Fractured Circles of Race: A Heuristic Model for Teaching about Racial Categorization in Anthropological and Historical Perspective

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This paper presents a heuristic model for teaching about human variation and transformations of concepts of race over time. It suggests that key aspects of the complexities related to the topic can be fruitfully discussed by making use of the image of a feedback loop between folk models and scientific models of human kinds and human variations. In order to elucidate this discussion, a brief review of the history of racial thinking and some current ideas about race, genetics, and biomedicine are also presented.

Anthropology since its inception has been engaged in research and debate about the meaning and validity of racial categories. While the reality of race was once taken for granted, in recent years the view that "race is not an accurate or productive way to describe human biological variation" (Edgar and Hunley 2009: 2) has become widespread. Indeed, recent surveys and official statements from professional associations suggest that the pioneering critiques of traditional racial assumptions made by Franz Boas (1940 [1995]), Ashley Montague (1942 [2008]), and Frank Livingstone (1962) have been widely accepted among anthropologists in North America, although they have had uneven influence elsewhere (Lieberman et al. 2004; American Anthropological Association [AAA] 1998; American Association of Physical Anthropologists, 1996).[1]My concern here, though, is not to discuss this development in all its detail. Rather, it is to provide a manageable

1 Some have suggested that the consensus view in North America has begun to unravel with the advent of findings from current human genome research (A.M. Leroi 2005, cited in Gravlee (2009: 47). However, this seems to be an overstatement of the case (Edgar and Hunley 2009).

way to present to undergraduate students beginning in anthropology enough background to understand race concepts and their current state of acceptance or rejection without overwhelming them with too much detail.

Leaving aside questions of scientific validity for the moment, which I will return to later, a major part of the explanation for the tenacity of traditional racial typologizing is surely that racial models provide apparently clear and simple ways of thinking about "us" and "them." As Peter Wade (2004: 161) has put it, race provides "a tremendously powerful way of thinking about human difference, partly because it appeals to ideas about human nature." Unfortunately, by comparison, recent anthropological descriptions and critiques do not have this virtue of simplicity. The view, epitomized by Livingstone's well known aphorism that "there are no races, only clines" (Livingstone 1962: 279) still seems counterintuitive to many of our students, and is not without academic critics (Sesardic 2010). In any case, without an obvious link to familiar categories, more widespread acceptance of nuanced perspectives on human variation is surely hindered.[2]

There are other factors that have hindered awareness of the anthropological idea that our old racial categories are imprecise and cannot encapsulate the reality of human biological diversity. These days, many people are justifiably confused by information about diversity coming from scientists and medical professionals that seems contradictory. If there are no meaningful biological races, then how is it that medical researchers continue to report key differences related to health that use traditional racial labels? Is it not true, as has been reported, that blacks have greater susceptibility than whites to disorders such as prostate cancer and hypertension? Are not whites more likely than blacks to have different bone densities related to different rates of osteoporosis (Cooper, Rotimi, and Ward, 1999; Pollitzer and Anderson, 1989; Fausto-Sterling 2008)? What about the US Food and Drug Administration approval of the heart medication BiDil as a treatment for heart failure specifically geared toward blacks (Kahn 2008)? Other talk coming from those who work in the field of medical genomics has added further ambiguities to public discourse. How are teachers and lecturers to make sense of these apparently conflicting perspectives, both for themselves and for their students?

Despite the tremendous need for good teaching on this subject, too few pedagogical tools are available to instructors who aim to discuss elements of the complex history of race with a degree of digestible simplicity. The best route is certainly a complete course, perhaps following the example of Shanklin (1993) or Harris and Raimon (1998). Even with the recent efforts of the "Understanding

2 Cognitive anthropologist Lawrence A. Hirschfeld (1996) has argued that children have a psychological propensity to evaluate and label others by groups because the human mind operates in terms of such categories. Although to date the evidence presented for this is incomplete (Wade 2004:163-164), if racial typologies are effective memes that are learned and stick in mind with rather little effort, then this is especially problematic because they will be difficult to unlearn and "teach against." Of course, the racial categories of common practice are not without ambiguity and complexity as, for example, Harris (1970) showed in reference to Brazilian racial classification. The point here is that ambiguous and complex things are not difficult to learn and maintain if they are framed appropriately.

Race" project of the AAA (http://www.understandingrace.org/home.html), however, there is still a need for college-level materials that can be presented in one or two lectures. To help meet this need, my aim here is to provide a set of graphics that may be incorporated into a 90 minute lecture about the dynamic history of racial conceptualizations. I will also provide some discussion of historical details with the hope that others may find this useful, although the graphics I suggest may be fleshed out with a wide variety of other specifics.

