

THE RACE CONCEPT: A DEFENSE

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ABSTRACT: It is argued against critics that the concept of race is well-formed. The issue is formulated in terms of the classic sense/reference distinction and shown that “race” has a sense specified in terms of geographic ancestry, and thereby a reference. Excessive constraints on “race,” for instance that races must by definition have signature genes, are rejected. Empirical validation is considered, although the emphasis here is to place empirical validation in a philosophical context, not answer the empirical questions themselves. At several junctures the familiar divisions of the races are compared to the stellar luminosity types of astronomy, which are still serviceable although representing an earlier state of astrophysical knowledge.

Key words: race, clade, genetics, typology, reference.

This paper concerns the concept of race. Much of it centers (naturally enough) on conceptual issues, particularly the meaning or lack thereof of “race,” but questions of empirical validity are also addressed. With some qualifications I conclude that the concept is vindicated.

A prefatory word is in order about the burden of proof. Generally speaking, any word used widely and with apparent comprehension must be presumed to express some coherent idea. The presumption is defeasible but absent decisive reasons for rejecting such a word, it should be considered well-formed. Vocabulary is acceptable until shown defective.

The Issue

I begin by setting discussion of “race” in the context of standard semantic theory.

According to this theory, every descriptor *D* possesses both a connotation—a set of defining properties—and a denotation, the set (possibly null or singleton) of objects (liberally understood) *D* is true of. *D*’s connotative properties are those an object must satisfy to be denoted by *D*, and jointly they capture the intuitive idea of *D*’s meaning; “gene,” for instance, connotes “bearer of genetic material” and thereby denotes bits of DNA, the actual bearers of genetic material.

The example may suggest that a scientific descriptor is legitimate just in case it denotes, but this condition is too strong. For one thing, science deploys nondenoting idealizations such as “perfect insulator.” A more instructive problem

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is raised by “atom,” freely used of the smallest chemically active units of matter even though, contrary to the traditional connotation of indivisibility attached to “atom,” these units are composite. Such ostensible conflicts of connotation with denotation are surprisingly frequent, as witness “fixed star” and “the mass of an object;” they occur whenever a term is cued by observational properties widely but mistakenly thought to signal its entire connotative suite. Nineteenth century chemists were led by the constant relative combining weights of substances to conclude—in error—that the ultimate interactants were simple, hence to think it appropriate to call them “atoms.” This sort of case forces a distinction between what a term denotes and what it is used to talk about. Denotation must still satisfy connotation, so that, despite its currency, “atom” denotes neither chemical minima nor anything else in nature, since nothing is both indivisible and a unit of a chemical element. At the same time, since everyone knows the scientific community employs “atom” with chemical units in mind, the word directs attention to them. And since the scientific community does successfully talk about these units via “atom,” they are generously allowed to count as atoms.

But mere successful use in speaking of something does not sanction a descriptor, for “phlogiston” is spurious despite having been regularly used of deoxygenated air. (Recall that phlogiston was a supposed fluid of negative weight released during combustion.) The great advantage of “atom” over “phlogiston” is that the entities “atom” is used to talk about strongly resemble what atoms must by definition be. These entities are *almost* atoms, in virtue of their minuteness, fixed combining ratios and within-element uniformity, three of “atom”’s connotative properties. (Isotopes introduce some within-element heterogeneity.) Deoxygenated air by contrast is very unlike phlogiston—in weight, for instance—so that although oxidation may have cued “release of phlogiston,” there is little pressure to count one as the other. A well-founded descriptor *D*, it would seem, must not only be used to talk about something, that something must satisfy most of *D*’s connotation. (A near-miss descriptor like “atom” may be said to be used to denote possessors of most of its connotative traits.)

On an alternative analysis proposed by Kripke (1972) and Putnam (1975), scientific terms are compared to connotationless proper names, and allegedly connotative properties are construed as theoretical beliefs, some true, some false, about the objects named. This analysis takes “atom” to denote atoms, which once were but are no longer believed to be indivisible and need no-one’s generosity to exist. However, the problem then remains of how denotation is acquired, if not via satisfaction of connotation. Defenders of the Kripke-Putnam view (see Kitcher 1993; also Siderits, 1987) typically suggest that a term denotes the cause, or primary cause, or sustaining cause of its use, but these approaches all seem to imply that “dephlogisticated air” did (and does) after all denote oxygen—an implication widely perceived as a weakness. And the very fact that this implication is perceived as a weakness confirms that a word’s denotation must not stray too far from what its users think it denotes. Perhaps a two-factor account which combines naming and connoting will in the end prove most satisfactory (see Devitt &

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Sterelny, 1999, secs. 2.6, 9.4; their own view, that sense is mode of presentation, is two factor.)

