3

Race According to Biological Science

Many scholars now consider race to be a **social construction**. This means that racial categories, such as "black," "white," or "Asian," are not based on natural or inevitable human differences but are the result of social ideas, values, and practices, which could be otherwise, with the same biology. There are two ways in which human races have been social constructions. The first way pertains to the biological foundations for race in science. Ideas of race, as first developed and then unraveled by scientists are the subject of this chapter. The second way that race is socially constructed pertains to attitudes, biases, stereotypes, generalizations, and real-life practices concerning members of different racial groups and that will be the subject of the chapters of Part II.

We should start by saying what we mean by the word "race." First, as noted at the beginning of Chapter 1, the plural "races" are the subject, because if there were only one race, it would be the whole of humanity and discourse about racial differences would be pointless. "Race" is an ordinary word in English that we use to categorize individuals as belonging to or having the traits of one or more of a specific number of groups. Most people belong to one race—that is how they view themselves and how others view them. In the United States, the major races are specified by the US Census. The Population Estimates Program (PEP) interprets the data from the US Census, which is in turn used by institutions throughout society. This is how that process begins:

> Population estimates use the race categories mandated by the Office of Management and Budget's (OMB) 1997 standards: White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander. These race categories differ from those used in Census

N. Zack, *Philosophy of Race*, Palgrave Philosophy Today,
https://doi.org/10.1007/978-3-319-78729-9_3

> 2010 in one important respect. Census 2010 also allowed respondents to select the category referred to as Some Other Race. When Census 2010 data were edited to produce the estimates base, respondents who selected the Some Other Race category alone were assigned to one of the OMB mandated categories. For those respondents who selected the Some Other Race category and one or more of the other race categories, the edits ignored the Some Other Race selection. (U.S. Census Bureau, PEP 2017)

While the Census relies on respondents to identify themselves by race, it is expected that every respondent can be identified by one of the five major racial categories, even those who select "some other race."

We can see from the PEP account that US Census data about race is not inert information that is left in its original form of how respondents have categorized themselves. Instead, the responses become structured data by classifying people into one of five categories. On this level, and on many other levels throughout the US society, there is thus a system of race: White, Black, American Indian, and Alaskan Native; Asian; Native Hawaiian, and Other Pacific Islander.

The primary philosophical question concerning race in terms of science is whether human races exist. But the term "science" must be further specified. Since racial categories entered Western culture, with the beginning of the science of biology in the modern period, biology, including individual heredity, evolution, and population genetics has been the major science of race. Philosophers and others have claimed that the question of whether race is real according to biological science is important, if most people in society believe that race is real according to biological science and researchers in the social sciences and humanities accept that belief in their studies of race. If there is such widespread belief in the reality of race, the question is whether these beliefs about race and biology are true.

Biologists have found traits that can be associated with each of the five racial groups of the social racial **taxonomy** or system of classification. But that in itself does not mean that race is a *biological taxonomy*, according to biologists. In other words, it is possible that most people think that race is real in biology but have assumed this only because there are biological traits, which can be studied by biologists that are associated with race, such as skin color. For the human race to be biologically real, there would need to be a taxonomy of human race that was independently accepted and relied upon by biologists. The general term *race* has since Charles Darwin's research, referred to specific kinds of subdivisions within animal and plant species, which biologists have independently discovered (Darwin and Wallace 1858). Asking if the human race is real for biologists means asking if biologists have

independently discovered that human beings are divided into races. The discovery of races within animal and plant species has not been based on the prior social ideas about such races. For human race to be a valid biological taxonomy, it should also not be based on prior social ideas about races.

But even independent biological discovery does not address fully address the scientific requirements for a taxonomy of human race. Consider the concept of pets, in this regard. There could be a taxonomy for the five most common pets: dogs, cats, fish, birds, and rabbits. Each of these kinds of animals has traits that can be, and are, studied in biology. But that does not mean that their social classification under pets corresponds to a biological system of classification used by biologists. The philosophical issue about race and biology is whether the social taxonomy of human race corresponds to a valid independent taxonomy in biology. The skepticism here is analogous to Jerry Fodor's critique of scientific reductionism, the idea that because all material things are ultimately made up of particles studied by physicists, all of the other sciences can be **reduced** to physics. Fodor's example is economics. Every economic transaction, be it on paper, verbal, electronic, or plastic, does have a physical correlate that can ultimately be explained by physics, in terms of atoms and electrons and whatever else physicists find relevant. But the main categories in the system of money do not line up with categories independently studied in physics. For instance, the branch of physics that would study the particles in the paper, or sound, are very different from the branch that would study electronics. This can be summarized as saying that the science of economics cannot be reduced to the science of physics (Fodor 1974). Similarly, the societal system or taxonomy of race may not be reduced to a system or taxonomy in biology.

If the idea of race commonly accepted in society—call it *the ordinary idea of race*—does not correspond to a scientific idea of race and the ordinary idea of race assumes or has embedded in it, belief that such correspondence exists, then there is something wrong with the ordinary idea—it is a false idea. To understand this issue more fully requires understanding the history of race in science leading up to contemporary biology. This history consists of: early ideas of race in biology, racist ideas of race in biology, transitional ideas of race in biology, races as populations, and further considerations of how populations are now studied. The history of science is important here, because it is in the nature of science to revise previous findings and theories as new information is acquired. That is, science, including biology and the human sciences therein, is **revisionist**—it is constantly revising itself as a valued methodology in light of new evidence (Radnitzky and Andersson 1978; Goodstein 2011).