There are three basic perspectives I wish to get across at once. First, there is the idea of race as a folk model. Second is the idea of race as a scientific model. Third, there has been a dynamic interaction between dominant folk models and dominant scientific models of race throughout history that continues to the present (See figure one.) This folk-model scientific-model dynamic may be used to illustrate the history of concepts of human variation, the developments of scientific racial typologies, and the growing critique of the race concept. By showing feedback and a cycle of feedback loops, one can illustrate with numerous examples how the popular wisdom of an age has influenced the science of human variation and how the science of human variation in turn has affected the popular wisdom. That this is an ongoing process is the very reason why so much being said about race today appears muddled.

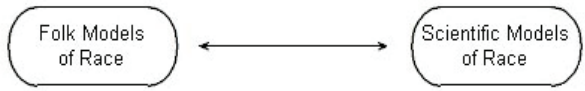

Figure 1. The scientific-model folk-model feedback process.

In preparing to teach about race and anthropology, one needs appropriate background. For the necessary details, there are a number of anthropological works available with broad historical perspectives. Marks (1995), Brace (2005), and Smedley (2007 [1993]) are particularly useful introductions that complement each other by way of different emphases. Another key source is the volume *Revisiting Race in a Genomic Age*. While not a text as such, this is a well-written and insightful work covering developments since the human genome project that is also worthy of inclusion in any reading list for a specialized upper division or graduate class (Koenig, Lee and Richardson [2008]). Finally, there is the special symposium issue of the American Journal of Physical Anthropology called *Race Reconciled: How Biological Anthropologists View Human Variation*, published in 2009, that provides more detail about recent work in biological anthropology.

In their introduction to *Race Reconciled*, Edgar and Hunley (2009:2-3) make several suggestions that relate to teaching. First, they argue that biological anthropology textbooks should provide more information about biomedical research as it relates to race. Second, there needs to be a better discussion of recent reconstructions of human population history, and the breadth of disagreement about them. Third, they suggest that relevant findings from different

anthropological subfields need inclusion as well. Unfortunately, it is probably not possible to approach this level of detail in a general anthropology classroom. Still, one approach suggested by the work of researchers such as Peter Wade (2004) and Clarence Gravlee (2009) is to start with a more holistic and synergistic model of biosocial interactions than is traditionally conceived in textbooks. However, to reiterate, my goal here is not to review everything there is to know about recent research. Rather, my goal is to present a heuristic that is simple but that does not preclude adding as much complexity as one would like.

The folk model concept I use is drawn from cognitive anthropology and ethnosemantics.[3] Folk models are types of narrative explanation or description that emerge informally and synergistically in the process of acts of communication, be they in the form of casual conversation, oral literature, Internet exchanges, or nonacademic written literature. Typically, folk models develop implicitly and reach a degree of standardization through the same sort of processes that make for the spread of rumor and legend (Fine and Turner 2001: 53-80). Racial categorization, as a type of folk thought, is based on the unexamined assumptions pertaining to physical appearances and perceived differences between groups that became widespread in eighteenth-century Europe (Hudson 1996). The importance of such an understanding of race as folk model is indicated by the fact that it features prominently in the most recent statement about race approved by the American Anthropological Association (1998). The perspective may also be gaining ground in applied areas of work, such as in education counseling (Cameron and Wycoff 1998).

The suggestion that the concept of race developed from folk understanding contrasts with the ideal image of scientific developments. Scientific models are meant to be descriptions and explanations drawn from empirical analyses, based on objective criteria of falsifiablity, peer review, and replication of results. Scientists (except for the corrupt ones) believe that they should adhere to the scientific criteria of truth in their work. Nevertheless, the history of science shows the division between folk perceptions and scientific thought about race is rarely complete. As Audrey Smedley (2007:334) suggests, the folk concept of race "was elevated to the ranks of scholarly discourse when scientists began developing rationalizations and justifications for existing social realities." Racial models, in other words, were ways of thinking that developed informally in a specific historical context, and then later influenced scholarly and scientific thought. Of course, it is also not a purely lopsided division in favor of folk models. The scientists of race not only borrow folk images, they also develop new ways of thinking about human variation

3 The precise intellectual heritage of the "folk model" idea is difficult to trace. It appears similar to ideas put forth by German psychologist Wilhelm Wundt about the social nature of the everyday thought of the "Volk." For contemporary anthropologists, the distinction between the folk or "little traditions" of rural communities and the high culture of metropolitan elites is familiar from the work of Redfield (1956). The folk models of cognitive anthropology are different from Redfield's sense of folk traditions in that they are more pervasive in a society as a whole, generally being encoded implicitly in language. For an appreciative account of Wundt's import in anthropology, see Goldenweiser (1933).

in doing what they believe to be purely objective research. This does not preclude the possibility of scientific progress, but it does suggest the need to be aware of cultural frameworks and political economic interests that may influence empirical concerns. On the one hand, for example, recent studies of neutral mutations are suggesting new ways of thinking about human biological history in terms of "serial population fissions, bottlenecks and long-range migrations" (Hunley, Healey and Long 2009:45). On the other hand, other studies are showing how the new biogenetics and its conceptualizations of human variation are influenced by the economic interests of biotechnology firms and pharmaceutical companies (Duster 2006).

