

Introduction to Biological Anthropology: Notes 23  
**Modern human variation and the concept of race**

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- Title images:
  - Wilt Chamberlain vs. Willie Shoemaker in American Express ad
  - Laurie Laughlin and Sandy Taylor, two employees of Witzig and Assoc., an advertising firm
- The concept of race in humans
  - Like it or not, race is important in our society
    - You can probably easily classify most people as "Black", "Asian", "Scandinavian", etc.
    - You have probably had experiences in which race mattered
  - but the common concept of race as a *biological* category actually does not fit the patterning of variation in humans
- So what do people mean by "race" as an "objective", biological category?
  - This is an attempt to be specific about what the common use of the term "race" means - I am NOT saying that these claims are true!
  - Assumption 1. Most humans fall into a limited number of relatively distinct categories or races
    - Black, White, Hispanic, Asian, Native American, etc.
    - members of each race have significant similarities to each other
    - the relatively few individuals who do not fit these categories are combinations, that is, descendents of ancestors of different races
      - hence the "mixed race" category that is now common on forms
  - Assumption 2. There are significant differences between the races
    - that is, knowing that someone is a member of a given race tells you a fair amount about traits that the person is likely to have or not have, such as
      - roughly what they look like
      - that they are more or less at risk of certain diseases
      - what physical characteristics and abilities they are likely to have or not have
      - what mental characteristics and abilities they are likely to have or not have
      - what their character is like or how intelligent they probably are
  - Assumption 3. These differences are inborn, that is, they have a genetic basis
    - as opposed to cultural or ethnic differences, like those between French people and English people, which are mostly learned
- In fact, modern *Homo sapiens* simply cannot be divided into distinct groups like this
  - people obviously do vary from region to region
  - and people tend to look similar to other people from the same area
  - so it *is* possible to lump people by their region of origin
    - for example, southeast Asia, north Africa, and northern Europe
    - most of the members of these geographic groups will, in fact, look more like each other than like members of the other groups
  - however, where you draw the line between these geographic groupings is arbitrary

- that is, there is a smooth range of variation in human traits; there are few obvious gaps or divisions between nearby groups of people
  - such smooth, gradual changes across space are called **clines**
  - analogous to how an *inclined* plane changes in height gradually from one part to another
- you could divide up the world in any number of different ways and still get groups that looked relatively similar within the groups, and relatively different between the groups
  - for example, you could divide people from Europe and Asia into European and Asian, and members of each group would generally be more similar to each other than to members of the other group
  - but you could also divide them into Europeans, Central Asians (Afghans, Pakistanis, Indians, etc.), and East Asians (Chinese, Koreans, etc.) and get equally good results
- the problem is that any line you draw will be arbitrary
  - which is why there have been so many different racial categorizations of humans
  - if there were clear divisions between categories of humans, there would be some agreement on what the "racial" groups are
  - but there is no such agreement among people who have looked into it very carefully
    - including various extreme racists who have come up with different categorizations
    - if even people who want to believe in races cannot agree on the traits involved and the boundaries between them, are there really such clear “races” out there to be observed?
- Point: in every case, the people from close to the border will look more similar to people in a different group just across the border than they do to people from far away in their own group
- Conclusion: there are no obvious boundaries in most clines (patterns of spatial variation of one trait)
- So what if you try to use several traits at the same time to categorize people?
  - the problem is that every trait has a different spatial pattern of variation
  - the clines vary along different directions, with different "centers"
  - so the more traits you pick, the more combinations you get - the more "groups" or "races" you have to define
  - depending on which traits you pick, you get different numbers of groups and different boundaries
  - say you start with skin color, and lump all sub-saharan Africans together as dark-skinned
  - then you try to group by the frequency of having the epicanthic fold (the bit of skin that gives east Asians's eyes their almond shape)
    - you then have to group Asians together with some south Africans, Eskimos, and South American Indians, many of whom don't share the same skin color or nose shape
  - or you decide to use the frequency of the allele that causes sickle-cell anemia
    - its distribution does not correspond to skin color, epicanthic fold, etc. either
- these problems in classifying people arise because most, if not all, traits in humans:
  - 1. vary gradually (in "clines", or gradual, blending trends across space), and
  - 2. the centers and clines of different traits are different
- the more traits you look at, the more different groups or combinations you find
  - to have just a few “races”, you have to pick just a few traits

