



# Scientific Racism

## THE DISTURBING RESILIENCE OF A SOUNDLY REJECTED IDEA

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*This story highlights four characteristics of science misinformation and disinformation efforts: inability to publish in peer-reviewed outlets, promoting conspiracy explanations, fabrication of wide support in science, and neglect of refuting information. See our website article [Characteristics of Science Misinformation/ Disinformation Efforts](#) for more information regarding these tactics.*

Humans are social creatures, having a natural tendency to form groups (e.g., family, extended family, communities). The desire to bond together in groups has significant survival benefits. If you imagine living in a hostile world where food, shelter, and safety from the natural world is always a concern, you will quickly grasp the advantage of forming a cohesive functioning group. Forming groups (or making categories for any other purpose) means attending to similarities and differences. For instance, the formation of groups usually occurs among people who share similarities (consider religious affiliations, fans strongly identifying with a team, ethnic identity, and national pride), and their similarities become a feature of the group, distinguishing them from others. Aristotle noted that the concept of “same and other” runs deep in human history.

The natural tendency of humans to create groups based on similarity has undeniable benefits, but also indisputable tragic consequences. Paramount among the latter is a tendency to be cautious and apprehensive of those who we may identify as “not like us.” As a result, humans have a long history of being suspicious and even hostile to people who are thought to be different, and this is reflected in historical and ongoing accounts of prejudice, aggression, and atrocities among people based on group identification. For example, the Crusades involved violent religious wars between Christians and Muslims. The Spartans and Trojans battled in ancient Greece, each group considering the other to be inferior. Scandinavians mistreated the ethnic Sami through the banning of their language, dislocation, and loss of land. The Nazi party in Germany horrifically exterminated Jews, gypsies,

and other ethnic groups. The British invaded Ireland (as did the Vikings and Normans). Africans from across the continent were taken to North America and enslaved. China has been accused of committing crimes against the Uyghur ethnic group, including forced sterilization and forced labor, and ethnic violence continues to rage in Africa.

Groups often seek to justify their despicable thinking and actions by focusing on differences, wrongly villainizing those they mistreat, and/or seeking to rationalize their own group's superiority. Efforts to convince others that another group is a threat or is inferior can be done through a number of means. Groups have used religion, psychology, sociology, and even science to justify injustices. This does not mean that those fields are inherently corrupt or wicked, but that they can be misused (intentionally or unintentionally) with sordid results. What follows is how widely held racist ideas were initially given support by the scientific community that lasted well into the 20<sup>th</sup> century, how those ideas came to be soundly rejected by science, and how some people today still wrongly attempt to portray such ideas as having a scientific basis.

### Early attempts to explain race

In the 18<sup>th</sup> century, western European nations were in the midst of colonial expansion throughout the world. The Portuguese, British, Spanish, and French were also major forces behind the transatlantic slave trade—a horrific practice of exploitation and cruelty that eventually resulted in the abduction and enslavement of over 11 million Africans (Eltis, 2001). While western Europe was rarely the direct recipient of slaves, some were brought to the continent as servants, and this fueled debates there about the

ethics and legality of slavery. In Great Britain, the *Somerset v. Stewart* case of 1772 ruled that an escaped slave named James Somerset could not be forcibly taken from England to Jamaica, and instead had to be freed—a ruling viewed by many as marking the legal end of slavery in the country (Cotter, 1994). However, the transatlantic slave trade continued, leading to increased debate and opposition by abolitionist groups. In 1807, Britain's parliament finally abolished the slave trade (Coffey, 2012), as did France seven years later in the Treaty of Paris (Adams, 1925). Other countries followed suit in the ensuing years, but the slave trade did not completely end until the 1850s.