Figure one makes it clear that the folk models and the scientific models of race are mutually reinforcing. Folk models influence the scientific models and the scientific models feedback to influence the folk models. Although this is a process that has been going on for several hundred years, much modern thinking about race can be traced back to common folk and scientific roots. The beginning of this interlinking relationship between the two frameworks on race is evident from the seventeenth century, when racial classification systems first began to be published in Europe. A brief quasi-scientific taxonomy published by the Frenchman Bernier in 1684, for example, depends upon popular European ideals of beauty among women. More than a hundred years later one of the founders of physical anthropology, John Blumenbach, made the "beauty" of the skull a key criterion in his racial taxonomy. Such folk ideals continued to influence prominent taxonomists into the twentieth century (Schiebinger 1993:126-133).

The Interaction of Folk and Scientific Models in Seventeenth and Eighteenth Century Europe

In teaching about this period, one may choose to delve into the assumptions of Bernier's classification scheme, but the work of the famous Swedish naturalist Carolus Linnaeus (1707-1788) is more typically discussed.[4] The value in reviewing these or other early models of race is that enough years have passed that we can see clearly the peculiarity of their folk assumptions, yet not so much times has elapsed that we cannot recognize the thought as like our own in some ways. Linnaeus's taxonomy is quite familiar to us in that it is divided into the four categories we may recognize as our own time's folk classification of red, yellow, black and white. The way the members of these categories are typified is also not completely foreign—they are based on generalizations derived from impressions. To be more precise, Linnaeus's evaluation of the four categories he called *Afer*, *Americanus*, *Asiaticus*, and *Europeaeus* are based on his perceptions of differences in skin

4 Gould (1994), on the other hand, stresses the contributions of Linnaeus's follower Johan Blumenbach (1752-1840), the man who coined the term "Caucasian." From the perspective of this paper, Blumenbach is most interesting because he provided another early link in the chain of folk and scientific interaction. Because he thought people from the Caucasus region were better in that they were more beautiful than others, he provided academic legitimacy for the folk emphasis on racial aesthetics.

color, temperament, physical appearance, dress and moral authority. However, his other folk assumptions are more obscure and odd to us.

Given the desire to classify all of nature, the categorizations Linnaeus made were extremely concise, but in their contrasts they still say a great deal about popular preconceptions. Implicit in his typology are characterizations about difference derived from travelers' accounts and the popular wisdom of the day. Three simple examples will suffice here to make the point. First, Linnaeus applied European traveler's stereotypes in assigning the various humors to different races. This he did, for example, by typifying Europeans as "gentle, acute, and inventive" on the one hand, and Asians as "severe, haughty, and avaricious," on the other. Second, he made implicit use of folk assumptions about the relationship between the female body and nature, particularly concerning human breasts and their folk association with nurturance and fertility (Schiebinger 1993). Finally, and perhaps most strikingly, Linnaeus included within his human category various forms of "monstrous races" believed to be real in the European imagination. The confusion of the times between the real and the imagined is evident in that imaginary wild hairy-men and nocturnal "Troglodytes" were mixed together with the very real pastoralist "Hottentots" of South Africa in the same category (Dickason 1984; Smedley 2007).

Even when not dealing directly with the subject of human beings, Linnaeus applied numerous metaphors in his classifications that were indicative of underlying folk belief about human social status. Peter Worsley (1997: 82) has pointed out, for example, how Linnaeus characterized certain varieties of lilies as "patrician" while he thought of some mosses and fungi as lowly "servants" and "vagabonds." More dramatically, Linnaeus transferred a stereotype about the poor having large families to his observation of the fecundity of grasses. Grasses were said to be like the poor masses of humanity because "the more they were trod upon, the more they seemed to reproduce themselves."

On the more academic side of its heritage, Linnaeus's taxonomic system owed much to the Platonic notion that there was always a single ideal form of a species that best represented the species as a whole. In terms of his human varieties, this implied that there was an ideal "type-specimen" to be found in the real world that best represented each group. (The long-term result of this scholarly notion would be a reinforcement of popular tendencies to blur distinctions between individuals and groups.) Also derived from the Greeks were the four terms Linnaeus used for describing temperament–phlegmatic, melancholic, choleric, and sanguine. These terms, coming directly from ancient theory of body humors, were applied as emblems of the supposedly apathetic, sad, irritable or optimistic characters of the four types. The four racial categories are perhaps linked as well to both folk and scholarly emphasis on the four elements (air, earth, fire, and water) of alchemy and the four cardinal directions (Schiebinger 1993:119).