Early Ideas of Race in Early Biology

The scientific study of race originated at the same time that the modern science of biology originated. Biology originated with methodologies of classification and taxonomies or *systematics*. We can see this coincidence between early race and early biology through the ideas of several influential early biologists. Before the study of race by biologists, there were of course systems of human classification and division, from the ancient world through medieval times. Groups of people were and continue to be distinguished and divided based on many factors, including: sex, wealth, royalty or commoner status, nationality, religion, class, language, occupation within society. Some of these divisions are hereditary and others can form in single life times. However, there was no one universal taxonomy of humankind that divided all human beings into a set number of inherited groups, before the idea of biological race. **Universal human racial taxonomy** has had two parts: (1) assignment of individuals to racial categories and (2) value assessments of different racial groups, and their members. As we shall see, both were combined to different extents in the early history of modern science. However, noteworthy in the early history, before full-blown assessment, were Francois Bernier, Carolus Linnaeus, Johann Friedrich Blumenbach, and George-Louis Leclerc.

Seventeen-century French physician and philosopher Francois Bernier (1625–1688) is credited with having created the modern biological idea of race. Bernier became famous for his travels, after spending twelve years as a physician in the Mughal Court in India. He was the first person to measure the speed of sound and a colleague and friend of John Locke's. In 1684, Bernier first published his "Nouvelle Division de la Terre" ("New Division of the Earth") anonymously and prestigiously in *Journal des Scavans* (the first academic journal in Europe). Bernier divided humankind into races or species (he used these terms interchangeably), based solely on physical traits. He presented skin color, hair type, and bodily shape as more fundamental criteria for human classification than geographical origin or location and he claimed that there were four or five species or races, according to those criteria: (1) The "first race," made up of people from Europe, North Africa, the Middle East, India, part of South-East Asia, and the native population of the Americas; (2) The African negroes; (3) The East and Northeast Asian race; and (4) The Lapps (Stuurman 2000, pp. 4–6).

Bernier posited the greatest differences between 1 and 2 and referred to 1. The "first race" as "we" throughout his text. Bernier's ideas of four or five races or species set the stage for subsequent biological thought about race, until well into the twentieth century. The influence was extensive, including philosophers who provided theoretical support, as we saw in Chapter 1.

By the mid-1700s, Carolus Linnaeus (1707–1788), a Swedish botanist, physician, and zoologist, was highly acclaimed for his classifications of plants and animals. He invented the early three-kingdom system for classifying natural beings (below kingdom was: phylum/division, class, order, family, genus and species). In Linnaeus's *Systema Naturae*, humans were first classified as primates and then given their own category, *Homo sapiens*. Homo sapiens had four *varieties* (types within species) according to skin color and geography: Europæus albus (white European), Americanus rubescens (red American), Asiaticus fuscus (brown/yellow Asian) and Africanus Niger (black African). Linnaeus later associated each variety with a *humor* or temperament: Europeans–Sanguine; Americans–Choleric; Asians–Melancholy; Black–Phlegmatic (Smedley and Smedley 2011, pp. 218–9).

Stephen Jay Gould (1941–2002), eminent twentieth-century paleontologist and evolutionary biologist explains how Johann Friedrich Blumenbach (1752–1840) a great admirer of Linnaeus, changed racial taxonomy from mere physical difference, to difference plus assessment or valuation. Gould begins by asking how white Europeans came to be called "Caucasian," after a mountain range over Russia and Georgia. Blumenbach invented this name in *De Generis Humani Varietate Nativa* (*On the Natural Variety of Mankind*) (1975–1995), because he thought that this area was populated by very beautiful people and was likely where humans originated. Blumenbach changed very little of Linnaeus's taxonomy, except to add the Malay variety within Asians, as a fifth racial group.

Gould suggests that Blumenbach's greater influence compared to Linnaeus was based on the geometry: the fifth race made it possible to present pictorially a model in which two pairs of races radiated out from the white race. Blumenbach also proposed that after a common origin, nonwhite racial groups formed as "degenerations" resulting from different climate conditions. He was not overtly racist against nonwhite groups and did not think that any particular mark of inferiority set Africans apart, writing of "the good disposition and faculties of these our black brethren" and maintaining a library of black authors in his home. Gould thinks that Blumenbach's commitments to moral equality were at odds with his appealing five-group model and that his use of an aesthetic ideal, rather than a moral one, for Caucasians, was a way to resolve that dilemma (Gould 1994).

French Naturalist and mathematician George-Louis Leclerc, Comte de Buffon (1707–1788) wrote the 36 volume, *Histoire Naturelle, générale et particulière, avec la description du Cabinet du Roi* (translated as *Natural History*) and his colleagues added eight posthumous volumes. Buffon took up Blumenbach's idea of degeneration and Charles Darwin (1809–1882), credited him for beginning an evolutionary approach to the study of humanity

by introducing the idea of "unity of type" and through that, comparative anatomy. In a strong departure from Linnaeus (with whom he shared birth and death years), Buffon described racial differences as effects of differences in climate and emphasized gradations of difference between races, rather than abrupt species-type discontinuities. While such differences were inherited, Buffon also considered them changeable, even in single lifetime. Buffon's enthusiasm about breeding projects to improve races anticipated eugenics. Although, as we will soon see, eugenics did not aim to "improving" nonwhite races (Nelson 2010).

Racist Ideas of Race in Nineteenth-Century Biology

Racism is unjustified bias about people and groups because of their racial identities. **Racialism** is thought or action based on the belief that human races are real and the differences among races are important. The racism in nineteenth-century ideas of biological race is evident in the writings of George Cuvier, Louis Agassiz, and Joseph de Gobineau, as well as the research of Samuel Morton. This strain of nineteenth-century race science handily supported the eugenics movement.

