

New Information, Enduring Questions

BY JONATHAN MARKS

Race, Genetics, and Medicine in the 21st Century

Much of the argument about race these days reminds me of the first time I confronted a real live bible-thumper. What I couldn't get over was how devoutly he believed in the literal truth of the Jewish Bible, as after all, we Jews had written it and we didn't even believe it that seriously. Centuries of Jewish thought on the Bible were premised on the idea that only an utter ignoramus would take it simply at face value.

I write this as an anthropologist, and in writing about race, I have this sense of déjà vu. Anthropologists invented race, and even we don't believe it. So why on earth should anyone else?

Geneticists have been working on the question of race for the last hundred years, and found different things at different times, sometimes corroborating and sometimes contradicting what anthropologists think. I think the patterns are now fairly well understood now, and are pretty concordant. But what I find most extraordinary is the extent to which this current dispute about the ontology of race continues to take place in an anthropological vacuum. There's something disconcertingly anti-intellectual about it, as if one could take seriously an academic debate about atoms that ignored or openly disparaged the knowledge of particle physicists.

The anthropological view of race is not that it is "merely" the product of historical and social forces, of human agency and thought. Race is the product of historical and social forces, of human agency and thought, like lots of important stuff is: like money, like citizenship, like personhood, like America.

Like angels. This is probably the best analogy that can be made. Races are like angels. Many people believe in them, some devoutly so. Some can even tell you what properties they have. But the closer you try to examine them to discover their real nature, the more elusive they become. And ironically, the people who claim to be most familiar with them are the ones to be most suspicious of.

THE GENETICS OF RACE

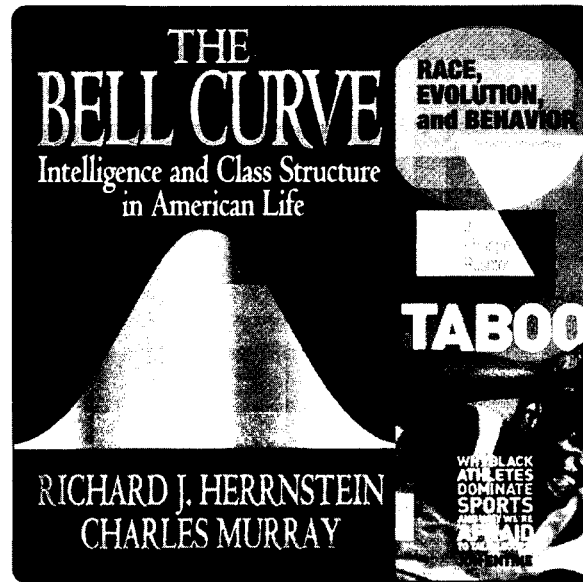
The initial application of genetic data to the problem of human races came during World War I, when ABO blood group data of soldiers from different parts of the world were collected by the hematologists Ludwig and Hanka Hirschfield. These types fell into three groups, as it turned out: European, Asia-African, and Intermediate. In other words, white and other.

What is interesting is that the data say nothing of the sort; indeed, the information the Hirschfields collected is paradigmatic for the absence of genetically detectible races in the human species. This also raised an interesting question about the production of knowledge: how could the Hirschfields find races in the data if they are not there? The answer is obvious: the Hirschfields knew they had to be there. They knew humans come packaged into basic natural divisions, or races; they knew that race was an inherited state, and they knew that they had the genetic data available. Of course races had to be there.

The major contemporary critique of their work is that it was based on the phenotypes and not on the distribution of the frequency of the alleles. The human geneticist Laurence Snyder made those calculations and divided the world into seven kinds of people on the basis of their ABO allele frequencies. Thus, Snyder was forced to put the people of Poland and China, and the people of Sierra Leone, New Guinea, and Vietnam, in the same ABO races.

The problem with this result is, as lamented by the Harvard race expert, Earnest Hooton, if race is the way the human species comes packaged, the ABO data is gibberish. If race is real, as Hooton certainly thought it was, the people of Poland and China are simply going to have to be in different ones.