As suggested above, the work of Linnaeus did not simply reflect the folk imagination. On the contrary, the systemization of nature he envisioned was in turn to have a profound impact on such thinking. For example, historian

Mary Louise Pratt (1992) demonstrates that the scientific classification scheme of Linnaeus had a direct impact on how Europeans perceived the peoples they encountered in the colonial context. Educated people, in particular, although used to thinking of others in terms of some simplifying categories before Linnaeus, after Linnaeus began to observe people more in terms of racial labels, to the exclusion of attending to individuality. In Pratt's terms, under the influence of Linnaeus European travelers came to see others as biological, denuded, and objectified bodies to be classified.

Although analyses of the works of Linnaeus give us strong clues about the developing European system of race, the encyclopedic *Natural History, General and Particular* by Georges-Louis Leclerc, Comte de Buffon, is a better source for reconstructing the history of European folk taxonomies and images of race. The *Natural History*, unlike the taxonomy of Linnaeus, contains many more of the descriptive accounts of European travelers that continued to serve as scholarly evidence. In a long section called "Varieties of the Human Species" in the eighth volume, Buffon (1812) summarizes many such accounts. His reckoning of them reveals a number of patterns that had developed in the popular imagination. The first pattern is familiar: ethnocentric stereotypes abound, and an emphasis is given to what was perceived to be beautiful or ugly about others, particularly their women. Like the tabloid journalists of today, Buffon and the writers he cites also placed special emphasis on the freakish appearance or oddity. For example, both men and women from Greenland were said to be ugly, but their women's breasts were described as "so long and pliable, that they can suckle their children over their shoulders." Similarly, the Ceylonese were said to have long ears that hung down to their shoulders. Belief in the monstrous races, too, was not completely cast aside as Buffon reported, although sometimes skeptically, descriptions of men with tails (Buffon 1812:331, 334, 345, 364; Schiebinger 1993: 126-134).

It should be noted that Buffon's categorizations of others are not the broad sweeping stereotypes of a few racial categories, and they are not always negative. For example, in describing Africans, Buffon suggested that blacks were as variable as whites. Still, his descriptions often set up artificial contrasts of extremes. "The natives of Guinea are extremely ugly, and have an insufferable odor," he believed, while those of Sofala and Mozambique "are beautiful, and have no bad smell" (Buffon 1812:39). And, color was never really ignored or considered objectively. While Buffon wrote that Wolof women were as beautiful as any to found in the world, this he could only admit with inclusion of the comment "abstracting from color" (Buffon 1812:379).

Buffon's account was also characteristic of the times in that the distinction between physical form and culture was blurred or nonexistent, at least for non-whites. For example, when he described the Calmuch Tartars as ugly and frightful in their appearance, he also associated this with the opinion that they were "all robbers" (1812:311). Similarly, the Ainu of Japan were called "a gross and brutal race, having neither manners nor arts" (1812:321). On the other hand, when it was reported that there were people living among the Tartars, whose faces were "as

fresh and white as any in Europe" (1812:314) little was said about their customs. This, of course, is different from what tends to be emphasized about Buffon as a taxonomist. Here it is right to point out that Buffon rejected Platonic essentialism in favor of classificatory individualism, epitomized by his apothegm "individuals alone exist in nature" (Brace 2005:31).

The Fractured Circles from Then to Now

With its double arrow points, Figure 1 is meant to show that the racial classifications systematized by the scientists of race in turn influenced the popular wisdom. In fact, the scientific-sounding terms created by Linnaeus and Blumenbach and their followers became the common sense of succeeding generations, and are still in use. The Linnaean system initiated a long phase in intellectual history in which naturalists, the general public, and, later, anthropologists, hotly debated what the "correct" human classification scheme should be (Hannaford 1997). Under such influence, the detailed reports of exotic peoples and their customs given in previous periods were to be dismissed by succeeding generations of racial lumpers and classifiers as providing mere tiresome details (Hudson 1996:250).