While Europe was slowly moving towards the abolition of slavery and the slave trade, scientists and other intellectuals of the era were wrestling with the meaning of race and the origin of differences between humans. Early approaches to explaining race were typified by categorization of humans, hierarchization of groups, and essentialist thinking (i.e., each race was thought to possess underlying, defining characteristics). The famed naturalist Carl Linnaeus, whose taxonomic system of nomenclature is still used today, provided one such early attempt at defining races. Linnaeus' writing in *Systema Naturae* in the late 1750s and early 1760s described five varieties of *Homo sapiens*: *Americanus*, *Europaeus*, *Asiaticus*, *Afer*, and *Monstrosus* (Svensson, 2012). Each of Linnaeus' first four varieties was associated with a skin color (i.e., red, white, yellow, and black, respectively), while *Monstrosus* included people with certain deformities (Svensson, 2012). Linnaeus' simplistic (and in time, shown to be erroneous) categorization also reflected an essentialist manner of thinking, as he ascribed other physical characteristics and personality traits to each supposed variety of human. For example, Linnaeus envisioned *Afer* as being a variety of people with black skin, who were lazy, careless, and crafty (Heyer, 2020; Svensson, 2012).

Categorization attempts such as Linnaeus' were widely accepted during the 18<sup>th</sup> and 19<sup>th</sup> centuries, as was the belief among many that the discrete races described were hierarchically related, with white people viewed as superior, followed by people with “yellow,” “red,” and then black skin (Heyer, 2020). But difficulties and disagreements were common among explanations regarding what races actually were, why the supposed differences in the races existed, and how those explanations could be reconciled with

Biblical accounts. Generally, two broad explanations were prevalent in such debates: Monogenism and polygenism. Monogenists asserted that all people descended from Adam and Eve, but that certain races had degenerated more than others, possibly due to climate (Gould, 1993; Menand, 2001). Some monogenists therefore argued that racial degeneration could be reversed with the right environment (Gould, 1993). Conversely, polygenists argued that all races were created in the beginning with their various attributes, and that races actually represented different species (Menand, 2001; Vieler, 1999). Polygenists rejected the degeneration argument by cherry-picking archaeological evidence from locations such as ancient Egypt that depicted darker skinned people as being slaves during that time period—artifacts that supposedly supported the notion that relationships between races had not changed for thousands of years (Menand, 2001). Polygenists were more extreme in their characterization of races as different species, but monogenist and polygenist ideas were held by both abolitionists and supporters of slavery. While polygenist views originated in Europe, the position would eventually come to be associated with America, where it received significant support (Gould, 1993).

Two American polygenists were Samuel Morton and Louis Agassiz. Agassiz was originally a Swiss naturalist, but he emigrated to the United States in 1847 and eventually became a professor at Harvard (Gould, 1993). In describing Agassiz's significance, Stephen Jay Gould (1993) stated that “No man did more to establish and enhance the prestige of American biology during the nineteenth century” (p.94). Agassiz opposed slavery, but his fear of miscegenation (the interbreeding of people considered to be of different racial types) and self-described revulsion towards black people (Gould, 1993) was evident in his advancement of the polygenist idea that God's placement of organisms on earth—including each species of human—had been made based on the climate of the region (i.e., zones of creation) (Graves Jr., 2015).

### QUESTION 1

A characteristic of misinformation/disinformation is that accurate science is seen as incongruent with and a threat to a tightly held worldview. What worldview is behind tribalistic tendencies, including racism?

Agassiz's views were undoubtedly also partially the product of his close association with the American anthropologist Samuel Morton. Morton had two medical degrees and has been described as “one of the giants of the American scientific community of his time” (Michael, 1988). However, what Morton is best known for today are his polygenist views and the research that he conducted seeking to support those conceptions. Over the course of Morton's career, he collected over 1,000 human skulls to look for differences between races (research known as craniometry (Gould, 1993). One of the primary measurements of Morton's focus was the cavity volume of the skulls. This reflected the errant assumption of the era that white people were more intelligent, along with flawed reasoning regarding the relationship between cranial volume—used as a proxy for brain size—and intelligence. Morton's team of researchers initially made measurements by filling the skulls with mustard seeds and then determined the volume of those seeds (Gould, 1993). Morton's data strongly supported his preconceived hierarchical notions of race with Caucasians reportedly having mean cranial volume over 11% greater than that of Ethiopians (Figure 1). However, in an analysis of Morton's work, Gould (1993) uncovered a wide variety of flaws in the anthropologist's research, including mathematical errors, lack of corrections for factors that affect

vanished (Gould, 1993). While Morton may therefore seem like a fraudulent scientist, he openly reported all of the steps that he had taken in an appropriate manner, leading Gould to conclude:

