

Race and Intelligence, Part I

Intro. Hi, I'm Jim; I'm Erik; I'm Jo and this is Speaking of Race

Erik: Guys I don't know if you've noticed recently but there's a whole bunch of stuff happening with Elizabeth Warren and all this recreational genomics testing stuff that we talked about on an earlier episode. But I don't think we have enough time to record a whole episode on that.

Jo: So listeners can refer back to our episode on DNA ancestry testing and we'll put some links with these show notes about this. In this episode we're going to start to address the long saga of race and intelligence.

Jim: This is a long saga! People have been talking about how race and intelligence must be linked for a long time.

Jo: It makes sense that they've been linked for so long for two reasons in particular. For one, we've never really come up with a way to effectively measure race or intelligence --

Jim: --Though people have been trying to measure them anyway!

Jo: And for two, they're things that your average layperson takes to be natural and fixed categories. Most people never question the idea that there is something biological called 'race.' And most of us don't question the idea that there is something called "intelligence," either. And when we're born, we get some race (maybe just to check off on a census form) and we get some degree of intelligence (maybe an IQ number).

Erik: So we're comfortable talking about why race is a thing that gets built from other people's perceptions and cultures, not biology. Are we going to have to do the same thing about intelligence?

Jim: Yep!

Erik: That seems ... difficult.

Jim: Yep! It might take us a bit to get there. But it's worth it. You know I missed an important moment in the history of race and intelligence in my youth?

Erik: What do you mean?

Jo: Oh, you haven't heard Jim's Jensen story?

Erik: Who? Arthur Jensen, the race and IQ guy?

Jim: Yeah, so you have to picture where I was on the morning of May 15, 1969. I was an undergraduate at UC Berkeley, taking a handball class for a PE requirement and I went to play a few matches in the courts under the baseball field, just down from Sproul Plaza.

Jo: What's handball? I don't even know what that is!

Jim: When I finished, I headed up to Telegraph Avenue to go to my car—just as the crowds that had been at a rally at the Plaza started to head to People's Park down Telegraph. The air was thick with tear gas--not uncommon for that time and place, and I began to hear shotgun blasts.

Erik: Whoa.

Jim: Yeah, so I managed to push into a storefront and hide out until the Alameda County deputies quit shooting and chasing protesters. In the pandemonium, I never noticed the signs some of the protestors from Students for a Democratic Society were holding up demanding the firing of a professor in the College of Education. But you have to cut me some slack. At this point, in addition to adjusting to life after the Navy and taking a full course load at Berkeley and waiting for my G. I. bill to kick in, my wedding was coming up in six weeks; I had dodged tear gas from helicopters and grenade launchers, and my introductory class in physical anthropology had been moved to another classroom just four months earlier because the auditorium in Wheeler Hall was the scene of an arson fire.

Jo: ... this is where Arthur Jensen comes in.

Jim: Yep--I'm just giving you this chaotic description to help explain why I missed one of the seminal events of the 20th century on the race and intelligence front. The SDS protesters had been reacting to Arthur Jensen who had published, "How much can we boost IQ and scholastic achievement?" two months earlier (Jensen, 1969). The piece was reigniting the (quote) "scientific" debate about race and intelligence. Jensen was pushing a heavily genetic view of IQ that he extended to account for the test score differences and differences in success in life between blacks and whites in the U.S. He argued that government shouldn't put money into programs for disadvantaged minorities because their inferior genetics would make it a waste of money, AND, Jensen said minority kids shouldn't have high aspirations anyway, because they needed to be happy with their genetically determined inferior social position.

Jo: This must have been what really stoked the SDS protests.

Jim: Exactly. So...I was there at Berkeley in '69, I could have been a witness to history, but I totally whiffed—plus, it was the late-60s, guys ... things were a little strange. In my defense, I did realize what was going on a few years later when there were protests against the Nobel awardee and Stanford physicist, William Shockley, coming to Berkeley to share his uber-racist ideas about skin color and intelligence!

Erik: But being the late-60s doesn't explain Jensen. He was only reviving the debate. The roots go way back.

Jo: So... will today be going back to the racial roots of the IQ test in the early 20th century?

Jim: ...Way earlier.

Jo: ...Thug heads?

Jim: We do owe you the Thug Head story, but ... nope ... earlier.

Jo: ...Lord Monboddo?