“Atom” survives because some things approximate what atoms are supposed to be, while “phlogiston” has perished because nothing remotely resembles what phlogiston was supposed to be. But there are intermediate cases, famously typified by “witch.” Notwithstanding a medieval consensus on indicia of witchcraft and display by some women of such relevant connotative traits as haggardness, witches never existed. Evidently this is because crones who looked right and were thereby somewhat witch-like lacked too many other connotative traits, among them possession of magical power. They were not witch-like enough. (The persistence of “witch” as a metaphor is no doubt explained by possession by some individuals of a few of these connoted properties.)

Exact criteria for resemblance have yet to be worked out, leaving the range of cases from “gene” to “atom” to “witch” to “phlogiston” somewhat vague. Even so, it allows a compact statement of skepticism about race: skepticism is the view that “race” belongs with “witch” and “phlogiston” rather than “atom” and “gene.” More explicitly, it is the view that no population satisfies sufficiently many of the connotative properties of “race” for “race” to denote or be used to denote it. To be sure, skeptics disagree among themselves on the extent of the mismatch between “race” and reality. According to Ashley Montagu (1964, p. xii), “Race is the phlogiston of our time,” by which he appears to be claiming that no group resembles even slightly what a race is supposed to be. More moderate skeptics such as Appiah and Gutmann (1996) compare “race” to “witch.” They grant that racial categories have a stable interpersonal use that facilitates noncollusive agreement in sorting human beings but argue that this reliability rests on the shared false belief that skin color, hair texture, and facial features indicate (fictitious) deeper attributes. Cavalli-Sforza, Menozzi, and Piazza (1994), perhaps the most respected scientific critics of race, take a similar position: “racial stereotypes have a consistency that allows even the layman to classify individuals. However, the major stereotypes, all based on skin color, hair color and form, and facial traits, reflect superficial differences that are not confirmed by a deeper analysis” (p. 19). (Cavalli-Sforza, 2000, restates his antirace argument more popularly.) Nonskeptics for their part place “race” on the “atom”/“gene” side of the spectrum, as a properly defined term that denotes or is used to denote.

Useful as this formulation of the issue is, especially in light of the analogies pressed by skeptics, it must be qualified. “Race,” or more properly “races,” is not meant to name a substance or class of individuals, as are “phlogiston,” “witch,” and the other terms cited, but to mark differences. Affirming the “reality of race” affirms the reality of races, the distinctness of members of differing races. Speaking abstractly (and for the moment conflating use and mention), since a scheme of categories $F_1/F_2/.../F_n$ is neither a substance nor a class, it cannot literally be said to exist or fail to exist or to denote or fail to denote. For this reason, any categorial scheme is almost bound to fail tests for existence that are appropriate for substance terms. However, in an extended sense $F_1/F_2/.../F_n$ can be said to be real, or more properly well-founded, when (a) there is a criterion that

discriminates F_i 's from F_j 's, (b) F_i 's differ from F_j 's in ways beyond that marked by the discriminator, and (c) most of the categories F_i are nonempty. Equivalently, the categories of a scheme “do not exist” if there is no discriminator, or the discriminator is arbitrary, or most of the categories are empty. In this extended sense, a scheme's connotation may be identified with its discriminator and its denotation identified with (some function of) the denotations of each category. Failure to denote on the part of a large minority of categories in a scheme may leave its denotation indeterminate. (This latter possibility goes beyond the issue of vagueness, since it can arise even if each F_i is precise.)

Note that condition (b)—which is stressed by critics of race in connection with construct validity (taken up below)—may be too demanding. Arguably, a distinction “exists” as long as there is some criterion for assigning objects to its pigeonholes, whatever further significance or utility the pigeonholes may have. For instance, there would seem to be a difference between objects now on my left and objects now on my right, even though there is no other difference between them, and the distinction itself will lapse the moment I move. Most philosophers reluctantly grant Goodman's (1954) grue/not-grue distinction, where an object is grue at a time t if t is before Jan. 1, 2010 and the object is green at t , or t is after Jan. 1, 2010, and it is blue at t . Note that all emeralds have so far been grue, and since the inductive principle (that the future will resemble the past) requires that emeralds after 2010 will therefore be grue, it seems to imply that they will be blue. The challenge is to find a way to disqualify induction on grue, but, as I say, the one way philosophers have *not* gone is to dismiss grue as unreal. So (a) and (c) alone may well suffice for the well-foundedness of a distinction, and we will see shortly that race satisfies them trivially.