- but that choice is arbitrary
  - why classify by skin color and eye shape, but not by height and nose shape?
  - any different set of traits creates a scheme that lumps people differently
- there are no clear boundaries where many traits change together
- there is no overall clustering of variation in humans
  - the traits don't vary together
  - as soon as you include more than a few traits, you get too many combinations to be useful
- so there is no one way to divide up humans into groups that reflects more than just a few of the thousands and thousands of traits you could choose to consider
- There is nothing biologically wrong with the *idea* of races; it just does not fit modern humans
  - 100,000 years ago, humans *could* be divided into two biological races
  - Neanderthals were distinctly different from other closely related humans at the time
  - at that time, the boundaries of the clines of nose size, browridge size, brain size, occipital bun size, etc. were fairly sharp and coincided with each other
  - so there was a "race" or distinct category of Neanderthals
    - so distinct that some people call them a separate species, although others don't
  - today, there just isn't any population or "race" that can be separated in this way
- So, concept 1 of the popular notion of race does not work for modern humans
  - the claim was that "People fall into a limited number of distinct groups or races"
  - but modern human variation just does not cluster into such well-bounded groups
- another way to look at this problem with classifying humans
  - *if* we could put people into groups that were real, the groups ought to tell us something about the people in the group
    - that is, the members of the group should be relatively similar to each other in many ways
    - and relatively different from members of other groups in many ways
    - knowing that person X is a member of the "white" category should tell you more about the person than just that he or she has light skin
    - put another way, the amount of variation *within* the groups ought to be small compared to the variation *between* the groups
  - but in fact, knowing a person's "race" does not tell you much about the person's genes or traits
  - studies find that the common racial categorization schemes account for only about 6% of the genetic variation among people
    - and the best categorization schemes that population researchers can devise using computer methods still account for less than 15% of the genetic variation among people
  - that is, there is far more variation *within* the groups than *between* the groups
    - 85% of all human variation is found *within* any given "race"
    - as Boyd and Silk put it, if all humans except those of a single "race" died off, 85% of all human alleles would still be here
      - members of the same "race" differ from each other much more than their "race" differs from another "race"

- put another way, knowing that someone is "white" does not tell you much about anything other than a few traits like skin color
- there is so much variation among members of the "white" category (Swedes, Italians, Afghans, some people from India, etc.) that the grouping is just not very informative
- psychologists, medical researchers, and others who ought to know better, get confused about this all the time
  - they will classify patients by these marginally useless “race” categories
  - then find that there is, on the average, a slight, real difference between the races
  - but there is typically so much difference between individuals within the “races” that this finding simply does not provide much information about any individual
- Part of the problem with classifying humans into races is that all human populations are very similar to each other
  - Compare two chimps from different populations
    - typically about 7.5% of their nucleotide bases differ
  - Compare two humans from different populations
    - typically about 0.3% of their nucleotide bases differ
  - that is, compared to other animals, we are a very uniform, homogeneous species
  - presumably because all humans have a relatively recent common ancestor (or because the ancestral human population was recently quite small, eliminating a lot of variation)
  - this fits with the model that modern *Homo sapiens* all evolved from a single, small population between 100,000 and 50,000 years ago in Africa
  - there has not been enough time for significantly different regional variants to evolve
  - and modern human culture has encouraged lots of gene flow that has kept blurring and mixing the geographic distribution of traits
- But please don't say that “we are all the same”
  - that is obviously not true, either
  - we DO vary from region to region
  - just not nearly as much as other species
  - and not in a way that results in distinct subtypes of similar people
- In spite of all this, people generally think that they can easily divide most people up into a limited number of “racial” groups
  - we do this all the time in census taking, affirmative action, etc.
  - doctors are constantly comparing European-Americans with African-Americans
  - college and job applications ask you to check a box in a list of racial categories, and they tally up the results (SSU is no exception)
  - we know that human variation does not fall into neat categories, yet we categorize people into groups all the time. How is this possible?
- The impression that people fall into clear groups is an *illusion* with two principal causes
  - 1. Race is partially a psychological illusion: for cultural or psychological reasons, we tend to focus on a very small number of traits
    - like skin color, nose shape, eye shape, and hair texture
    - if we were to give equal weight to cheekbone shape, jaw shape, body proportions...