Jim: No, we're not talking about him anymore! -- no -- we need to start with your friend and mine, Thomas Jefferson, and his interaction with a man by the name of Benjamin Banneker.

Erik: Oh! This is a good story.

Jo: This is the same Benjamin Banneker that Hilary Green talked about on our last episode, right?

Jim: That's him. Erik, you want to tell the story?

Erik: Sure. So, according to our best accounts, Benjamin Banneker was a free man of African descent living on a tobacco farm in Baltimore county in the late 1700s. Historians think Banneker's father was a slave named Robert who had purchased his own freedom and his mother was Mary, an Englishwoman of African descent who came to Baltimore, Maryland. He was almost entirely self-taught, but he exhibited phenomenal technical abilities. For instance, he once fashioned an entire working clock out of wood after examining a pocket watch (which was not made of wood). As an adult, a neighbor lent him a telescope and some star charts. Banneker taught himself astronomy and made several predictions about eclipses and other astronomical events. He used this knowledge to create a sophisticated almanac, which he published from 1792-1797. He also helped survey the land that would eventually become Washington, DC.

Jo: But the reason why he matters for our story about intelligence is because of what Banneker did after coming across Thomas Jefferson's 1783 *Notes on the State of Virginia*. That's where Jefferson laid out scientific reasons for why, even if emancipated, black slaves could not be integrated into American society.

Jim: Let me guess: it's about hair and skin color -- something about that makes you unfit for society... is that it?

Jo: Of course, but Jefferson asserted that there were numerous temperamental and physical differences between blacks and whites. The structure of the heart, the ability to regulate heat, the amount of sleep black people need compared to white people (much less). And, of course, Jefferson focused on mental differences. Here's a quote "in memory, they are equal to whites; in reason much inferior, as I think one could scarcely be found capable of tracing and comprehending the investigations of Euclid; and in imagination they are dull, tasteless...." He also anticipated some of the craniometry work done by Charles White that we talked about in our last Enlightenment episode -- black people are closer to animals, so they must have more acute senses than whites. We talked more about how those assumptions about African bodies worked with Dr. Green in the last episode.

Erik: That Euclid line turns out to be a really interesting one for this story. Because if you're going to do surveying or astronomy, you have to have a good grasp of Euclidean geometry. (That, of course, is not sufficient: imagine sending out our undergrads, who have had geometry, algebra, and often calculus to survey or to predict an eclipse.) So, not surprisingly, this is the point that Banneker goes after Jefferson on. He wrote to Jefferson, who was then Secretary of State, in August 1791 and sent him a copy of the Almanac. I'm paraphrasing here, but Banneker basically says, I wasn't even given the same educational opportunities as white guys, yet I'm doing some sophisticated astronomy. Why would you say blacks are intellectually inferior?! Besides, wasn't it you who wrote "all men are created equal"?

Jo: To his credit, Secretary of State Jefferson wrote back just a few days later, claiming to have sent the Almanac to the head of the Academy of Sciences in Paris, Marie Condorcet. I'm a little amazed at Jefferson's response, which was appropriately sheepish. He admitted that Banneker's almanac was a good piece of evidence that blacks aren't intellectually inferior.

Erik: But, in the end, I'm not sure it mattered all that much. Because by the time we hit the 19th century, the racial hierarchy of intelligence had been set.

Jim: To be sure, intelligence ranking by race began earlier during the Enlightenment with some of the people we've previously mentioned, like Linnaeus and Kant. And we've also talked about Samuel George Morton and his skull measurements in our episode on Polygenism and Monogenism in the 1830s. While Morton didn't personally tie differences in skull size between races directly to variation in intelligence, his big book *Crania Americana* included an Appendix by the phrenologist George Combe. Combe DID make that connection between cranial capacity and intelligence explicit. Whites had the largest cranial capacity, so they were the smartest. Dark skinned people had the smallest cranial capacities.

Erik: Morton was by no means the only 19th century "expert" trying to make their rankings of race by intelligence seem more sciency. In the 1850s, the French Count Arthur de Gobineau ranked races by the number of sophisticated civilizations they had created--according to his definition of "sophisticated." [More about him in a later episode.] But it was Darwin's cousin, Francis Galton, who really became the key figure in the modern scientific debate surrounding intelligence.

Jo: Oooh! I know Galton -- he's the eugenics guy, right.