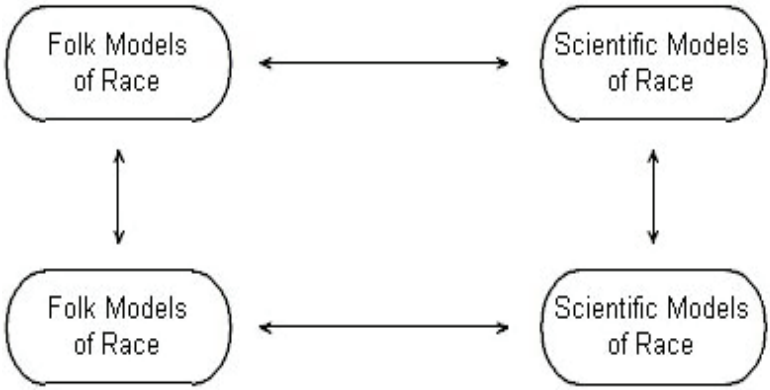

Figure 2. A "fractured circle" of race claims.

From the time of Linnaeus forward, the dynamic interaction between the popular imagination and science becomes a mutually reinforcing feedback loop. Knowledge claims about race fly round and round, from folk model to science, from science to folk model, and then back again to science. In the process of this historical interaction, both the folk models and the scientific models are modified. The folk model influenced the development of the scientist's classification schemes; the classification schemes influenced the popular view of races so that, no matter

how innocent some may have been in intent, they inevitably suggested a scale with different ranks in the popular imagination, and so on. This dynamic interchange, which—I believe—continues to the present, can be reckoned as fractured circles or wheels of truth claims about race. The "fractured circle" image is meant to suggest that the transfer of information between popular culture and science has not always been a smooth one. A circle of truth may suggest a smoothly oiled and efficient wheel that churns out objective truth. But quite the contrary is the case; the fractured circle has been a clunky, dented, and shopworn wheel that has suffered from overuse. It remains to be seen if it will be superseded by new paradigms currently under development.

The fractured circle image also suggests that we cannot simply read back our contemporary views of race and place them into the minds of earlier generations of thinkers about human variation. The world of the early European explorers and colonizers was for them one of both exciting and frightening possibilities that are foreign to our way of thinking today. In those days, the human form was thought to be open to dramatic, seemingly magical, manifestations. However, as time went on, more naturalistic explanations were put forth to explain marvels of human variation.

Science and Folk Model Interactions in the Nineteenth and Twentieth-Centuries

By the nineteenth century, racial categorization was so well established that it was rarely questioned. The ideological assumptions of colonial and slaveholding folk models are readily observable in work thought by scientific practitioners of the period to be purely objective. Stephen Jay Gould's (1996) *The Mismeasure of Man* provides one of the most engaging accounts of how unconscious folk models of race influenced the work of scientists at this time. While overstating the evidence in some cases, he nonetheless demonstrates many ways that supposedly objective measurements by scientists were influenced by folk model expectations.

The latter half of the nineteenth century was also a period in which the scientific models had a particularly profound influence on the folk models of race. As colonialism reached a mature stage, the ideas of Spencer and Darwin were used to provide further scientific justification for thinking of the world in terms of racial competition. Gould, Marks, Brace, Smedley, Hannaford and many others have described how nineteenth-century models of evolution and the "survival of the fittest" were used to provide justification for Europe's acts to subjugate or even exterminate people said to represent primitive and inferior forms of humanity. Scientists also advocated policies of selective breeding, called "eugenics" by Francis Galton, which were popularized in many countries and carried forward in the twentieth-century with eugenics laws and the genocidal policies of the Nazis under Hitler.

In a controversial book on images of race and sports, Hoberman (1997) has argued that the perspectives of the nineteenth-century scientific-model of Social Darwinism survive in some contemporary folk images of athletics. Rather than

professional sports being a modern success story of integration and interracial cooperation as many believe, he suggests rather that the modern sports world is an arena for interracial competition and pseudo-Darwinian discourse about racial difference. As the colonialist saw himself as a natural ruler of natives—well-disciplined, brave, tough, and of superior intelligence—so too modern sports folklore often portrays white athlete as surviving by thought, discipline, and hard work in a world of physically more gifted blacks. The genocide in Rwanda in 1994, in which Hutu elites promulgated a neo-colonial form of racism against those identified as Tutsi or Tutsi allies, indicates in a more frightening way how old racial ideas can take on new and violent forms in contemporary times (Pottier 2002: 31-32).

Genetics and the Post-World War II Period

Nineteenth-century models of racial classification began to be seriously challenged in the twentieth-century as a result of dramatic developments in genetics and in the world of politics. In genetics, increasing knowledge about inheritance and the nature of DNA suggested that genetic distances between human populations were slight and that traits taken to be racial were independently inherited. In the world of politics, the rise and fall of Nazi racism indicated that a vision of human life based on the old racial folk model was inherently dangerous. In the postwar period, the development of anti-colonial and civil rights movements also challenged the old white-supremacist worldview. The new perspectives from science and political life were most effectively advocated and popularized in Montague's classic *Race: Man's Most Dangerous Myth* (1942), a book updated six times and still in print.

