to make a judgment when you have powerful information that can be misused," said David Reich, a Harvard geneticist who has publicly called on colleagues in a recent book and in a New York Times Op-Ed to more directly address the prospect of identifying genetic differences between populations in socially sensitive traits. There is no evidence, scientists stress, that environmental and cultural differences will not turn out to be the primary driver of behavioral differences between population groups.

At the same time, the advances in genetic technology have put white supremacists into a kind of anticipatory lather "Science is on our side," crowed Jared Taylor, the founder of the white nationalist group American Renaissance, in a recent video that cites Dr. Reich's book. Dr. Reich was among those to decline an invitation to lead a discussion on the topic at the San Diego meeting. "I really wanted to return to research," he said.

The widespread uncertainty among Americans over what scientists know about genetic differences between racial groups, experts say, has left many flummoxed in the face of white supremacist claims that invoke genetics. "I was surfing my favorite dumb picture site and I came across a post trying to prove racism with science," a community college student in Florida wrote to Jun Z. Li, a University of Michigan geneticist whose work has been invoked to buttress racist claims of white intellectual superiority. "I read through the paper myself but I do not have the education or experience to understand and make sure I have a coherent counter argument."

For white Americans half-inclined to blame nonwhite immigrants or African-Americans for perceived social problems, the veneer of a scientific rationale for white superiority, researchers say, can tip them toward racial resentment. It can be more effective than base appeals to tribalism, especially for the educated demographic the far-right has been targeting.

And while much of current white nationalist rhetoric is framed in terms of preserving a white cultural identity, experts say it relies on a familiar narrative of immutable biological differences. On a YouTube talk show earlier this year, for instance, Gavin McInnes, founder of the Proud Boys, whose appearance set off a brawl outside a Republican club in Manhattan last week, echoed the pet white supremacist theory that the environmental challenges of cold winters explain the supposed higher intelligence of northern Europeans. Some geneticists have penned blog posts explaining why new genetic tools will not support white nationalist claims that average behavioral differences between groups are immutable. Others — including Dr. Li — have replied directly to individual queries.

And when a blogger at the far-right Unz Review noted that the DNA variations associated with high IQ in a 2017 study of Europeans were at the lowest frequency among Africans, the study's lead author, Danielle Posthuma, wrote in a published reply that such cross-population comparisons were spurious. "This," she wrote, "is a very deep-rooted misunderstanding." Many geneticists at the top of their field say they do not have the ability to communicate to a general audience on such a complicated and fraught topic. Some suggest journalists might take up the task. Several declined to speak on the record for this article. And with much still unknown, some scientists worry that rebutting basic misconceptions without being able to provide definitive answers could do more harm than good.

"There are often many layers of uncertainties in our findings," said Anna Di Rienzo, a human genetics professor at the University of Chicago. "Being able to communicate that level of uncertainty to a public that often just sees things in black and white is very, very difficult." As a step toward changing that, Dr. Di Rienzo has helped organize a meeting of social scientists, geneticists and journalists at Harvard next week to discuss the social implications of the field's newest tools.Participants have been promised that the meeting will be restricted to some three-dozen invitees and that any remarks made there will be confidential. And David L. Nelson, a Baylor College of Medicine geneticist who is president of the human genetics society, says it will not stay completely quiet on the issue, promising a statement later this week."There is no genetic evidence to support any racist ideology," he said.

Amy Harmon is a national correspondent covering the intersection of science and society. She has won two Pulitzer Prizes, for her series "The DNA Age," and as part of a team for the series "How Race Is Lived in America." Follow her on Twitter @amy_harmon