Erik: He did coin the term eugenics in the 1880s. But even before that, he was obsessed with demonstrating that intelligence is a hard trait passed along from parent to child the same way that physical characteristics are passed along. In articles and, especially in his book *Hereditary Genius: an Essay into its Laws and Consequences* (1869), Galton examined the lineages of judges, statesmen, poets, scientists, painters, and other elites (even, strangely, “wrestlers of the north country”) to assert that in every case nature trumped nurture when it came to intelligence.

Jim: Galton promoted this view that there was a fixed thing called intelligence and created and administered some of the first “mental tests.” These were largely tests of reaction times, aural and visual acuity, even color sense. He assumed these things were linked to intelligence—just as earlier workers had assumed skull measurements were.

Erik: Galton wasn't into the skull measurement stuff much. This seems surprising given how much he measured other traits.

Jo: Do we know why?

Erik: It couldn't be because he was less racist than earlier skull-measurement folks -- his article “Africa for the Chinese” in the *London Times* in 1873 reveals that he was super racist. He actually said that the English should import Chinese folks into Africa and help the Chinese displace the Africans because Chinese were more industrious and easier to control than Africans.

Jo: So pretty racist.

Erik: Racist.

Jim: I think the easiest explanation is just that he avoided skull measurements because *he* had a small skull -- seriously. Probably also because as a young man, he had consulted a phrenologist who told him he wasn't really suited for a life of the mind, therefore he assumed skull size and shape had little to do with intellectual accomplishment.

Jo: Ha! How ironic... But other than the eugenics stuff (which I guess we'll have to talk about another time), Galton was famous for developing statistical techniques.

Erik: And then the 20th century saw several new developments in intelligence testing that ended up becoming core pieces of the race and intelligence debate. Perhaps the most important one is Galton's idea that ability is a heritable trait.

Jim: English psychologist Charles Spearman took up the challenge from Galton to discover measurements that would correlate with what Spearman was calling intelligence (Galton was

particularly fond of the ability to finely discriminate between differences in weight). In Spearman's 1904 study "General Intelligence: Objectively Determined and Measured," he conducted tests among school children on the Island of Guernsey out in the middle of the English Channel (Spearman, 1904). He found that he could demonstrate a statistical relationship between class grades and other abilities. From his findings he hypothesized a "general intelligence" factor behind thinking activities and a "specific intelligence" behind endeavors that required less thought. The general factor, later called ["lowercase"] *g*, would become the holy grail that psychologists tried to measure with their intelligence tests.

Erik: At the same time Spearman was studying the Guernsey school children, two French guys, Alfred Binet and Théodore Simon, were putting together their own test of intelligence. The methodology seemed pretty simple. They believed that the older a student was, the more questions she or he should be able to answer correctly. The number of correct answers was used to estimate the child's mental age. They then lined this up with the student's chronological age. If the mental age was too far behind the chronological age, Binet and Simon labeled that child "retarded." Now it's important to point out that the original motivation behind this study was the lobby the French government for more funds to help mentally disabled children and more sensitive training for classroom teachers who dealt with those children. They weren't trying to study intelligence per se. But their work--in one of those deep ironies of history--

Jo: --their work totally gets used in a way they would have disagreed with. That's partly because while Spearman was working in the UK and Simon and Binet in France, the US was developing a whole Education-Industrial Complex to make use of the General Intelligence (*g*) idea. The three biggest names in this movement were H. H. Goddard, Lewis Terman, and Robert M. Yerkes. I want to talk about Goddard, okay?

Erik: Can I take Terman?

Jim: Yes, but then I get to tell my Yerkes story.

Jo: Deal! So, let's go back to 1906. Goddard directed research at the Vineland Training School for Feeble-Minded Girls and Boys in New Jersey. This was basically a remedial school-slash-asylum for people with cognitive challenges, but because those categories weren't very well defined at the time, they tended to house people of pretty widely varying abilities--people who might be diagnosed today with things we know are manageable, like, say, a learning disability, or a severe anxiety disorder, as well as people with more severe disabilities who might never be able to live unassisted. Goddard he was desperately trying to find a way to assess the Vineland children. He had heard about Binet's work, and in 1910 he translated the Binet exam into English and began administering it at Vineland. His most memorable work, *The Kallikak Family*, (Goddard, 1912) showed his use of the Binet scale as he talked about Deborah, the 22 year old woman who had been at Vineland for 14 years. In describing Deborah, he says--hey, Erik, wanna read this quote for us?