Yet through all this juggling, I detect no sign of fraud or conscious manipulation. Morton made no attempt to cover his tracks and I must presume that he was unaware he had left them. He explained all his procedures and published all his raw data. All I can discern is an a priori conviction about racial ranking so powerful that it directed his tabulations along preestablished lines. (p.111)

### ! NATURE OF SCIENCE CONNECTIONS

Note the last line of Gould's quote—Morton's ideological belief in the ranking of races was so strong that, without his awareness, it distorted numerous aspects of his investigation. All scientists live within a certain sociocultural context that may consciously or unconsciously affect their work. Science does have numerous safeguards to avoid ideological distortions from leading the community astray, such as replication of measurements and careful analysis of methodological techniques by scientists and their peers. In the case of Morton, he actually did recognize that his method of measuring using mustard seeds was prone to reliability issues, prompting him to repeat his cranial capacity measurements with lead shot. However, the larger problem for scientists during Morton's era was that they were largely a homogenous community of wealthy, white, Christian males from western Europe and America. A diverse community of scientists would be more likely to spot dubious assumptions about race and identify the problematic research methods that pervaded craniometry. A key safeguard in science, therefore, is having a diverse community of highly qualified researchers who are more likely to question assumptions, methodological issues, and errors that may otherwise go unnoticed. As you continue to read, consider how the story likely would have been different with such a heterogeneous group of scientists.

RACES.	No. of skulls.	Mean internal capacity in cubic inches.	Largest in the series.	Smallest in the series.
Caucasian.	52	87.	109.	75.
Mongolian.	10	83.	93.	69.
Malay.	18	81.	89.	64.
American.	147	86.	100.	60.
Ethiopian.	29	78.	94.	65.

**Figure 1.** Morton's (1839) table of cranial measurements using mustard seeds. Note how the cranial volume measurements aligned so closely with the aforementioned ideological hierarchy of races that was widely accepted in western Europe and America during the era.

cranial volume (e.g., height and sex), overrepresentation of people from small-statured groups (e.g., Incans) in the American (i.e., Native Americans from North and South America) category, and selective inclusion and exclusion of other groups that otherwise did not fit with his expected results. Once Morton's errors were addressed, the previously significant differences between the races largely

### Post-evolutionary scientific racism

The work of Morton is reflective of much of the research conducted on race during the 19<sup>th</sup> and early 20<sup>th</sup> centuries that rested on the assumptions of distinct, hierarchically arranged races with biologically determined characteristics, and that focused on observable anatomical differences (e.g., cranial volume). However, after Darwin's *Origin of Species* was published in 1859, scientists had a new



lens through which they could examine issues related to race. Thinking and arguments surrounding race subsequently shifted from using religion to employing a scientific idea that was not directed at race, but rather explained how the diversity of life arose on Earth (Gould, 1993; Graves Jr., 2015).

One person who was deeply impacted by Darwin's *Origin of Species* was his half-cousin, Francis Galton. Galton was a wealthy intellectual who made a number of significant contributions to the fields of statistics and meteorology. His fascination with evolution by natural selection influenced his thinking, and he put forward the idea that social success could normally be explained by inherited traits—which he viewed as encompassing physical, mental, and personality traits (Paul, 2015). However, Galton believed that human choices had disrupted natural evolutionary processes and, as a result, undesirable elements of society were reproductively outpacing the most wealthy, capable, and intelligent (Paul, 2015). The British scientist therefore proposed that efforts should be made to promote increased reproduction among certain segments of the population, while inhibiting others from having children—an idea that Galton dubbed “eugenics” in 1883 (Paul, 2015).