Blumenbach may not have intended to express bias about nonwhite races, but his aesthetic **valorization** of whites as Caucasians, nevertheless legitimized, inspired, and justified subsequent explicitly racist accounts of human racial taxonomy. For instance, French naturalist and zoologist George Cuvier (1769–1832) departed from Blumenbach's five-race taxonomy, positing three distinct races—Caucasian, Mongoloid, and Ethiopian. Cuvier not only agreed with Blumenbach's ideas about Caucasian beauty but held the white race to be "superior to others by its genius, courage and activity." He described the black race in ways that set the stage for racial hierarchy:

> [M]arked by black complexion, crisped or woolly hair, compressed cranium and a flat nose. The projection of the lower parts of the face, and the thick lips, evidently approximate it to the monkey tribe: the hordes of which it consists have always remained in the most complete state of barbarism. (Cuvier 1831, p. 50)

Attempts made to reinforce popular ideas of racial hierarchy, especially in mid-nineteenth century America, built on work such as Cuvier's, moving into speculations about differences in mental endowment that were

based on unreliable empirical data. Gould chronicles some of this work in *The Mismeasure of Man*, including the *craniometric* or skull measurement studies conducted by physician Samuel George Morton (1799–1851). Based on skull size, Morton, who believed that human races were different species, rather than varieties (greater differences were posited between species than between varieties) claimed in *Crania Americana* that whites had the biggest skulls and blacks the smallest. Gould casts doubt on the accuracy of Morton's measurements that included substituting bird seed for birdshot in measuring the volumes of black skulls, which resulted in less volume (Gould 1996, pp. 82–103). Gould does not impute overt racist motives to Morton but summarizes several inaccuracies in his data collection:

> All miscalculations and omissions that I have detected are in Morton's favor. He rounded the negroid Egyptian average down to 79, rather than up to 80. He cited averages of 90 for Germans and Anglo-Saxons, but the correct values are 88 and 89. He excluded a large Chinese skull and an Eskimo subsample from his final tabulation for mongoloids, thus depressing their average below the Caucasian value. (Gould 1996, p. 101)

It should also be emphasized that there is no evidence that brain size is positively correlated with intelligence. As Ashley Montagu put it in 1942: "What the racist never mentions is that the average volume of the brain of Neanderthal man was 1550 cubic centimeters—150 cubic centimeters greater than that of modern whites!" (Montagu, p. 71).

Gould also discusses the career of Swiss naturalist Louis Agassiz (1807–1873), who became a professor at Harvard in 1848 and in 1859 founded the University's Museum of Comparative Zoology, directing it for the rest of his life. Agassiz was highly revered (the Museum website continues to honor him (Museum of Comparative Zoology 2017)), but he was what we would today consider a virulent racist. Although he opposed slavery, he believed that African Americans were a distinct species. In the great nineteenth-century debate about **monogeny** (one human origin) versus **polygeny** (multiple human origins), Agassiz began as a monogenist in Europe but was persuaded to polygenism by American colleagues and his experiences with black Americans who waited on him in a hotel. Besides his polygenism, Agassiz believed that races should be ranked in human worth:

> There are upon earth different races of men, inhabiting different parts of its surface, which have different physical characters; and this fact presses upon us

> the obligation to settle the relative rank among these races, the relative value of the characters peculiar to each, in a scientific point of view. As philosophers it is our duty to look it in the face.

Of Africa, he wrote:

> There has never been a regulated society of black men developed on that continent. Does not this indicate in this race a peculiar apathy, a peculiar indifference to the advantages afforded by civilized society? (Gould 1996, pp. 78 and 79)

Agassiz believed that after the Civil War, blacks would remain in the South and that they should be educated only in manual labor; he was an adamant segregationist, as well as a great admirer of Morton, whom he visited in Philadelphia when Morton had collected 600 of his eventual total collection of over 1000 skulls (Gould 1996, pp. 80–82).

This discussion would be incomplete without mention of the French avowed elitist Joseph Arthur de Gobineau (1816–1882), who responded to the French Revolution by publishing *An Essay on the Inequality of the Human Races*, in 1848 (the same year Harvard hired Agassiz). Gobineau's ideas were well received by white supremacists and anti-Semites in the United States. Although, the extirpated form of his 1200 word tome that circulated left out his claims that most Americans were not racially pure (Gobineau believed that the downfall of all great civilizations was the result of race mixing.) (Richter 1958).

Racist science in the twentieth century also supported the **eugenics movement** restricting inclusion and reproduction of members of groups considered inferior to others. British scholar Francis Galton (1822–1911), a relative of Darwin, is considered the founder of the eugenics movement, although his efforts were not effective in England. In the United States, Charles Davenport (1866–1944), Director of the Eugenics Records Office, was highly influential, leading to congressional passage of the Johnson-Reed Immigration Act of 1927, which limited immigration to 2% of nationalities then residing in the US, and restricted entry from Southern and Eastern Europe (U.S. State Department 2017; The Immigration Act of 1924/The Johnson-Reed Act (Gillham 2001)).

Transitional Scientific Ideas of Race

Biological science became less speculative and more empirical over the late nineteenth and early twentieth centuries, a trend that continued after World War II. Also, egalitarian thought about racial differences developed

in response to the Jim Crow regime in American life. However, many progressive thinkers were uncertain about the scientific reality of physical race and mainly addressed social racism. Nevertheless, there was a marked period of transition in expert and educated thought, following the broad popularity of racist science. Shared within this transitional thought was a background agreement that physical race was real, but that social, moral, and psychological issues associated with physical race were neither inherited nor determined by physical race, but were the results of history and persisting cultural traditions and practices.

The great scientist of evolution, Charles Darwin, related his ideas about race to contemporary hereditary theory in his time. When Darwin wrote, it was not yet known that hereditary material of genes, chromosomes, DNA, RNA, and so forth, functions separately from the traits resulting from it, and that this hereditary material is not part of the observable physiology and anatomy of animals. Darwin subscribed to **pangenesis**, a theory of heredity going back to the ancient world, which held that changes in somatic or bodily cells "drifted" to reproductive cells, with effects on subsequent heredity. He argued in favor of a common origin for all human races, based on his knowledge that racial traits are **clines**, occurring in gradations in nature, over different geographical and climactic differences. His attitude toward the intellectual aptitude of Africans was favorable and his impressions of indigenous people were positive; he opposed slavery (Darwin 1889).