In certain scientific and political circles, therefore, a new perspective emerged that saw human population difference gradually distributed rather than discrete, and Linnaeus's racial typologies as based on myth and social construction. As mentioned above, this was stated most pithily in Livingstone's phrase that "there are no races, there are only clines," but was not accepted without dissent (Lieberman, Kirk, and Littlefield 2003) and took years to gain widespread acceptance.

The tension between the older and newer models of race is understandable in the context of the folk-model and scientific-model interaction. This interaction is historically constituted, and at the present time we are still in a period of transition. This means that old and new ways of thinking are both to be found, and the newer ways of thinking have not yet become the dominant form of folk consciousness. As already suggested, part of the reason for this is that the transmission of folk ideas is facilitated by simplification of complexity. The old categories have the advantage in this regard because they seem so clear and unambiguous. While modern biology does not rule out the possibility of the existence of significant differences between certain human populations, it numbers these populations in the thousands, and explains their differences in terms of small changes in DNA frequencies due to such factors as genetic drift, differing effects of climate or disease vectors, patterns of splitting from ancestral African populations, or even epigenetics (Cavalli-Sforza

and Cavalli-Sforza 1995; Hunley, Healy, and Long 2009; Kuzawa and Sweet 2008). The complexity of this information is itself something of a barrier, hindering even ready translation to other scientists working on different problems. As a result, more traditional images of race still abound in both scientific and popular discourse, leaving us with a situation that is often confused and fractious. One area this is most in evidence is that of medicine and biomedical research (Caulfield, Fullerton, Ali-Khan, et al. 2009). This is so important for understanding that it is worthy of some separate discussion.

Contemporary Medicine in Black and White. The continuing influence of folk perspectives on race in the biomedical field is so pervasive that one commentator has suggested that medicine provides "scientific legitimation of a flawed social construct" (Witzig 1996). The problem with biomedical research relating to human variation is that nineteenth-century models of race continue to be used in defining the research subjects, even in studies that purport to be exclusively about genetics (Osborne and Feit 1992; Witzig 1996; Hunt and Megyesi 2008). This continuing legacy of old racial typologies is particularly apparent in the emergent academic field and business enterprise of pharmocogenomics (Duster 2006; Fullwiley 2008; Kahn 2008). A recent study of 30 human genetics researchers from the US and Canada, for example, found that their definitions of racial and ethnic variables lacked "sufficient rigor to be used as key variables in biological research" because the definitions "were often lacking or unclear, the specific categories they used were inconsistent and context specific, and classification practices were often implicit and unexamined" (Hunt and Megyesi 2008:349).

An assumption of black uniformity is frequently encountered in the medical literature, despite the fact that it is directly contradicted by long-standing genetic research which finds African people to be extremely diverse genetically (Cavalli-Sforza 1994; Tishkoff et al. 1996). The black uniformity assumption occurs especially frequently in discussions of hypertension. For example, a study about Liddle's syndrome (Baker et al. 1998), a rare form of hypertension caused by a mutation relating to sodium absorption, implies that black skin means genetic unity. Although the mutation responsible for Liddle's syndrome was observed in only 20 out of 348 dark-skinned individuals the researchers surveyed, nothing was reported about the geographic point of origin of those who had the mutation other than to say they were "Black Caribbean" or "Black African." More recently, Morris J. Brown, a professor of clinical pharmacology at Addenbrooke's Hospital, the University of Cambridge, dichotomized hypertension into two types, with type 1 said to be "commoner in young white people" and type 2 said to be "commoner in young black people" (Brown 2006). Putting aside whether or not a condition of high blood pressure is an either/or dichotomy, this perspective again assumes a within-race uniformity that does not exist. (Fortunately, this was immediately pointed out by critics such as Agyemang and Bhopal [2006] and Okosieme [2006]). In fact, the view that there is such stark racial disparity in hypertension is contradicted by more thorough examination of evidence from the world's populations (Agyemang et al. 2004). This debate also relates directly to the controversy about the racial profiling of the drug BiDil (Tate and Goldstein 2008:111-112; Kahn 2008).

Problems with an oversimplified notion of hypertension and human variation have been discussed now for quite some time. If some research has suggested a strong genetic-racial component for hypertension, it has not been convincing in light of other information showing that hypertension is extremely rare in Africa, that there is a gradient of high blood pressure rates from lowest to highest as one moves from Nigeria to Jamaica to the United States, and that this is *not* attributable to the known genetics of the renin-angiotenson system (Cooper, Rotimi and Ward 1999; Fang et al. 1996; Forrester et al. 1998).