The end of the 19<sup>th</sup> century and early 20<sup>th</sup> century brought widespread support for social Darwinism (which has since been discredited within the scientific community and should not be conflated with the well-supported idea of biological evolution by natural selection) and eugenics in both Europe and the United States. In 1896, Frederick Hoffman wrote an influential book titled *Race Traits and Tendencies of the American Negro*, in which he devoted over 300 pages citing statistics that highlighted high rates of medical issues and crime among black Americans (Hoffman, 2003). Instead of implicating factors involving socioeconomic status, environmental conditions, or oppressive racism, Hoffman instead blamed intrinsic flaws in black people (Hoffman, 2003). Hoffman would go on to rise through the ranks at the Prudential Life Insurance Company, where his statistical work and racist ideology were used to increase rates and deny coverage to African Americans and various other minority groups (Hoffman, 2003).

In 1916, the eugenicist Louis Terman introduced the Stanford-Binet test of intelligence to the United

States, with a few modifications (Lewontin et al., 1993). For example, Terman added a score that reported the ratio of the mental age of an individual to their chronological age called the intelligence quotient (IQ) (Lewontin et al., 1993). Terman and others, such as the English psychologist Cyril Burt, also analyzed the results of the test and removed items with differential results for girls and boys, but did not do so when differences arose based on race or socioeconomic status (Lewontin et al., 1993). The rationale behind such actions was that the Stanford-Binet test had originally been developed to identify French students who needed interventions to help them succeed, but many eugenicists viewed intelligence as a fixed property that could be used as a measure of how educable a student was (Lewontin et al., 1993). Unsurprisingly, minority, immigrant, and low socioeconomic status individuals tended to score lower on IQ tests. Immigrants were particularly discriminated against by the questions due to the cultural knowledge required to accurately answer them (e.g., nicknames of baseball teams) (Lewontin et al., 1993). The impact of IQ scores cannot be understated. For example, low scores were often used to place students into dead-end educational tracks (Lewontin et al., 1993). Twenty-nine states also enacted laws between 1910 and 1940 that allowed for forcible sterilization of individuals who, among other potential reasons, were deemed to be “feeble-minded” (Castles, 2002).

In Europe, the French anthropologist Georges Vacher de Lapouge held extreme eugenicist views that were coupled with prejudice against Jewish people and biological notions of race in his publications that spanned from the late 1870s to the early 1930s. For instance, the Frenchman argued for the superiority of an Aryan race, and the need to increase the numbers of those people (Hecht, 2000). In order to accomplish such ends, Vacher de Lapouge advocated for the state to identify Aryans using head shape measurements, and then to tightly control human reproduction (Hecht, 2000). Similarly, the German anthropologist Ludwig Woltmann also argued for eugenics to be used to promote the Aryan race, which he envisioned as being tall, with large heads, blue eyes, and light skin (Vieler, 1999). The work of Vacher de Lapouge and Woltmann was influential with people such as Hans F. K. Günther, who had a significant impact on the ideology of the Nazi party in the two decades preceding World War II (Hecht, 2000; Vieler, 1999). Sociocultural influences

had driven the ideology and assumptions underlying the research supporting biological racism, and that scientific work had in turn shaped society and was used to justify the abhorrent treatment of people throughout the period. However, the horrors of the holocaust were about to force society to confront the beliefs—scientific and otherwise—that were used to support the tragedy.

### Major shifts in political and scientific understanding

In the years immediately following the end of World War II, significant political and scientific shifts related to race occurred. However, a change in how many scientists viewed race had been gaining momentum for a significant amount of time before that point. For example, in 1934 the Institute of Sociology and the Royal Anthropological Society held a conference to discuss race that attracted many top British scientists (Schaffer, 2007). At the meeting, many scientists were already vocally questioning biological determinism, and instead were arguing for increased consideration of the role of culture in explaining differences between people (Schaffer, 2007). The more extreme polygenist views expressed at the conference were not representative of the majority of attendees, and Schaffer (2007) argues that most biologists continued to moderate their views about race throughout the 1930s and 1940s.