Darwin was primarily focused on physical hereditary and the changes within species over time. His political and social views were incidental to his main work. But evolutionary theory and his principle of "survival of the fittest" were misapplied to society in support of **social Darwinism**, a doctrine used to justify slavery, Jim Crow, Native American genocide, and disregard for the suffering of poor people of all races (Rutledge 1995). Still, beyond oppressive appropriation of his ideas, Darwin is important to keep in mind in terms of scientific theories relevant to race, because he introduced scientifically disciplined empirical observation to his theories of evolution and emphasized the importance of heredity over time, both of which supported more modern theories of human difference.

Social Darwinism notwithstanding, ideas of racial hierarchy changed in the social sciences during the twentieth century. There was a paradigm shift in the separation of hereditary physical race from the social aspects of race. The research and theoretical work of three anthropologists were important in this regard: Franz Boas (1858–1942); Ashly Montague (1905–1999); and Claude Lévi-Strauss (1908–2009).

Boas is widely considered "the father of American Antropology" and his research, popular writing, and exhibitions about cultural difference influenced the next generation of cultural anthropologists. He presented his core ideas first in a 1911 pamphlet version of *The Mind of Primitive Man*, which was published as a book in many editions over subsequent decades (Boas 1911). The title was provocative, because Boas insisted that differences in racial intellectual achievement were fully the result of cultural and environmental differences, rather than determined and unchangeable at birth. He also consistently argued for cultural relativism throughout his career, against the idea that there were objectively more advanced races or cultures, which he denounced as biased and chauvinistic. Boas specified the task of anthropology to study aspects of cultures that made them distinct, such as migration, food, parenting, illness, and interactions with other cultures. Boas himself conducted such **ethnological studies**, with a focus on the Kwakiutl Indians on the coast of British Columbia (White 1963). He thus directly addressed realities of what we now consider cultural difference, but which in the nineteenth-century were considered racial difference. The acceptance of Boas's work meant that what was left in considering "race," apart from its cultural constituents, would have been biological or physical race, without a mental, moral, or psychic component.

Lévi-Strauss took a more theoretical approach to Boas's efforts to combat both ideas of social Darwinism and simplistic evolutionary views of race and culture (e.g., "survival of the fittest"). In his 1952 pamphlet, *Race and History*, he described race as a "social myth" and explained how race was both distinct from culture and part of it. Lévi-Strauss rejected the idea that different cultures were at different stages of progress in civilization and he postulated a universal human ability to cooperate in exchanges, within all "fully adult" human cultures. In a 1971 United Nations Educational, Scientific and Cultural Organization (UNESCO) lecture, "Race and Culture," Lévi-Strauss argued that cultures have a right to preserve their own cultural practices without interference from other cultures. He claimed that racial diversity was the result, and not the cause, of cultural diversity, by analyzing the social or cultural construction of physical race, in terms of both random and structured cultural practices. In "Réflexion," his last UNESCO talk at the age of 97 in 2005, he claimed that cultural diversity and biological diversity were analogous phenomena that should both be preserved (Müller-Wille 2010). But the focus of his thought was on the relation between race and culture and he retained the idea that biological races existed, albeit as products of culture.

Montague became famous for his 1942 *Race: Man's Most Dangerous Myth*. He noted that scientific attempts to divide humankind into races had been arbitrary and based on incomplete understanding of the traits considered important. He drew a very clear line between race as studied by biology and common ideas of race in society:

> In biology race is defined as a subdivision of species which inherits physical characteristics distinguishing it from other populations of the species. In this sense there are many human 'races.' But this is not the sense in which many anthropologists, race-classifiers, and racists have used the term. (Montague 1942, p. 9)

Montague was also active in UNESCO efforts to address "the question of race" through a series of statements.

Despite progressive tendencies in anthropology, eugenics became one of the core programs of Nazi Germany during World War II. The Nazis were directly aware of and opposed to egalitarian advances in thought about race in American Anthropology, for instance, they burned Boas's *The Mind of Primitive Man* in the 1930s and revoked Boas's German PhD (Tax 2017). Soon after the revelations of German extermination of over 12 million Jews, Roma, and other ethnic groups, related to the ideology of Aryan racial superiority, the United Nations addressed international anxiety that the same thing could happen again, with "Four Statements on the Race Question," written in 1950, 1951, 1964, and 1967 and published altogether by UNESCO in 1969 (UNESCO 1969).

Claude Lévi-Strauss was one of the authors of the first statement and Ashley Montague recorded and revised it after criticism. L.C. Dunn recorded the early results in 1951, which supported a minimal concept of biological race after stating that Homo sapiens were a single species and that systems of racial classification or the concept of race could not be universally applied. Thus, Part 1 of this first UNESCO statement asserted:

> Scientists are generally agreed that all men living today belong to a single species, Homo sapiens, and are derived from a common stock, even though there is some dispute as to when and how different human groups diverged from this common stock. The concept of race is unanimously regarded by anthropologists as a classificatory device providing a zoological frame within which the various groups of mankind may be arranged and by means of which studies of evolutionary processes can be facilitated. In its anthropological sense, the word "race" should be reserved for groups of mankind possessing well-developed and primarily heritable physical differences from other groups.