Nevertheless, the field of racial serology, as it was then called, survived for decades. It finally expired, in the United



Current authors, like Charles Murray, J. Philippe Rushton and John Entine, are continuing the long tradition of attempting to define race in genetic terms.

Which are the Same?



States, at least, with the work of William Boyd. In 1963, Boyd published a summary in *Science* that divided the world into 13 natural genetic races. What is astonishing here, in anthropological hindsight, is simply the lack of basic common sense in the subdivision of these groupings. In what parallel universe could Europeans come in five natural flavors and Africans come in only one? In what sense can you reasonably consider the group “Basques” to be zoologically equivalent to the group “Africans?” Could there really be just one kind of Asian, Asia being the world’s largest and most populous landmass, but three significantly different kinds of people on the small islands of Polynesia? Or wasn’t it more likely that the geneticist was still finding pretty much what he expected to find, and certainly nothing corresponding to major patterns of variation in our species?

Part of the problem of the ontology of race lies in the varying meanings the term has had in the last century. At the turn of the century, race was something etched or inscribed within you. It was passed on, undiluted, often in opposition to one’s physical features. Someone who looked white could really be black. Race was a property, a quality, something that needed to be diagnosed or identified, and a specialist armed with calipers would emerge to make those kinds of ascertainties.

The trouble was that this was hard to reconcile with known patterns of biology. Nothing was known to be inherited in such a fashion. Mendelian heredity was probabilistic and quantized; you had a 1/8 chance of inheriting a specific chunk of heredity instruction from any great-grandparent. This was equal across all chunks and across all great-grandparents.

Even more problematic was the fact that it didn’t answer how many different racial essences there were – how different “different” was. Since it was a reification to begin with, it could be applied to pretty much any group of people with their own name, who could be seen to differ from contrasting groups of people, if you looked hard enough. Thus the Aryans, the Jews, the French, the Gypsies could all be considered distinctive and detectable elements, core natural identities buried under complex layers of ancestry. That kind of confusion can be seen in the writings of the American anthropologist Daniel Garrison Brinton (the first professor of Anthropology in America), who doesn’t believe “the Fuegian or the Bantu has the intellectual endowment of the

European” for “this is contradicted by uniform and repeated experience. The Mental traits of races and peoples are...impossible to change by any quick process.” Look at the diversity of the kinds of groups that he is casually invoking as examples: the indigenous inhabitants off the tip of South America, a linguistic family in equatorial Africa, and the entire continent of Europe. These aren’t comparable entities. This is reinforced by Brinton’s casual use of the phrase “races and peoples.” Peoples come packaged in many different ways, mostly culturally, and if you don’t make a distinction between the kinds of groups you are talking about, then it is not at all clear that you can claim to be talking about races in any meaningful or rigorous sense.

By the 1930s, a different way of thinking about races had emerged. Race became a large geographical population. This may sound similar to “race as essence,” but it’s very different. Now, you are part of a race, a race isn’t a part of you. Race becomes simple facts of ancestry, not something to be diagnosed and identified. The problem with this concept is that the physical features we focus on as being indicative of race are not distributed uniformly over the continents. They are a series of gradients, and this creates a problem of boundaries.

A Belgian, Persian, Ethiopian and Ghanaian look different from one another. But if you decide, based on appearance, that there are two kinds of people in that list rather than four, you are deciding, quite arbitrarily, that obvious differences between the Belgian and the Persian are irrelevant and meaningless; likewise the obvious differences between the Ghanaian and the Ethiopian. But the difference between the Persian and the Ethiopian, now that’s significant!

No, it’s arbitrary. It is not natural, it is not objective, it is not value neutral, it is not scientific, and it is not being inferred from the data. It is the artificial division of a continuum into discrete sections, an imposition of order upon an otherwise noisy, chaotic biological pattern. It is a very fundamental cultural practice; indeed, it comprises much of the cognitive aspects of what we seem to mean by culture.

GENE POOL RESIDUALS

Lewontin’s 1972 quantification of the patterns of genetically detectable difference showed that continental race



**Which are
Different?**

was statistically trivial, and the mitochondrial DNA work in the 1980s showed that Asian and European gene pools were a derived subset of the African gene pool. In any event, these did not fall out as natural groups. These data genetically undermined a particular concept of race that had been around for a few decades – that races were largely discrete geographical groups – by showing they were obviously, for the most part, genetically overlapping groups.