Politically, President Harry Truman established the President's Committee on Civil Rights in 1946, which questioned the validity of race as a scientific construct (Schaffer, 2007). Four years later, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) commissioned a group of top social scientists to address the issue of race (Selcer, 2012). The resultant paper made fifteen points related to race, including the fact that humans belong to one species, and that “[f]or all practical social purposes “race” is not so much a biological phenomenon as a social myth” (UNESCO, 1950). While some scholars have argued that 1950 marked the end of “racial science,” the UNESCO statements were merely indicative of the broader shift that was occurring within the scientific community, and they did not end biological conceptions of race or scientific debate about the topic (Schaffer, 2007). However, the typological, essentialist approaches to race that had characterized much of 19<sup>th</sup> and early 20<sup>th</sup> century scientific discussions—particularly involving characteristics such as mental capacity and personality—were rapidly being recognized as

outdated and indefensible. Despite the growing consensus that race is not an empirically supported scientific construct, not all scientists abandoned their prior ways of thinking.

### Those who are left behind

Reginald Ruggles Gates was a well-known biologist who was a fellow of the Royal Society in the United Kingdom and worked for a time as a professor at King's College London. Gates was active in the scientific community and served alongside top scientists in Britain on the editorial board of the *British Journal of Experimental Biology* in the 1920s (Schaffer, 2007). Gates espoused polygenist views that human races actually were separate species (Schaffer, 2007), and during the 1920s, such views were still mainstream. At the aforementioned Institute of Sociology and the Royal Anthropological Society conference concerning race, Gates was a prominent voice with support among other attendees, but he was already in the minority by that time (Schaffer, 2007). As the scientific community shifted towards understanding race as a social construct, and biological differences in terms of populations, Gates remained fixed in his views despite the evidence that soon was to overwhelmingly discredit his views.

In 1947, Gates was working as a professor at Howard University in Washington D.C., which is a historically black university (Schaffer, 2007). Unsurprisingly, Gates' views on race and his support for segregation were not well-received, and eighteen of his colleagues signed a petition demanding that he be removed (Schaffer, 2007). Gates agreed to leave at the end of the term, but instead of recognizing the problematic and anachronistic nature of his ideas, he blamed his ousting on a Jewish conspiracy (Schaffer, 2007).



### RED FLAG

#### **Promoting conspiracy explanations**

Gates was a well-respected scientist, but he held on to ideas that were in time empirically discredited by the scientific community. Unable to provide compelling evidence for his views, he was increasingly ignored. His charge of a conspiracy is a common tactic of those who seek to explain why their ideas are rejected by the scientific community. Conspiracy theories are often a tactic of those promoting misinformation/disinformation.

As time went on, the formerly prestigious biologist became increasingly isolated. The growth in understanding that had occurred in science related to issues of race had brought with it methodological changes to research as well—changes that were not evident in Gates' work (Schaffer, 2007). By the 1950s, Gates' continued adherence to discredited science ideas and methodologies had made his work virtually unpublishable in reputable scientific journals. Instead of retiring, Gates found others with similar views on race and helped to create a new journal in 1960 called *The Mankind Quarterly* (Schaffer, 2007). *The Mankind Quarterly* was supported by pro-segregation sources, which were then rewarded with the publication of seemingly scientific articles that supported discredited views on race (Schaffer, 2007).



### RED FLAG

#### **Inability to publish in peer reviewed outlets**

Misinformation/disinformation is typically caught in the vetting process of reputable scientific publication outlets. Unable to publish their work in legitimate, peer-reviewed journals, purveyors of misinformation/disinformation seek other ways to disseminate their ideas. In this case, *The Mankind Quarterly* provided a means for Gates and others to continue publishing work long after expert reviewers of respected journals in their field stopped accepting their work.

#### QUESTION 2

A common characteristic of misinformation/disinformation efforts is an attempt to legitimize incorrect views by incorrectly conveying larger support in science than actually exists. How did Gates' efforts fit this feature of misinformation/disinformation?

The anthropologist Juan Comas analyzed an article from the journal in 1961 and pointed out numerous flaws including, among other things, failure to acknowledge that cited studies had been previously rebutted, and the author used misleading and incomplete evidence in the paper. Comas concluded that the study was “an example of racist propaganda, masquerading as scholarly discussion” (p.314). Since Comas' paper was published, *The Mankind Quarterly* has received significant funding from The Pioneer Fund, and the journal's editors have included Roger Pearson and Richard Lynn—all three of which are listed by the Southern Poverty Law

Center as being associated with white nationalist ideology (SPLC, n.d.a; SPLC, n.d.b; SPLC, n.d.c). *The Mankind Quarterly* continues to be published today.