> Many populations can be so classified but, because of the complexity of human history, there are also many populations which cannot easily be fitted into a racial classification. (UNESCO 1951, Part 1)

In Part 5, this first UNESCO Statement on Race also distinguished between physical racial traits that could be studied, and mental characteristics as more dependent on the social environment than heredity:

> Most anthropologists do not include mental characteristics in their classification of human races. Studies within a single race have shown that both innate capacity and environmental opportunity determine the results of tests of intelligence and temperament, though their relative importance is disputed. When intelligence tests, even nonverbal, are made on a group of nonliterate people, their scores are usually lower than those of more civilized people. It has been recorded that different groups of the same race occupying similarly high levels of civilization may yield considerable differences in intelligence tests. When, however, the two groups have been brought up from childhood in similar environments, the differences are usually very slight. Moreover, there is good evidence that, given similar opportunities, the average performance (that is to say, the performance of the individual who is representative because he is surpassed by as many as he surpasses), and the variation round it, do not differ appreciably from one race to another. (UNESCO 1951, Part 5)

We can see that this statement strikes a compromise between Boas's notion of intellectual equality among human groups and Montague's claim that race is not a scientific term, on the one hand, and ideas that intellectual differences between races can be studied scientifically, on the other.

In an Introduction to the complete UNESCO 1969 publication of all four statements, Belgian biologist, and anthropologist Jean Heirneaux summarized the biological arguments against physical hierarchical analyses of ideas of racial hierarchy in a retrospective essay, "Biological Aspects of the Race Question" (Heirneaux 1969). Heirneaux argued that human endowments are the result of interactions between hereditary and culture, leaving little reason to conclude that inherited factors dominate either individual or group capacities and achievements. Moreover, when environmental or cultural factors are changed, mental inequalities between racial groups either decrease or are reversed. He summed up:

> No genetic difference between peoples, however, has ever been proved in this sphere. Admittedly, research on this point is very difficult. There is no psychological test by which the innate factor in mental capacities or affective

> tendencies can be measured alone. But whenever the conditions for the mental development of two populations begin to resemble each other, the differences in the average of the test results are reduced or eliminated; they tend to become reversed when the inequalities of the environment are reversed. (Heirnaux 1969, p. 15)

Heirnaux also suggested that then-contemporary methods in biology used the term "race" in two senses—to refer to distinct groups that mostly bred within themselves and to refer to more broad classificatory schemes such as three or five major races. However, he went on to say that the use of the term "race" as a classificatory scheme leaves out the details of evolution on a population level and is therefore not true to underlying science:

> The evolutionary unit is the **population**; those which are grouped together, in the classifications, as major stocks may have very different evolutionary histories…. The contemporary anthropologist does not regard the human race as naturally divided into white people, yellow people, black people, or any other sub-division, but as composed of a vast number of populations, each with its own history of development. Taken together, they form a continuum such that any attempt at classification according to selected combinations of characters leads to the conclusion that many populations are unclassifiable. (Heirnaux 1969, pp. 11 and 12)

Heirnaux's 1969 UNESCO Four Statements overview represented loss of confidence in the biological aspects of human races for geneticists and anthropologists. His summary of the complex relation between heredity and environment makes problematic any claims that important human abilities, particularly intelligence, are inherited based on the race. And even if such traits are correlated with specific racial membership, it would be false to claim that their presence or absence is caused or determined by the racial membership. However, Heirnaux's methodological approach to scientific studies of race leaves open the question of whether human races exist. It rests with the idea of a population as the main human evolutionary unit but does not explicitly say whether populations are scientific versions of races or not.

Races as Populations in Science

Over the second half of the twentieth century, the biological human sciences, including medicine, population genetics, individual genetics, and biological anthropology moved toward a consensus that there is no independent

scientific foundation for human racial taxonomies, apart from societal views of such differences. However, along the way, the idea of populations appealed to many as a plausible scientific construct that could be a foundation or substitute for ideas of race as understood in society. Heirnaux's UNESCO overview can be interpreted as suggesting that reference to either races or populations is simply a matter of how classification is done—either by "lumping" or "splitting." This view of races as collections of populations implies that there is nothing misleading in using the larger categories of races instead of the more detailed categories of populations, so that it's just a question of how much detail a researcher prefers, almost as a matter of taste.

It seems banal to say that human populations exist. Skeptics about race can agree that populations, or groups geographically bounded that breed within themselves, are the units in which human beings evolve. Members of a population share hereditary similarities that distinguish them from members of other populations. But the question is whether populations are races, as racial taxonomy has been understood. In the late 1960s, Alice Brues's definition of a race as a population was widely quoted: "a division of the species that differs from other divisions by the frequency with which certain hereditary traits appear among its members" (Brues 1977, p. 1). However, to simply assert that races are populations, while it may harmonize controversy, skirts the same problems attending posits of biological race. Criteria for a population are neither self-evident nor widely agreed upon and the number of human populations has ranged from less than fifty to hundreds of thousands (Garn 1965; Relethford 1997, chap. 14). So if races are viewed as populations, the result will not resemble a simple or obvious taxonomy of four or five races.

However, a more serious problem than the arbitrary nature of their number follows the methodological use of populations to replace races—the idea of a population may be incoherent as a scientific concept, independent of prior social standards. In 1972, geneticist Richard Lewontin published a study reporting data on the diversity *within* seven human populations that were considered races in society: Caucasian, African, Mongoloid, South Asian Aborigines, Amerinds, Ocieans, and Australian aborigines. Lewontin found that 85.4% of the human genetic variation, including variation associated with blood groups as associated with races, was within these populations, not between them. Variation between the populations was 8.5%, with geographical variation accounting for 6.3%. Lewontin wrote: "Since… racial classification [as based on populations] is now seen to be of virtually no genetic or taxonomic significance either, no justification can be offered for its continuance" (Lewontin 1972; Sapp 2012).

Lewontin's findings, which used molecular-genetic techniques and statistical analysis of 17 polymorphic sites (locations of multiple forms of a single gene) means that there is greater genetic variation between any two individuals in the same social race than between averages of the races as groups. If the genetic or hereditary material is the primary physical mechanism for race as a taxonomy of human groups, then there is no support for such a taxonomy in modern science.