- and especially if we were to consider the countless non-visual traits like blood type or tooth forms, then
- we would quickly see that any way of grouping on some traits would completely cross-cut the others
- "race" seems possible because we tend to focus on just a few traits and ignore many others
  - example based on body shape
    - some populations in cold climates have evolved compact body shapes, which conserve body heat
    - others in hot climates have evolved lanky body shapes, which radiate heat better
    - we focus on skin color, so we see "compact" or "lanky" people as just variants of white, black, or other "racial" types
    - but we could just as well categorize people into a "compact" race and a "lanky" race, and see white or black skin color as variation within the "compacts" and "lankys"
- the choice of which characteristics are significant is an arbitrary cultural construct
  - which might have some neurological or psychological underpinnings
  - but that does not make it any less an illusion
- 2. Race is partially a historical illusion: we normally encounter people from only limited portions of the total range of human variation, due to historical accidents having to do with sea travel routes, the slave trade, and so on
  - even today, most people encounter only subgroups of the rest of the world's population
  - people did not see the whole range of variants from intermediate places
  - so it seemed that the world was made of up distinctly different types of people
  - in reality, the categories that are commonly used in the US and Europe are mostly the types of people at opposite ends of old trade and travel routes
    - so, for example, the "typical" African-American image is based on coastal West Africans, since that is where the slave trade to the US was concentrated
    - if many Northeast African Ethiopians or South African San had emigrated to the US, we would have a very different concept of what "Africans" looked like
    - maybe we would have several "African" categories instead of just one
    - or maybe we would see that the traits are too mixed up to effectively categorize
- one indication that "races" are arbitrary cultural constructs is that in other regions or other times, people used completely different "racial" categories
  - In Japan, people from the northernmost large Japanese island, the Ainu, are considered a distinct race and discriminated against
    - most of us would have been taught how to categorize people in this way
  - In Africa, there are bitter "racial" divisions and persecution among people who in the US would all be classified as "black"
  - 19<sup>th</sup> century North Americans commonly considered Irish immigrants to be obviously racially distinct and inferior from other Europeans
    - neither the Irish nor the non-Irish have changed biologically since then, but now we laugh at the idea of a separate "Irish" race
- Point: these examples (and many more) show that these apparently biological, racial categories are not real divisions inherent in biology or genetics at all, but are socially constructed

- they depend on the culture of the observer, not the biology of the people being observed
- nevertheless, since "racial" categories are well-known and have a big effect on our lives, people keep using them
  - even medical researchers, psychologists, and others who should know better
  - illusions seem real...that is what makes them illusions
  - but despite their continued use, these categories are not well defined or very informative in a biological sense
  - in a textbook, John Relethford says it nicely (pg. 127): "Biological variation is real; the order we impose on this variation by using the concept of race is not."
- Take-home points on race:
  - Modern human variation does not cluster into groups
    - virtually all modern human variation is gradual (clinal), not abrupt
    - the shapes and centers of the distributions of traits are all different and overlapping
      - few vary in unison; instead, they cross-cut
      - So distinct groups simply do not exist
      - we can find evolutionary explanations for some of these clines
        - like light skin being advantageous in cold temperatures
        - but each cline and its causes is independent
        - they do not vary all together as they would if there were distinct "races"
  - There is far more genetic variation between individuals within any "race" than there is between the "races"
    - so knowing that someone is classified as a certain "race" tells us very little about their biological characteristics
      - other than the characteristics that were used to classify the person in the first place (skin color, etc.)
    - so generalizations about inborn qualities of people based "race" are questionable at best
    - be wary of generalizations made on the basis of race, even in respectable sources like medical studies -- they are built on categories that don't mean much biologically
  - We obviously do categorize people by "race", but the groupings are determined by
    - the few particular traits that are arbitrarily selected as important
    - historical accidents that cause most people we see to come from a limited number of regions, not the whole globe and the full range of human variation
    - cultural biases (remember the "Irish race")
  - "racial" categories may serve real cultural or political purposes
    - whether we like them or not
    - but "race" categories are inherently arbitrary and invented by people
      - not something that is "out there" to be discovered in nature
  - This is **social race**
    - an arbitrary, socially constructed classification scheme that affects people's lives
    - but not a biological reality