However, this left open the possibility of subtly redefining race yet again, to what amounted to very carefully looking at the small amount of genetic variation that has a geographic component in a sort of Venn diagram. This “gene pool residual” is what I think the scientific discussion of race is principally about today.

There is also a problem with the idea of race as gene pool residuals. Namely, that researchers are the ones that have decided how many circles there are in the Venn diagram, and which populations are part of which circles. You could do a statistical cluster analysis, but that would be sensitive to the population samples chosen, the individual people representing them, the demographic history of the populations, the assumptions of the particular algorithm, and the patterns of contact among the populations. In other words, the species still doesn't come pre-packaged; one still has to decide, given the fact of difference, how much and what kind are meaningful and how much and what kind are not.

So if, no matter how fervently you believe race is real, you still can't objectively parse the human species into its basic units, maybe it would be useful to reconsider the whole enterprise as a sort of “square peg, round hole” type of problem.

Anthropology came to the conclusion that race is most fundamentally about the construction of discrete symbolic boundaries within a pattern of geographical diversity that occurs as gradients. History says that the groups delimited as meaningfully different can change with the circumstances, as new identities are created and others are dissipated. We see that race is inherited sometimes with, and sometimes without, particular physical or genetic markers. Of course, there has been a great deal of scholarship in the past few decades on the cooperation between the state and its scientists, ranging from the obvious example of the Nazis, to the more subtle ways in which biology defines what is normal and deviant, and what to do about the latter.

We all know that there are geographically related differ-

ences among the people of the world, and that the farther you get, the more people look different. Geneticists call that “isolation by distance.” Certainly, if you throw large numbers of people together from three disparate parts of the world, the result will look like there are three kinds of people, as long as you don't have to deal with anyone else. A recent study related the genetic ontology of race to the strategy of simply sampling the human species. Physically, we hone in on certain facial features in addition to skin color and hair and eye form. Thus, for example, given a set of skulls, a competent forensic anthropologist can differentiate the tall face of a northern European from the broad face of an East Asian, or the deep face of a West African with much better than random probability. Of course, this is only true if most of the world's people are not included, no time depth is allowed (i.e. the skulls are contemporaneous), and the groups are imposed on the data, rather than being extracted from them. If any of these constraints are lifted, all bets are off.

A nice example of this is the recent Kennewick Man controversy, in which a prehistoric Native American skull was diagnosed by craniologists as European – quite specifically as looking like the actor Patrick Stewart – rather than as Indian. After considerable legal wrangling, the diagnosis subsequently settled on Polynesian. This was transparently politically motivated, designed to create a fulcrum through which to unbalance the North American Graves Protection and Repatriation Act of 1990, which was ratified as a corrective for the earlier looting of Indian graves that produced the major osteological collections in America. But if the skull of an ancient Indian can be confused with that of a modern Englishman and a modern Tahitian, then there is, at best, a lot of noise and very little signal in the specifically racial allotment of the world's skulls. This is rather like what we have come to realize about racial variation as well.

Part of this problem derives from the terms that we try to use synonymously to represent ostensibly natural units. Thus, for example, many people try to use Blumenbach's 18th century term “Caucasian,” or a derivative, to describe a generalized or idealized conformation of the face and head of certain people, and would therefore embrace the indigenous people of West and South Asia. The term also has the added merit of sounding vaguely scientific. The more vulgar term “white” denotes complexion, which varies in a striking

cline. The geographical term "European" necessarily excludes the people of Asia minor and the Indian subcontinent. Somehow, these terms are supposed to contrast unproblematically with a single "Negroid," "African," or "black" category.

NATURAL GROUPS?