Subsequent genetic research has supported Lewontin's findings and conclusion. After the human genome was mapped, both Craig Venter of the Institute of Genetic Research and Francis Collins of the National Institutes of Health reported that their research yielded no distinct genes for race or human races (Sapp 2012). Traits such as skin color, facial features, and hair texture may reliably be used to determine racial identity in society, and different types of these traits are more frequent in some populations than others, but these traits do not vary consistently between races and are superficial in genetic terms.

The mapping of the human genome, like Lewontin's research, is directly relevant to contemporary racial taxonomy or classification. However, human populations have also been studied historically in terms of genetic traits associated with different geographical regions. Luigi Cavalli-Sforza, who pioneered much of the twentieth-century research on population lineage, has explained that the genetic markers used to trace populations are not related to physical traits associated with race in society (Cavalli-Sforza 2000, pp. 61–6). Also, population studies are a weak form of taxonomy because there is nothing objective to determine how much of human history needs to be considered. Geographically isolated populations branch off and that is reflected in genetic difference. But the system of branching and the detail of branching are considered arbitrary (Cavalli-Sforza et al. 1996, p. 19). Genetic research and evolutionary biology following Cavalli-Sforza's research in the 1990s have confirmed and even strengthened the conclusion of his findings that common sense ideas of race are not supported in the biological sciences. Nevertheless, racial categories continue to be used in increasing detail in medicine, law, and popular searches for ancestry (Krimsky and Sloan 2011).

Further Considerations About Population Studies

It is important to note that the scientific consensus about the nonexistence of race in biological science and the failure of social racial taxonomy to be independently supported in population studies has not been smoothly

received by all philosophers, or by all scientists, for that matter, much less understood by the public. Two related projects from philosophy of science merit consideration: races as clades and races as geographical groups that are currently accepted in science. A third usage related to public policy also merits consideration in terms of the US Census.

With reference to Cavalli-Sforza's work, Robin Andreasen has proposed that the ordinary idea of race could be given a scientific foundation as a system of clades. Most animals above the species level of classification are **clades**—multigenerational groups with distinctive traits who have a common ancestor and split within a larger group. Andreasen proposes that all human groups can be viewed as clades of an original population that originated in Africa (Andreasen 1998). The current scientific consensus is that modern humans originated in Africa about 150,000 years ago and migrated to Australia and Eurasia about 50,000 years ago (University of Cambridge 2007). However, the population-tracking genes used by Cavalli-Sforza are not linked to what we think of as racial traits, so the idea of races-as-clades would not be an independent scientific foundation for ordinary *racial* classification. Also, clades are not usually applied to groups below the species level, such as races, so either races-as-clades would get reconfigured as species, or if treated as groups more specific than species, there would have to be a scientific way to identify them, which is the primary problem.

Contemporary population studies that avoid classification in terms of geographical continental ancestry have been used to support social ideas of race. Rosenberg et al. report on their 2002 study in this regard:

> We studied human population structure using genotypes at 377 autosomal microsatellite loci in 1056 individuals from 52 populations. Within-population differences among individuals account for 93 to 95% of genetic variation; differences among major groups constitute only 3 to 5%. Nevertheless, without using prior information about the origins of individuals, we identified six main genetic clusters, five of which correspond to major geographic regions, and subclusters that often correspond to individual populations. General agreement of genetic and predefined populations suggests that self-reported ancestry can facilitate assessments of epidemiological risks but does not obviate the need to use genetic information in genetic association studies. (Rosenberg et al. 2002, p. 2381)

Philosopher Michael Hardimon proposes that Rosenberg's research can provide a foundation for a "minimalist concept of race," that he specifies as: a group of human beings distinguished from other groups by visible physical features, whose members share a common ancestry and that originates

from a distinctive geographical location. By a "minimalist concept of race," Hardimon seeks to avoid racist connotations of race, while preserving a biological basis for race (Hardimon 2017). His proposal seems to relate to common sense insofar as ordinary people do assume that racial identity means exactly that one's ancestors were from Europe, Africa, Asian, and so forth. However, Hardimon's minimalist specifications would also coincide with all Homo sapiens who have visible physical features distinct from other animals, and a common ancestry that resided in Africa, according to the out-of-Africa thesis, or else a common ancestry that resided on planet earth. Also, continental ancestry does not always coincide with appearance, because even apparently random genetic testing sometimes reveals ancestry at odds with a person's racial appearance. For instance, students at West Chester University in Pennsylvania who participated in DNA ancestral tests were surprised to find out that they have genetic material associated with continents different from their racial self-identification and appearance (Foeman 2017).

Some social scientists and social-political philosophers, for instance, Quayshawn Spencer, have claimed that the meaning of the term "race" is exactly the meaning assigned to it in society, as reflected in US Census categories. The reasoning is that a vast majority of respondents select entries from those categories and the categories line up with human biological traits (Spencer 2014). However, the philosophical question is whether that coincidence is sufficient to establish the scientific reality of race. The coincidence is one aspect of the meaning of race in society, but the census makes no mention of the validity of its categories, so this approach simply by-passes the questions of the reality of race according to the biological sciences, in favor of a social science approach.

Returning now to the biological sciences themselves, it is important to note an explanation for the nonexistence of human races in terms of requirements for racial formation within species. In their 2011 *Race? Debunking A Scientific Myth*, physical anthropologist Ian Tattersall and geneticist Rob DeSalle explain that as *Homo sapiens*, the only surviving human species, evolved, there was interbreeding between different geographical groups through migrations, war, colonization, trade, and so forth. This genetic *rearticulation* prevented the formation of races—human "populations" were never sufficiently isolated from other populations to acquire the distinct characteristics of races. Moreover, the differences identified as racial differences are recent in Homo sapiens evolution, only about 50,000 years (Tattersall and De Salle 2011). This means that differences considered racial differences may not have always existed in our species.

