



*To arrive at the edge of the world's knowledge, seek out the most complex and sophisticated minds, put them in a room together, and have them ask each other the questions they are asking themselves.*

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## 2009 : WHAT WILL CHANGE EVERYTHING?

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**[Jonathan Haidt](#)**

*Social Psychologist; Professor, New York University Stern School of Business; Author, [The Righteous Mind](#)*

### FASTER EVOLUTION MEANS MORE ETHNIC DIFFERENCES

The most offensive idea in all of science for the last 40 years is the possibility that behavioral differences between racial and ethnic groups have some genetic basis. Knowing nothing but the long-term offensiveness of this idea, a betting person would have to predict that as we decode the genomes of people around the world, we're going to find deeper differences than most scientists now expect. Expectations, after all, are not based purely on current evidence; they are biased, even if only slightly, by the gut feelings of the researchers, and those gut feelings include disgust toward racism..

A wall has long protected respectable evolutionary inquiry from accusations of aiding and abetting racism. That wall is the belief that genetic change happens at such a glacial pace that there simply was not time, in the 50,000 years since humans spread out from Africa, for selection pressures to have altered the genome in anything but the most trivial way (e.g., changes in skin color and nose shape were adaptive responses to cold climates). Evolutionary psychology has therefore focused on the Pleistocene era – the period from about 1.8 million years ago to the dawn of agriculture — during which our common humanity was forged for the hunter-gatherer lifestyle.

But the writing is on the wall. Russian scientists showed in the 1990s that a strong selection pressure (picking out and breeding only the tamest fox pups in each generation) created what was — in behavior as well as body — essentially a new species in just 30 generations. That would correspond to about 750 years for humans. Humans may never have experienced such a strong selection pressure for such a long period, but they surely experienced many weaker selection pressures that lasted far longer, and for which some heritable personality traits were more adaptive than others. It stands to reason that local populations (not continent-wide "races") adapted to local circumstances by a process known as "co-evolution" in which genes and cultural elements change over time and mutually influence each other. The best documented example of this process is the co-evolution of genetic mutations that maintain the ability to fully digest lactose in adulthood with the cultural innovation of keeping cattle and drinking their milk. This process has happened several times in the last 10,000 years, not to whole "races" but to tribes or larger groups that domesticated cattle.

Recent "sweeps" of the genome across human populations show that hundreds of genes have been changing during the last 5-10 millennia in response to local selection pressures. (See papers by Benjamin Voight, Scott Williamson, and Bruce Lahn). No new mental modules can be created from scratch in a few millennia, but slight tweaks to existing mechanisms can happen quickly, and small genetic changes can have big behavioral

effects, as with those Russian foxes. We must therefore begin looking beyond the Pleistocene and turn our attention to the Holocene era as well – the last 10,000 years. This was the period after the spread of agriculture during which the pace of genetic change sped up in response to the enormous increase in the variety of ways that humans earned their living, formed larger coalitions, fought wars, and competed for resources and mates.

The protective "wall" is about to come crashing down, and all sorts of uncomfortable claims are going to pour in. Skin color has no moral significance, but traits that led to Darwinian success in one of the many new niches and occupations of Holocene life — traits such as collectivism, clannishness, aggressiveness, docility, or the ability to delay gratification — are often seen as virtues or vices. Virtues are acquired slowly, by practice within a cultural context, but the discovery that there might be ethnically-linked genetic variations in the ease with which people can acquire specific virtues is — and this is my prediction — going to be a "game changing" scientific event. (By "ethnic" I mean any group of people who believe they share common descent, actually do share common descent, and that descent involved at least 500 years of a sustained selection pressure, such as sheep herding, rice farming, exposure to malaria, or a caste-based social order, which favored some heritable behavioral predispositions and not others.)

I believe that the "Bell Curve" wars of the 1990s, over race differences in intelligence, will seem genteel and short-lived compared to the coming arguments over ethnic differences in moralized traits. I predict that this "war" will break out between 2012 and 2017.

There are reasons to hope that we'll ultimately reach a consensus that does not aid and abet racism. I expect that dozens or hundreds of ethnic differences will be found, so that any group — like any person — can be said to have many strengths and a few weaknesses, all of which are context-dependent. Furthermore, these cross-group differences are likely to be small when compared to the enormous variation within ethnic groups and the enormous and obvious effects of cultural learning. But whatever consensus we ultimately reach, the ways in which we now think about genes, groups, evolution and ethnicity will be radically changed by the unstoppable progress of the human genome project.

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