It is crucial to reflect here as well that "whiteness" as a category is not much more effective as a medical category. As one researcher in Britain has put it, "The routine use in medical research of an ostensibly homogeneous "white" category in ethnic group classification has meant that white minorities, such as the Irish, Turks, and Cypriots, have remained hidden" (Aspinall 1998). That this is a continuing problem is highlighted by the findings of Fullwiley (2008). Based on interviews and ethnographic observation among biomedical researchers in California, she found researchers continue to use folk models of pure ancestral types and white typicality as they seek out their research subjects. Even if such researchers are aware of the problems of oversimplification, the popular way people have come to think and write about "black" and "white" may make it seem awkward or unnecessary for them to be more specific.

Contemporary Racialist Research. Another way that folk models of race and science continue to interact can be seen in contemporary and ongoing racialist research. By racialist is meant research which utilizes nineteenth-century categories of race, but which at the same time modifies these categories to keep up with our contemporary folk assumptions. Although such research frequently receives blistering reviews from a majority of specialists, it continues to be fed by, and feed into, the folk model. The highly-publicized work of Herrnstein and Murray (1994), for example, shows the influence of old-fashioned hierarchical thinking about race and black intellectual inferiority, but it is also influenced by more recent popular representations of Asians as a "model minority." It is no coincidence that Herrnstein and Murray's work focused on three categories of race. By eliminating Native Americans as a distinct category, thus modifying Linnaeus, they are able to emphasize data that show East Asian superiority in IQ test performance. The book on race and sports by journalist Jon Entine (2000) also suffers from a confusion of categories as it evokes racial typology, nationality, and ethnicity in purported explanation of differences in athletic performance.

From a different perspective, the melanist-branch of Afrocentric scholarship (Pasteur and Toldson 1982; Ortiz de Montellano 1992) is also racialist in the above sense because it too accepts the old essentialist folk models while modernizing them. Like many in the medical profession and the larger American society, the melanists uncritically accept the assumption of black genetic and cultural uniformity, as well as folk images of whiteness. On the other hand, as with Murray and Herrnstein, they modify the old folk images to suit their purposes, in this case, to champion black superiority. Indeed, as historian Clarence Walker (1993:539) has indicated,

the racialist melanist accepts all the old Eurocentric assumptions and concepts, merely turning them around to favor blacks. The roots of this model undoubtedly lie in African American responses to years of subjection to European racist folk thought and practice. Yet, ironically, the melanist view serves to legitimate the very same categorical thinking which emerged from African and African American subjugation. Since melanism and Afrocentrism both use history and science to justify feelings of racial pride, their advocates are unfortunately caught in a bind. The rejection of the traditional premises of race becomes anathema to many African Americans because their social experience makes these folk assumptions entirely and unalterably real.

The Interaction between Folk Models and Scientific Models of Race in East Asia

So far in this paper the folk model—scientific model graphic has been employed primarily with North American and Western European discourse in mind. While lecturers in Western countries may not have time to explore wider patterns, the interaction between folk-model and scientific model seems at play equally in the discourses of other traditions as well. For example, there are patterns of acceptance and use of traditional racial typologies in Eastern Europe and Asia that suggest acceptance of regional folk models (Lieberman, et al. 2004; Kaszycka et al. 2009). In Asia, Takezawa (2006) shows the need to consider folk conceptions of traditionally excluded populations such as Japan's *burakumin*; and an earlier collection of essays edited by Dikötter (1998) demonstrates a relationship between Chinese and Japanese folk models of lineage or "blood" ancestry and the scientific models of race utilized by some scholars from these countries. Furthermore, in a comparative analysis of racial discourse around the globe, Dikötter (2008:1478) has shown that modern "racist belief systems share a common language based on science."

In reviewing racial discourse in China of the Republican period, Dikötter (1998:21) notes that there was a "significant degree of convergence between popular culture and officially sponsored discourses of race, of the scientisation of folk models of identity and of the reconfiguration of stable notions of descent, lineage, and genealogy." Feedback from the scientific model to the folk model is demonstrated in that, in the 1920s and 1930s, Chinese biologists and medical professionals promoted a eugenics movement. Like the Western social Darwinists, these Chinese professionals took their understanding of such scientific concepts as natural selection and assortative mating to mean that Chinese should marry and mate only with strong healthy partners. In this way they thought they could build a better Chinese race. Furthermore, they advocated that marital partners should be of "proper" Chinese descent so as to avoid racial degeneration.