Evolutionary studies of human group formation reflect a shift in biological studies of race from systems of classification to genetic history. John Relethford well sums up this current situation in a recent article, "Biological Anthropology, Population Genetics, and Race":

> We now have a much better view of human variation that has emerged from an ever increasing body of evidence from molecular genetics and genomics and the application of the models and methods of population genetics. To assess the utility (or lack thereof) of biological definitions of race and studies of racial classification, global patterns of human genetic variation must be examined within the context of the basic principles of population genetics and the genetic history of the human species. (Relethford 2017, p. 160)

Conclusion

A story has been told in this chapter about race in science over the modern period. Race was a new universal system of human classification that was invented along with modern biology. Ideas about race began as neutral human varieties based on the geographical divisions. Racist assessments and valuations of different races, which justified colonization, resource appropriation, black chattel slavery, indigenous genocide, and later forms of oppression, were added by Europeans and Americans to racial taxonomy, favoring whites. Based on both empirical evidence and egalitarian ideals, these hierarchical assessments were removed from scientific ideas of race, substituting ideas of populations, instead. However, the population idea failed as a substitute for race, because there are greater genetic variations within populations than between them. The only way to winnow down existing human populations numbering between fifty and hundreds of thousands, to match social ideas of race with smaller numbers of races, is to start with social ideas of race, thereby undermining the scientific independence of biological race. Besides these issues of classification, evolutionary studies of populations identify human groups that overlap but do not coincide with, common sense ideas of race. Moreover, these groups indicate ancestry or lines of descent within populations that still reside where their ancestors did and ongoing migrations and genetic mixtures in highly mobile global society have not preserved those divisions.

On a purely physical biological level, the story could end here, but the public is generally unaware of the current state of science regarding the

nonexistence of races as they are known in society and some philosophers have tried to save the connection between social and scientific ideas. Their success would depend on philosophy being able to tell science what it does, or should, consider real. So, we are left in an impasse between biological science, in which ideas of race originated and society and its spokespersons who seek to retain race.

However that impasse is resolved, many thinkers, especially in Pragmatic and Continental philosophical traditions, have avoided a scientific starting point for inquiries about race, by addressing race in terms of human existence within societies with racialist and racist systems or addressing race by beginning with the social facts of racism. Several of those projects will be discussed in Chapter 4.

Glossary

clades—multigenerational groups with distinctive traits forming after a split with a larger group, who have a common ancestor.
clines—traits that gradually change into other traits over geographical and climactic differences.
ethnological studies—anthropological studies of specific practices within different cultures.
eugenics movement—thought and policies based on the idea that only people judged superior relative to others should be permitted to have offspring.
monogeny—doctrine that all human varieties have a common evolutionary origin.
pangenesis—out of date theory that changes in bodily cells "drift" to genetic material, changing what can be inherited.
polygenism—doctrine that different human races have different evolutionary origins.
population—term for a group used by evolutionary biologists and anthropologists for a group of people in the same geographical area who breed mainly among themselves.
racialism—thought or action based on the belief that human races are real and the differences among races are important.
reduction—translating the terms for entities and principles studied in one science to entities and principles studied in another more basic or more rigorous science.
revisionism—changing knowledge as a valued practice.

social construction—an idea, thing, or practice that is created in society and not the result of anything natural or self-evident.
social Darwinism—late nineteenth and early twentieth-century misapplications of Darwinian evolution to support oppression and/or neglect of circumstances of nonwhites and poor in society.
valorization—positive value assessment.

Essay and Discussion Questions

1. How were modern ideas of race different from older ideas of division within society?
2. Explain how description and assessment figured into racialist and racist ideas of race.
3. How was the idea of biological race retained by transitional thinkers such as Franz Boas and Claude Lévi-Strauss?
4. Explain the difference between classificatory and evolutionary-historical genetic descriptions of human groups.
5. How is the genetic difference within and between groups relevant to whether or not races exist in science?
6. What are some problems with the idea of populations? If races were defined as populations, what problems would follow?
7. Critically engage Andreasen's suggestion that races are clades.
8. Critically engage Hardimon's idea of "minimal race."
9. What can be concluded from the fact that some people have genetic material related to ancestral origins that are different from how those people identify racially?
10. Explain why the status of race as a real system in science is important for how we think about race.

References

Andreasen, Robin O. A New Perspective on the Race Debate. *The British Journal for the Philosophy of Science*, vol. 49, no. 2, 1998, pp. 199–225.
Boas, Franz. "The Mind of Primitive Man." *Science*, New Series, vol. 13, no. 321, Feb. 22, 1911, pp. 281–89.
Brues, Alice Mossie. *People and Races*. New York, NY: Macmillan, 1977.
Cavalli-Sforza, Luigi, Paolo Menozzi, and Alberto Piazza. *The History and Geography of Human Genes*. Princeton, NJ: Princeton University Press, 1996.

Cavalli-Sforza, Luigi. *Genes, People, and Languages*. Translated by Mark Seielstad. New York: Northpoint Press, 2000.

Cuvier, George. *The Animal Kingdom: Arranged in Conformity with Its Organization*, edited by H. Murtrie. New York: G&C&H. Carvill, 1831. https://archive.org/details/animalkingdomar03graygoog.

Darwin, Charles, and Alfred Wallace. "On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection." *Journal of the Proceedings of the Linnean Society of London*, vol. 3, no. 9, 1858, pp. 45–62. Version of Record Online: Apr. 13, 2011. https://doi.org/10.1111/j.1096-3642.1858.tb02500.x, http://onlinelibrary.wiley.com/doi/10.1111/j.1096-3642.1858.tb02500.x/abstract.

Darwin, Charles. "On the Races of Man." *The Descent of Man, and Selection in Relation to Sex*. New York: D. Appleton & Co., 1889, Chap. 7. https://genius.com/Charles-darwin-the-descent-of-man-chapter-7-on-the-races-of-man-annotated.

Fodor, J. A. "Special Sciences (Or: The Disunity of Science as a Working Hypothesis)." *Synthese*, vol. 28, no. 2, Oct. 1974, pp. 97–115.