Since human populations are products of biological processes of microevolution, and cultural processes of identity formation and social history, they each have their own manner of distinctiveness. Thus, different groups of people have differing prevalences of alleles for things like sickle cell anemia, Tay Sachs disease, cystic fibrosis, and lactose intolerance. They have these differences for different reasons, due to some combination of biological forces and cultural history acting on groups that vary in their size and constitution. Consequently, to talk about these human groups as if they were exclusively, or even principally, natural or genetic entities is naïve, and frighteningly so.

Ultimately, what we are left with is that any human group, regardless of its degree of genetic distinction from contrasting groups, has several properties. First and foremost, such groupings are ephemeral. One often hears about Ashkenazi Jews in the context of the value of race for medicine, as they have elevated frequencies of alleles associated with breast cancer, Tay Sachs, familial dysautonomia, Gaucher's, and so on. But what do Ashkenazi Jews have to do with race? If by "race" we mean a large natural division of people, they are neither particularly large nor particularly natural. Their genetic distinctiveness is the result of demographic processes and events on the scale of centuries, or at most millennia.

This raises yet another interesting problem – the same groups of scientists who claim that race is medically significant, because it is biologically real, commonly draw their examples from the same kind of cultural hodgepodge of human identities that Daniel Garrison Brinton did a hundred years ago. Hispanics, for example, may well have a unique set of medical risks, but not because they comprise a deeply-rooted natural sub-branch of the human species. The group "Hispanic" doesn't represent an underlying genetic cluster, since it is defined by an occult calculus of language

and ancestry in a politically relevant context.

All human groups, however constituted, have particular medical risks. African Americans, Ashkenazi Jews, Afrikaners and Japanese, likewise poor people, rich people, chimney sweeps, coal miners, prostitutes, choreographers, and the Pima Indians. They all have particular health risks, and race is not the cause of them. In fact, race will positively obscure the risks.

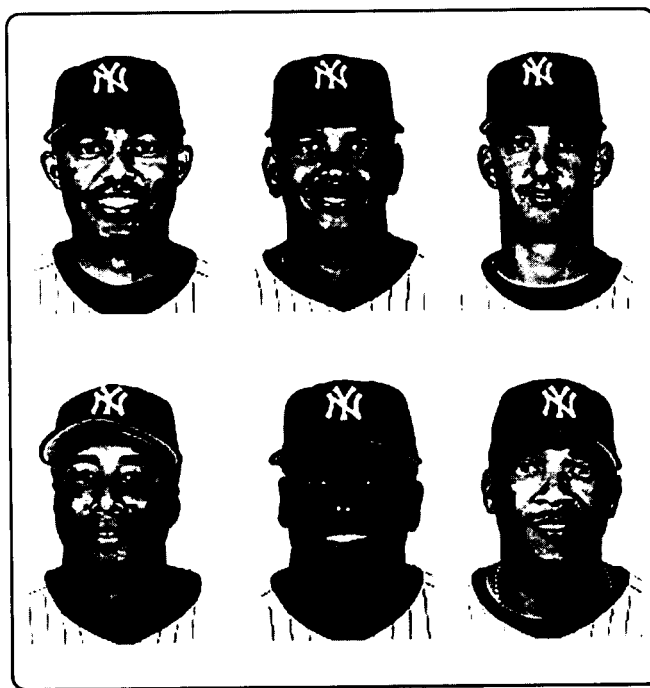
Thousands of years ago, there were Hittites. There aren't any more, but there are Turks. The relationship of modern Turks to ancient Hittites is not obvious, but we might expect them to be pretty similar. The point is that human groups are identities. They coalesce, they dissolve, and they re-emerge in new ways. If race reduces to a politically salient identity, it is neither commonsensical nor naturalistic. It is just a bunch of people with their own name, their own story, and perhaps genetic idiosyncrasies – but to call that race in a meaningful biological sense is either a delusion or a prevarication. We know that human groups do not come as

large natural packages or small cultural ones. They come as variably sized bio-cultural units, encompassing and cross-cutting other such bio-cultural units.

Over a century ago, William Zedina Ripley published *The Races of Europe* (note the plural) in which he argued that the European big race is divisible into three smaller races: Nordic, Alpine, and Mediterranean. He was obviously trying to grapple with the clinal facial features within the constraints of his taxonomic apparatus, but what are races-within-races? Four decades later, Carleton Coon updated Ripley and identified more than ten different eponymous races of Europe. A person can be Caucasian, Alpine, Slavic, and Polish – all are identities, all can be distinguished from contrasting groups, and all of them could be, and have been, considered racial identities.