Respected scientists within China continued to promote a scientized folk notion of race as descent. This is perhaps best exemplified by Chinese physical anthropologists who interpret fossil hominids such as the famous *Homo erectus* finds from Zhoukoudian in racial and nationalist terms. While non-Chinese

scholars such as Milford Wolpoff (Wolpoff and Caspari 1997) have argued that there is notable continuity between such finds and contemporary Asian peoples, they are careful to contextualize their discussion within an overall framework of common human origins and genetic interaction. Prominent Chinese scholars, one the other hand, have upheld positions very much closer to polygenism, the theory of separate and distinct origins or races (Dikötter 1998:28-29). By defining race as nationality, these scholars reinforce a government ideology which seeks to impose a common Chinese racial label to non-Han minority groups within China, thereby undercutting the claims of those who wish to stress a tradition of independence from Beijing.

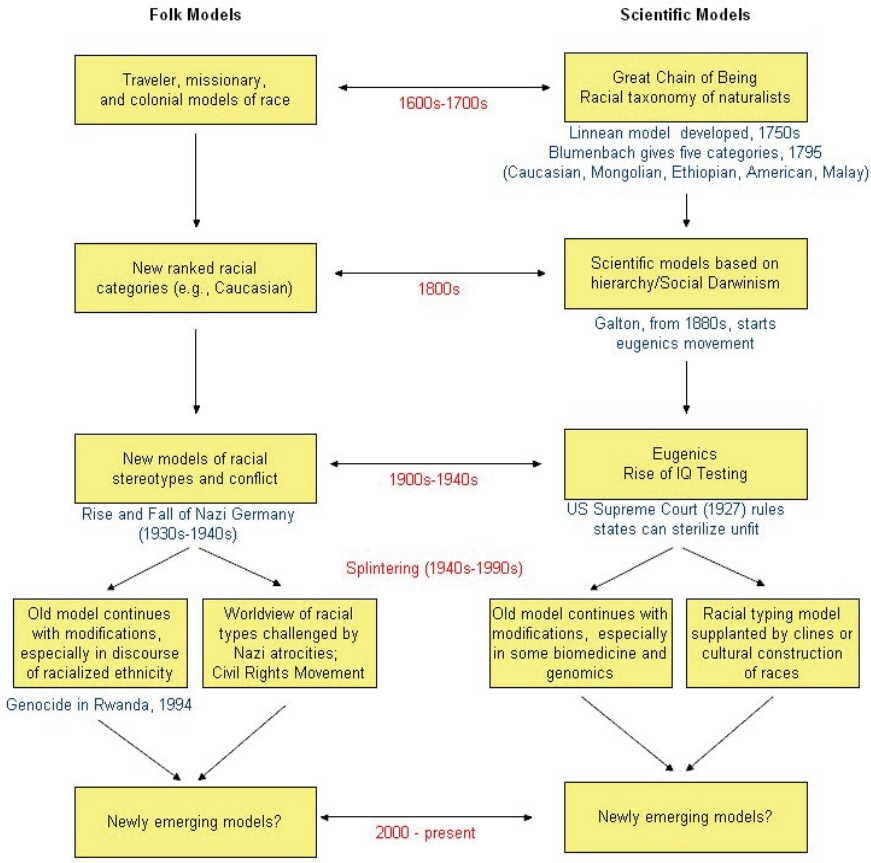

Figure 3. The fractured circles of race. From the time of Linnaeus to the present.

Conclusions

Filling in Figure 2 with specifics, we obtain the following graphic depiction of the interaction between the folk models and scientific models of race from the time

of Linnaeus to the present. Dates of general time periods are shown here, with a sample of more specific examples. Obviously, these examples could be multiplied with numerous others at the instructor's discretion. Like the previous figures, Figure 3 should be read with the understanding that folk models and scientific models are in dynamic interaction and contribute to each other's mutual development.

This presentation obviously obscures many of the details of the interaction between science and popular thought. The purpose is to provide a final device for recollecting the outlines of a complex process that has been with us for far too many years. This is an interaction that began with the images picked up by Linnaeus, and continues yet with contemporary disputes about the meaning and importance of the race concept. If in reality our answers are not simple, it should be our duty to explain clearly why this is so. It is hoped that the use of the folk-model scientific-model dichotomy will help make explicit many of the inherited assumptions about race and human variation that are still with us today.

With the hope that they may facilitate discussion among those students who read this article or hear lectures based on the ideas presented, I close with a set of sample questions and issues for further consideration.

Questions and Issues for Further Consideration

(1) What is the difference between folk and scientific models of a concept? How can they be distinguished?
(2) How does this article suggest folk and scientific models of race were formed historically? How have they been said to interact?
(3) In sociology and cultural anthropology, it is often said that race is socially constructed. Evidence of this comes from analysis of the racial terms used in different societies such as Brazil, the United States, and South Africa. Interpret this in terms of the "folk model" idea.
(4) Does Livingstone's view that "there are no races only clines" mean that there are no biological differences between human groups? Why or why not?
(5) In your experience, in what ways are new and old ideas about race being used today? What statements about racial differences are common? What statements are you unsure about?

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