Foeman, Anita. "DNA Tests, and Sometimes Surprising Results." *The New York Times*, Apr. 20, 2017. https://www.nytimes.com/2017/04/23/us/dna-ancestry-race-identity.html?_r=0.

Garn, S. M. *Human Races*. Springfield, IL: Charles Thomas, 1965.

Gillham, Nicholas W. "Sir Francis Galton and the Birth of Eugenics." *Annual Review of Genetics*, vol. 35, no. 1, 2001, pp. 83–101.

Goodstein, David. "How Science Works." *Reference Manual on Scientific Evidence*. Washington, DC: National Academies Press, 2011, 3rd ed., Chap. 4, pp. 37–54.

Gould, Stephen Jay. "The Geometer of Race." *Discover*, vol. 15, no. 11, 1994, pp. 65–9.

Gould, Stephen Jay. *The Mismeasure of Man*. London and New York: Norton, 1996.

Hardimon, Michael O. "Minimalist Biological Race." *Oxford Handbook of Philosophy and Race*, edited by Naomi Zack. New York, NY: Oxford University Press, 2017, pp. 150–59.

Heirneaux, Jean. In UNESCO, "Four Statements on the Race Question," 1969, pp. 8–16. http://unesdoc.unesco.org/images/0012/001229/122962eo.pdf.

Krimsky, Sheldon, and Kathleen Sloan, editors. *Race and the Genetic Revolution: Science, Myth, and Culture*. New York, NY: Columbia University Press, 2011.

Lewontin, Richard. "The Apportionment of Human Diversity." *Evolutionary Biology*, vol. 6, 1972, pp. 381–98. Marine Library/Stacks. http://www.philbio.org/wp-content/uploads/2010/11/Lewontin-The-Apportionment-of-Human-Diversity.pdf.

Montague, Ashley. *Race: Man's Most Dangerous Myth*. New York, NY: Columbia University Press, 1942. https://archive.org/stream/mansmostdangerou032948mbp/mansmostdangerou032948mbp_djvu.txt. Consulted June 6, 2017.

Montague, Ashley. *The Idea of Race*. Lincoln: University of Nebraska Press, 1965.
Müller-Wille, Staffan. "Claude Lévi-Strauss on Race, History, and Genetics." *BioSocieties*, vol. 5, 2010, pp. 330–47.
Museum of Comparative Zoology, Harvard University. 2017. http://www.mcz.harvard.edu/about/history.html.
Nelson, William Max. "Making Men: Enlightenment Ideas of Racial Engineering." *American Historical Review*, vol. 115, no. 5, 2010, pp. 1364–94.
Population Estimates Bureau. "Race." United States Census, 2017. https://www.census.gov/quickfacts/meta/long_RHI225215.htm.
Radnitzky, Gerard, and Gunnar Andersson, editors. *Progress and Rationality in Science*. Dordrecht: D. Reidel, 1978.
Relethford, John H., *The Human Species: An Introduction to Biological Anthropology*. Mountain View, CA: Mayfield, 1997.
Relethford, John H. "Biological Anthropology, Population Genetics, and Race." *The Oxford Handbook of Philosophy and Race*, edited by Naomi Zack. New York, NY: Oxford University Press, 2017, pp. 160–69.
Richter, Melvin."The Study of Man: A Debate on Race." *Commentary*, Feb. 1, 1958. https://www.commentarymagazine.com/articles/the-study-of-man-a-debate-on-race/.
Rosenberg, Noah A., Jonathan K. Pritchard, James L. Weber, Howard M. Cann, Kenneth K. Kidd, Lev A. Zhivotovsky, and Marcus W. Feldman. "Genetic Structure of Human Populations." *Science*, vol. 298, no. 5602, Dec. 20, 2002, pp. 2381–85. http://science.sciencemag.org/content/298/5602/2381/tab-pdf.
Rutledge, M. Dennis. "Myths and Realities: African Americans and the Measurement of Human Abilities." *The Journal of Negro Education*, vol. 64, no. 3, 1995, pp. 243–52.
Sapp, Jan. "Race Finished," Jan Bookshelf. *American Scientist.* Mar./Apr., 2012. http://www.americanscientist.org/bookshelf/pub/race-finished.
Smedley, Audrey, and Brian D. Smedley. *Race in North America: Origin and Evolution of a Worldview*. Boulder, CO: Westview Press, 2011, 4th ed.
Spencer, Quayshawn. "A Radical Solution to the Race Problem." *Philosophy of Science*, vol. 81, no. 5, Dec. 2014, pp. 1025–38.
Stuurman, Siep. "François Bernier and the Invention of Racial Classification." *History Workshop Journal*, no. 50, Autumn, 2000, pp. 1–21. JSTOR, www.jstor.org/stable/4289688.
Tattersall, Ian, and Rob DeSalle. *RACE? Debunking a Scientific Myth*. College Station, TX: Texas A&M University Press, 2011.
Tax, Sol. "Franz Boas, German-American Anthropologist." *Encyclopedia Britannica*, May 2, 2017. https://www.britannica.com/biography/Franz-Boas#ref210125.
UNESCO, United Nations. "Four Statements on the Race Question," 1950, 1951, 1967, 1970, published in 1969. http://unesdoc.unesco.org/images/0012/001229/122962eo.pdf.

University of Cambridge. "New Research Confirms 'Out of Africa' Theory of Human Evolution." *ScienceDaily*. http://www.sciencedaily.com/releases/2007/05/070509161829.htm. Accessed June 9, 2017.

U.S. State Department. "The Immigration Act of 1924 (The Johnson-Reed Act)." Office of the Historian. https://history.state.gov/milestones/1921-1936/immigration-act. Consulted June 3, 2017.

White, Leslie A. "The Ethnography and Ethnology of Franz Boas." *Bulletin of the Texas Memorial Museum*, no. 6, Apr. 1963.