Erik: Sure. This is from pages 11 and 12 of the book. “By the Binet scale this girl showed, in April 1910, the mentality of a nine year old with two points over.” He goes on to describe her as “the kind of girl or woman that fills out reformatories. They are wayward, they get into all sorts of trouble and difficulties, sexual aly and otherwise, and yet we have been accustomed to account for their defects not the basis of viciousness, environment, or ignorance”.

Jo: Then he talks about how in school a teacher might think someone like Deborah could be reformed, but in fact that she was a hopeless case. No, he says, instead, her condition is the result of “heredity--bad stock” and expresses huge concern over the polluting effects of such poor genes on society. So this book was all about the hereditary nature of feeble-mindedness and the threats it poses to society--in other words, eugenics.

Jim: Goddard started using the tests in public schools in New Jersey and he consulted with Ellis Island public health authorities about testing immigrants—where they, GASP, found tons of defectives—especially from southern and Eastern Europe!

Erik: While Goddard was mostly interested in measuring degrees of mental deficiency, Lewis Terman, the West Coast translator of the Binet tests was interested in a more eugenic purpose: to identify the most and least intelligent members of society. Terman was a psychologist and Stanford professor of education who published his expansion (to 90 questions) and revision of the intelligence tests in 1916 as the Stanford Binet exam (Terman, 1916). He borrowed the idea of the Intelligence Quotient or IQ as mental age divided by chronological age from a German scholar.

Jo: Aha! So this is where we actually get the term IQ! I've been waiting for it this entire episode.

Erik: Yup, but Terman didn't do much to it. His big advancement was to multiply the figure by 100 to give an easily recognizable value that could be used to compare individuals or groups. He assigned specific score ranges to different mental levels, so the mentally impaired would score between 50 and 70 on the Stanford-Binet, while geniuses would have an IQ of 140 or more.

Jo: So there's no question that intelligence testing was on the upswing here in the early 20th century. But what I always find fascinating about this period is that nobody actually knew what they were measuring! They didn't care too much about that back then, but since that time we have come to recognize the biases in these tests and the fact that intelligence can fall into different realms for humans, like emotional or social intelligence. But at this moment, what mattered was that psychologists now had a way to assign what they were calling “general intelligence” a number, and that number could be used in many ways. This was the status when an opportunity presented itself: The U.S. entered World War I in April of 1917.

Erik: The president of the American Psychological Association at the time was a guy named Robert Mearns Yerkes. He saw intelligence testing recruits for the Army as a way to enhance the prestige of psychology to the level of medicine—the career that he had started out to follow.

Jim: You know, I started out in pre-med before spending two years with physicians as a corpsman in the Navy—then I wanted nothing to do with them so I tried to do psychology like Yerkes. Thank god that intro to psych course at Berkeley was full and I ended up in the intro to physical anthro instead. And lo and behold, that's how I became an anthropologist!

Jo: Hmm. I became an anthropologist by studying leprosy, but that's a different story.

Erik: Ok ok, anthropologists, enough with the conversion stories. Back to IQ! So--two weeks after the US entry into the war, Yerkes convened a meeting in Philadelphia of seven psychologists to hash out how they could contribute to the war effort. Yerkes pushed the notion that they could use Binet style tests to weed out the feebleminded from among the recruits. Unfortunately, the testing that he was used to was one-on-one and that's what Yerkes initially proposed to the army which was processing thousands of recruits a day. This was not well received and there was no funding available to reconvene the group, so it looked for a short time like intelligence testing was going to die the death it deserves.

Jo: But then, a month after the Philadelphia meeting adjourned, Henry Goddard provided some of his resources at Vineland to Yerkes and five other psychologists as they were trying to come up with a plan that they could sell to the Army.

Jim: This group was different from the first one in that all the psychologists were general intelligence enthusiasts, including Lewis Terman. He had a graduate student, Arthur Otis, who was working on the Stanford Binet test available for use in group settings in public schools. Otis borrowed a new-fangled technique from a University of Kansas education professor: the multiple choice question!

Erik: Illustrating the concept that most academics learn early in their careers to provide solutions rather than problems if you want to accomplish anything, Terman brought Otis's new scales to Vineland and he was able to convince the group of the simplicity of administering and scoring intelligence tests with questions that allowed for only one unambiguous answer.