In parallel, Charles Seligman's *Races of Africa* (again, note the plural), a definitive work for decades, identified at least six kinds of Africans. What could be more natural than lumping their diverse American descendants into a single group? Humans come packaged in many ways, in varying degrees of naturalness, arbitrariness, and historicalness. There can be no medical merit in pretending they are purely natural, objective, biological categories.

All of these groups have been in contact with one another, directly or indirectly, with only trivial exceptions. Extensive trade networks can be documented over tens of thousands of



Many of the New York Yankees are of Hispanic descent. Will the term "Hispanic" tell us any more about their shared genetic traits than the term "Yankee?"

years. And human groups routinely practice exogamy, which can subsume anything from simple intermarriage, to ritual exchange of family members, to mass rape. The scientific euphemism for this is “gene flow.” It is what connects people genetically to their neighbors.

In fact, the preeminent student of race, Earnest Hooton, so acknowledged gene flow that when he depicted the races in his 1946 textbook *Up from the Ape*, he drew a figure called “blood streams of the races” as literally a branching capillary system. Twenty years later, the geneticists Luca Cavalli-Sforza, with new kinds of data and statistical techniques, reinvented this kind of work. The output was a branching structure that superficially resembled phylogeny or biological history, but in fact was not either, unless human history had gotten a hell of a lot simpler over those twenty years. All population geneticists acknowledge the limitations of representing these genetic relationships in dendrograms, but you don't have to look hard to find pseudo-historical inferences being made from them, as if all human populations did over time was bifurcate.

RACIALIZED MEDICIN

Finally, what are the groups that humans make? Do we spontaneously organize ourselves into biologically distinctive groups? Of course not; in fact, we can't, because we have relatively little biological diversity, compared with fruit flies or chimpanzees. We generally don't find biologically different peoples to stand in opposition to us; we create differences to distinguish ourselves from our closest neighbors, who are as similar to us as you can get. We create difference in a cognitive world of symbols, a world of meaning.

If human populations at all scales have these properties, and the largest mega-populations are arbitrary agglomerations of genetically and physically diverse peoples, what good would racialized medicine be? At best, the knowledge of risk factors might help to make a proper diagnosis, but it would be more likely to obscure one, if the association between the population and the disease is over-interpreted as an essential property, rather than as merely a relative risk factor.

More importantly, I don't see how racialized medicine could work as a treatment. Assuming there are genes that affect the course of an illness or its response to drugs differently in different peoples, how would such variations be distributed? As a black allele and a white allele? As an Ashkenazi Jewish allele or a Basque allele and a wild-type? Of course not, those genetic variations would have to be distributed like everything else – in some people, not in others, and locally differing in frequency from group to group in frequency. In other words, this variation is polymorphic and clinal. Any intervention based on a genetic difference would have to be targeted to the particular genotype, not towards the racial identity. The people furthest apart will have the most divergent appearances and allele frequencies, but are we really talking about the development of medical interventions that would only benefit the people of Oslo, Seoul, and Lagos, Nigeria?

This fashion of genetically reifying human groups for their ostensible benefit is not entirely separated from doing so as a way to rank their innate potentialities. Between you and me, any discussion of innate potentialities is highly metaphysical. Potentialities can't be evaluated except in the act, as a performance, and in the context of life experiences and expectations. Again, fun to talk about and debate, like angels, but not the stuff of positive scientific knowledge.

