



## RACE - The Power of an Illusion

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### Background Readings

#### **A Racialized Medical Genomics: Shiny, Bright and Wrong**

By Robert Wallace

Armand Marie Leroi announces in his *Times* op-ed that race is biologically real (*New York Times*, March 14, 2005). The crusty trope that race is a social artifact crumbles in the face of the bright new genomics, he asserts. Genetic variation may be greater within groups than between groups, as Richard Lewontin pointed out back in the dark ages of the 1970s, but only for single genes. Taken together, across genetic loci allelic distributions correlate into clusters long recognized as the five races: European, East Asian, African, Amerindian, and Australasian. So suck it up, constructionists, race is biologically intrinsic.

Moreover, get out of the way. The recognition that race is inherently biological, Leroi writes, can improve medical care, "as different races are prone to different diseases." African Americans, for example, suffer greater prevalences of heart disease and prostate cancer. Even if such differences arise from socioeconomic causes, Leroi argues, we should--ignoring the man behind the curtain--embrace geneticists' very important mission, "searching for racial differences in the frequencies of genetic variants that cause diseases."

And yet much of Leroi's article unravels his own argument. Leroi takes population geneticists to task for caving into political correctness by investigating "ethnic groups," a euphemism that conflates human differences across scale. Never mind that population geneticists prefer the term less out of deference to present sensibilities than to the data themselves. Work by Luigi Cavalli-Sforza's group (Cavalli-Sforza 2001, Underhill 2003), among others, show human history--back to our species' origins--to be marked by layers of migration sweeping back and forth across the continents, gurgling here and there into local pools of idiosyncratic admixture. While the resulting genetic frequencies do not embody a homogenous mush, neither does a stark black and white favored by the new racialists result. Instead, genetic maps are marked by fine-scaled and functionally important population gradients.

Leroi recognizes these complications, but still asks us to ignore them in favor of, ironically enough, a social construct. Just as it is difficult to talk of the world's physical topography in terms of multiple contour lines and elevations and easier to do so in general terms, such as grouping a variety of tall peaks as "mountain ranges," "so, too, it is with the genetic topography of our species." Grouping the billion people of European descent together as a race is easier, "a shorthand that enables us to speak sensibly...about genetic rather than cultural or political differences." So, it would appear that bleaching out complications when discussing human variation makes life easier. Of course, as those dastardly social constructionists are apt to ask, easier for whom?

For one, according to Leroi, the pharmaceutical companies. As race can affect medical treatment, "many new drugs are now labeled with warnings that they may not work in some ethnic or racial groups." That such effects need not be predominantly biological in origin apparently matters little. Leroi admits differences among races arise from population averages alone. But as we are unlikely to have individuals' genomes sequenced any time soon, and presumably won't be able to individualize medical treatment that way, we'll just have to accept a racialized medical genetics. Nothing like an argument of expediency to convince a crowd. The pharmaceutical companies are doing it, so get with it, baby!

Here, Leroi, an evolutionary developmental biologist, bumbles back into the typology the Darwinian revolution revoked. As Ernst Mayr (1976, 2004) explained, until the early 19th century biologists classified species in essentialist terms. A specific type or specimen defined a species and any variation from the type was considered deviant or unreal. In statistical terms, a centroid measure such as the mean phenotype defined the species, while the variance was

thought noise. Typological definitions accounted for the differences among species and, without variation, explained the impossibility of evolution.

Darwin and his colleagues turned biology on its head. The population thinking they introduced emphasized the variation in populations. As natural history studies accumulated, it became apparent individual organisms varied in just about any and all characteristics, both across and within species. Individuals even changed over the course of their lifespans. Here, averages became thought of as constructs and the variances the reality. Variation's reality proved fundamental to Darwin's natural selection. The greater the variation in the population, the faster natural selection works and adaptations arise.

Mayr declared the distinction between the two kinds of thinking about populations couldn't be overemphasized. He noted its social consequences. Essentialisms form the core of all racist theories of human populations, in which all members of a race are thought exhibiting characteristics of the race type. Even as population biologists use differences in averages to heuristically distinguish populations--human or otherwise--by race or subspecies, individuals clearly vary in all traits and can be reagggregated from trait to trait.

Leroi and the new racialists are trying to get around population thinking by correlating aggregations across loci, as a set of emergent essentialisms. Funny, though, that within the very medical framework they are attempting to define, as they live by the sword of correlation, so must they die by that sword. When we correlate putative racial continua across diseases, the same groups are time and again imputed the most susceptible alleles. African Americans suffer not only greater prevalence of and/or lesser survivorship from heart disease (Andrews et al. 2001) and prostate cancer (Reddy et al. 2003), as Leroi notes, but the same for kidney cancer (Vaishampayan et al. 2003), breast cancer (Ghafoor et al. 2003), cervical cancer (Jemal et al. 2004), oral cancers (Shavers et al. 2003), lung cancer (Stellman et al. 2003), colorectal cancer (Baquet and Commiskey 1999), pancreatic cancer (Silverman et al. 2003), endometrial cancer (Randall and Armstrong 2003), lymphomas (Briggs et al. 2003), tooth loss (Gilbert et al. 2003), obesity and diabetes (Cossrow and Faulkner 2004), chronic asthma (Boudreaux et al. 2003), Lupus nephritis (Lea 2002), HIV (Torian et al. 2002), hepatitis B and syphilis (Schrag et al. 2003), gonorrhea (Dombrowski et al. 2004), arthritis (Dunlop et al. 2001), stroke (Ruland and Gorelick 2005), and so on.

Are we to assume that African Americans and other minority groups carry the most susceptible alleles for every one of these diseases? Can we pretend that the vagaries of mutational chance just happened to deal African Americans the greatest susceptibilities for every ailment on our awful list? While there are indeed well-documented examples of illness with important genetic roots, for a framework addressing health disparities we'd exert greater impact by placing our attention back on the man behind the curtain. Racism and other sources of population-level stress have, by way of their emotional and material deprivations, definitional effect on individuals as early as conception, as well as on the populations of which they are a part. Racism shapes ontogeny, regardless of allelic frequencies. And it's to that relationship and its overdetermination of the correlation of diseases where research and social action need to be directed.

For most geneticists, then, there appear two unpleasant paths. One involves accepting population disparities in health outcomes are largely driven by social constructs such as racism, rendering genetics' role ancillary. A second path, the one Leroi has taken, means pushing back and declaring race genetic. Given the country's political economy this second one may indeed be the road many will choose, a choice for which it is fast becoming apparent they will be greatly rewarded.

There may be a third path. Biologists and social scientists can work together under the umbrella of history. Health outcomes emerge out of layers of historical processes--some ancient, others more immediate. While it may jump to mind that evolutionary processes are the ancient ones, evolution generates novelty daily, as HIV quasispecies show. Human social processes, on the other hand, have been operating in one form or another since the origin of the species, even as they have undergone fundamental changes across history. So there are likely interactions occurring across scales of biocultural organization worth study by researchers of a variety of disciplines.

In that context social scientists can comfortably assimilate the idea that genes exist and may have effect on an individual's pathologies. Biologists, in turn, should come to terms with public health data that clearly indicate the means by which to incur the greatest impact on population health involve altering social circumstances, with dividends for all. End racist practices, end economic exploitation, and everybody's health improves. For the benefit of those who don't believe it we should run the experiment for a few generations and see what results.

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