Jo: Thus were born the Army Alpha and Beta tests!!! Those were just fancy-sounding names they used to denote the tests for people who could read, and the test for those who couldn't.

Erik: They relied heavily on Terman's revision of the Binet scale but had to modify it for adults rather than developing children. The Alpha and Beta tests were literally banged out over a two week period at Vineland. The Alpha test had 8 sections, each consisting of 8 to 40 questions in increasing difficulty. For illiterate and non-English speaking recruits, the Beta tests used pictures including mazes that had to be solved, identification of simple shapes, drawing in the missing part of a picture, and ordering a series of pictures into a coherent story.

Jo: This gets at what I was saying a minute ago about how the IQ people didn't actually know what they were measuring. These ended up being measures of familiarity with cultural features

common to upper-class white Americans, rather than actual measures of intelligence! We'll link to some of the drawings in the show notes so listeners can get a sense of these, but a good example is the pictures they provide of a multi-tool pocket knife and a revolver, neither of which I would know how to complete because I haven't spent a lot of time with either of them.

Jim: The psychologists dispersed and tested these new exams and Yerkes wrote an almost 900 page report singing their praises to the Army, and finally, in August 1917, just four months after the first meeting in Philadelphia, teams of psychologists were enlisted into the Sanitary Corps—much to Yerkes' chagrin, since he had hoped to be in the Medical Corps—and the testing began in earnest.

Jo: Yerkes was commissioned as a major, and Carl Brigham, a Princeton psychologist and first lieutenant, was assigned as his assistant. They managed to have the tests administered to 1,726,966 men. To bring this back to race, in addition to the intelligence questions, they collected data on race, country of origin, salary before the war, and occupation. Brigham's 1923 analysis of a subsample represents some of the worst of the eugenic and racist notions that were prevalent in the era (1.7 million data points in the pre-computer age was a bit daunting, but he did use almost a quarter of a million of the tests). Erik, as our resident quote-reader, could you read some of Brigham's statements about race?

Erik: Certainly! He said, "It is also possible to make a picture of the elements now entering into American intelligence. At one extreme we have the distribution of the Nordic race group. At the other extreme we have the American negro. Between the Nordic and the negro, but closer to the negro than to the Nordic, we find the Alpine and Mediterranean types." (Carl Campbell Brigham, 1923, p. 187)

And later, "We must face a possibility of racial admixture here that is infinitely worse than that faced by any European country to-day, for we are incorporating the negro into our racial stock, while all of Europe is comparatively free from this taint." (Carl Campbell Brigham, 1923, p. 209) One of the findings coming out of the Alpha and Beta tests was how alarmingly stupid the American public was. As Terman put it, "It appears that feeble-mindedness, as at present defined, is of much greater frequency of occurrence than had been originally supposed," as the test scores placed 47% of the white GIs and 89% of the black ones in the moron category!

Jo: Here's a factoid that students should especially appreciate. After the war, Carl Brigham became a psychology professor at Princeton and began to adapt the Army Alpha test for use on incoming freshmen. After several years of refinement, Brigham turned the test into the SAT which was administered under his supervision in 1926 for the very first time. Maybe it's not a coincidence that some of the same criticisms about racist tests have been leveled at the SAT as were offered for the Army tests—including the idea I was talking about earlier, that these tests often seem to measure familiarity with cultural context or even familiarity with the testing mechanism, as much as they do some inborn capacity.

Jim: Even some of the early creators and analysts of the IQ tests came to regard them this way. Both Brigham and Terman reversed course by the early 1930s. In a 1930 scathing review of the

interpretation of the meaning of intelligence tests, after ripping them a new one as testing some innate, inherited capacity, Brigham said, "comparative studies of various national and racial groups may not be made with existing tests, [which show] that one of the most pretentious of these comparative racial studies-the writer's own-was without foundation." (C. C. Brigham, 1930, p. 165)

Jo or Erik: Next time we'll spend more time looking at what's happened to race and IQ since the mid-twentieth century. And we'll even get back to Arthur Jensen, the guy Jim almost ran into! Except for the tear gas. `

I'm Jim, the physical anthropologist, I'm Jo the cultural anthropologist, and I'm Erik the historian of science. Thank you for listening to Speaking of Race.

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