### RED FLAG

#### **Neglect of Refuting Information**

Citing research that has previously been deemed inaccurate or otherwise lacking by the scientific community is a tactic often used by proponents of misinformation and disinformation. The strategy is particularly effective because the cited studies generally were published in legitimate journals, which lends them credibility, but members of the public are rarely aware that the work has been rebutted.

#### QUESTION 3

This story illustrates that the scientific community is not immune from error. Yet, why is relying on the community of legitimate scientific expertise the best safeguard against misinformation/disinformation?

Modern genetic studies have posed further challenges to biological conceptions of human race. In order to operationalize “race” in a universal manner that can be empirically tested, scientists have utilized two different definitions of the construct: (1)  $\geq 25\%$  of genetic variability can be attributed to between-group differences, with pronounced boundaries between populations; or (2) Discrete evolutionary lineages among a single species (i.e., individuals capable of successfully reproducing) (Templeton, 2013). Applying these criteria, three distinct subspecies of chimps exist. However, in humans, only 4.3% of genetic variability is attributable to between-group differences—far below the 25% threshold required by definition (1) of biological race, and sharp boundaries were not observed (Templeton, 2013). Research-based on definition (2) of biological race has similarly rejected the existence of distinct evolutionary lineages among humans (Templeton, 2013). Modern genetic research refutes the notion that biological races exist among humans. Populations of humans have simply never been isolated for sufficient time for speciation to occur since migration has consistently led to significant interaction between groups (Gannett, 2001; Graves Jr., 2015; Heyer, 2020) and the sharing of genes.



Reflecting how race is a social construct rather than it having a biological basis, the manner in which people have been split into races has varied widely based on geopolitical and sociocultural factors that have shifted over time. For example, the Irish were regarded as belonging to a separate race during the 1840s and 1850s in America (Marshall, 1993). Then, from the 1870s to the 1920s, Italians arriving in the United States were viewed as being non-white (Luconi, 2021). Today, only a handful of races are recognized in America, but over 40 are identified in Brazil (Marshall, 1993). In early 20<sup>th</sup> century Japan, scholars recognized a group of people there called the Eta as a separate, marginalized race—even though the Eta were physically indistinguishable from other Japanese races (Marshall, 1993). Race is therefore now well-established as a social construct, but that should not be misconstrued to mean that racism and the devastating effects that stem from it are any less real.

#### QUESTION 4

*Neglect of refuting information is a characteristic of misinformation/disinformation efforts. List the scientific evidence appearing in this story that must be ignored in order to maintain the incorrect idea that race is biological.*

#### **That scientific knowledge can change is a strength of science**

Much of the early scientific research on race was legitimate, but profoundly misguided by the racist assumptions that the scientists held. The fact that

ideology can affect scientists is inescapable because they are people who work in societies and are influenced—consciously or not—by all of their knowledge and experiences. One of the greatest safeguards that science has against such undue ideological influence is to ensure that the scientific community is composed of a diverse range of individuals in terms of geography, political views, religion, race, sex, etc. Historically though, scientists who were wrestling with issues of race during the 19<sup>th</sup> and early 20<sup>th</sup> centuries were generally affluent, white, Christian males from western Europe or North America. A truly diverse scientific community undoubtedly would have fiercely challenged the racist assumptions and conclusions common to that era and would have helped to develop more accurate conceptions of race that may have avoided some of the horrific actions that were justified by scientific racism.

The case of Reginald Gates highlights the fact that the views of individual scientists or research groups should be treated with caution, since they may not reflect that of the wider scientific community that is responsible for vetting ideas. Instead, people evaluating scientific information should focus on the consensus of the scientific community, since—while imperfect—the group provides protection against untenable positions that individuals may hold. By learning how to avoid misinformation, disinformation, and pseudoscientific views, we can better avoid racist ideas masquerading as legitimate science.

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