That, of course, is not the view of Charles Murray, who ranks groups according to their average innate cognitive abilities in his 1994 bestseller *The Bell Curve*. Nor is it the view of J. Philippe Rushton, who notoriously describes an innate, evolved racial continuum ranging from promiscuous, criminal-minded, and stupid Africans, to intelligent, modest, law-abiding, yet poorly endowed Asians, to Europeans, a sort of happy medium. Of course, this is not considered credible and is not taken seriously by any knowledgeable student of anthropology. Oddly, though, Rushton's work is repeatedly cited in *The Bell Curve*, which even includes a pre-emptive appendix to defend Rushton's "scholarship." Obviously, Murray felt a little defensive about it. Not surprisingly, Murray has a blurb on Rushton's work. *Taboo*, by Jon Entine, argues that blacks are naturally better athletes than whites, and maintains that this is independent of any ranking of intellectual prowess. Yet he ends up as an adjunct fellow of the American Enterprise Institute, alongside Charles Murray. Finally, *Race: the Reality of Human Differences*, by Vincent Sarich, also unproblematically cites Rushton's work, and comes with a blurb from Charles Murray as well.

We know that Charles Murray and the American Enterprise Institute are interested in the ideas of racialized medicine. They held a conference promoting it on November 12, 2004. Is that admiration reciprocated? Just what are the political interests here?

Does the call for a hyper-scientific theory of race – in anti-intellectual defiance of its symbolic, cognitive, cultural aspects and of the known patterns of biological variation in our species – come accompanied by a call for hyper-scientific politics rationalized by it? That certainly was the case in the early 1960s, when Carleton Coon argued that Africans evolved 200,000 years later than Europeans, which was the cause of their lesser civilizability, and that this finding was a value-neutral scientific inference. However, Coon was secretly colluding with the segregationists, and providing them with scientific advice and preprints of his work. As I say, anthropology has been down this road before.

CONCLUSION

Up to this point, I have tried to state the case for the positive knowledge we have about the biological structure of the human species, and why racialized medicine would probably hurt more people than it would cure. I'd like to conclude by discussing a few popular fallacies about anthropology and race. For example, the subtitle of Sarich's book, *Race: The Reality of Human Differences* is particularly weird, insofar as the reality of human differences is not and has never been

at issue. Anthropology is predicated on human differences – if everyone were the same, there could be no anthropology. At issue is the pattern or structure of those differences. They seem to be principally cultural, and those that are not cultural are principally polymorphic and clinal. After taking away the differences that aren't cultural, polymorphic or clinal, there certainly isn't much left, and you probably wouldn't want your health care predicated upon it.

Many accuse anthropologists of believing that race does not exist, made most recently and prominently in a *New York Times* op-ed by a worm cell biologist. What do not exist are large, discrete, natural divisions of the human species. This is what the word "race" has meant, even across its diverse scientific expressions, for several decades and in whatever commonsensical cultural understandings still prevail. In those understandings, race doesn't exist.

What does exist is the cultural process of making people that aren't really very different different and making people who are different similar, in some locally meaningful way. We do this in many diverse fashions – through mainstream instruments of nationhood, sports, school ties, sexuality, or religion; ancestry and appearance can also obviously play a role in this process. The only way that the statement "race does not exist as a natural biological fact" could be reduced to "race does not exist" is if you believe that natural biological facts are the only things that exist. However, enveloped as we are by the diverse institutions constructed and mobilized by financial and political power, that seems a difficult position to sustain.

To conclude, when I was a graduate student of genetics in the 1970s, you couldn't get rich in that field. Like any other academic field, you were lucky just to make a living at it. But nowadays, you can consult for, or work in, real companies and make some serious money. Private sector science is not something we were taught about, where the idealized search for true facts about the universe is checked and balanced by the profit motive. Today, some of these companies even market a racial identity test for their clients, based on a swab of DNA – as if that were more valuable or more legitimate than taking a pair of calipers to your head, or simply looking you over.

Now, making a dishonest buck is about as American as apple pie. I certainly don't intend to deny anyone their right to do so. But ultimately, the issue here is about diminishing the quality of healthcare through the dissemination of incompetent biology. In this way, it's like the debate over creationism, only with lives at stake. ■■■

Jonathan Marks is a molecular anthropologist who teaches at the University of North Carolina, Charlotte. He is author of Human Biodiversity and What It Means to Be 98% Chimpanzee. A version of this article was presented at Genetic Screening Study Group's conference, Race, Genetics and Medicine: New Information, Enduring Questions, on April 9, 2005.