The Use of Racial Descriptors to Denote Clades

Neither moderate nor extreme skepticism implies that “race” is *devoid of meaning* or *inherently confused*. Both forms of skepticism are consistent with “race” having a perfectly definite connotation, as indeed “witch” and “phlogiston” do. It is consistent with both forms of skepticism that “race” is defective only in being true of nothing, as are such innocuous phrases as “natural satellite of Venus.” “Race” may well *be* confused, perhaps because of dependence on obscure notions like biological essence, but this is not implicit in the analogies with “phlogiston” or “witch.” (“Witch” may depend on the confused idea of magic, but moderate skeptics cite it mainly to illustrate overhasty inference, as the move from skin color to race supposedly is.) The point may seem tediously obvious, but many polemicists do in effect treat “race” as if it were a nonsense-syllable on a par with scholastic jargon, and as if those who use it literally have nothing in mind. This tendentious position should not be imputed to serious critics of “race.” Rather, serious critics who dismiss race as “nonsense” are best viewed as holding that “race” not only fails to denote, but that this failure is an elementary consequence of modern biology, just as the failure of “astral influence” to denote is an elementary consequence of modern astronomy. On their view, belief in “racial influence” is

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nonsensical in the way astrology is, and anyone who indulges in racial thinking displays easily remediable (and therefore perhaps willfully culpable) ignorance.

However, critics often reach this conclusion by reading into the race concept unsatisfiable demands that are no part of its actual meaning. The most common of these is that races, to deserve the name, must be distinguished by unique genetic factors. Gould (1984, p. 32) assumes this condition in rejecting race on the grounds that no “‘race gene’ [is] present in all members of one group and none of another.” Cavalli-Sforza, Menozzi, and Piazza also assume it when they write:

The classification into races has proved to be a futile exercise. . . . All populations or population clusters overlap when single genes are considered, and in almost all populations, all alleles are present but in different frequencies. No single gene is therefore sufficient for classifying human populations into systematic categories. (1994, p. 19)

In the same spirit, Schwartz (2001, p. 1393) argues that “there is only one race—the human race” on the grounds that “there are no alleles that define the black people of North America as a unique population.” (Curiously, while dismissing race as an “arbitrary social construct,” Schwartz adds that “Racial identification does have importance in the formulation of just and impartial public policies,” 2001, p. 1392). A more stringent condition is that there must be genetic signatures that in addition fix major psychobiological phenotypes. Thus, Yee (1992, p. 110) objects that the ordinary indicia of race do not “relate inherently to behavior and potentials.” A third condition is that the boundaries between races must be discontinuities. For instance, Tooby and Cosmides (1990) identify races with “discrete” human groups. Barbujani, Magagni, Minch, and Cavalli-Sforza (1995, p. 4518) are quite explicit on this point: “a species is divided in races when it can be regarded as an essentially discontinuous set of individuals.” Evidently, Cavalli-Sforza et al. (1994, p. 19) has the same criterion in mind:

Whatever genetic boundaries may have developed [between human groups], given the strong mobility of human individuals, there probably never were any sharp ones, or if there were, they were blurred by later movements. . . . The successive levels of clustering [of populations by gene frequency] follow each other in a regular sequence, and there is no discontinuity that might tempt us to consider a certain level as a reasonable, although arbitrary, threshold for race distinction.

Finally, it may be required that any two members of one race resemble each other genetically or phenotypically more than either resemble any member of any other race, as when it is objected that within-group variances greatly exceed group mean differences or constitute a large portion of total variance.

These constraints create an easily dispatched straw man but are no part of the ordinary connotation of “race” or of any serious scientific or normative controversy. Not to monger further mystery, “race,” as used by the average educated speaker of English, connotes *geographic ancestry*, by continent or large continental subregion. “Negroid” means and is ordinarily taken to mean “of sub-

Saharan African descent”; “Mongoloid” means and is ordinarily taken to mean “of northeast Asian descent”; and “Caucasoid” means and is ordinarily taken to mean “of European descent.” There are of course other terms with racial overtones, for instance “Nordic,” “Dravidian,” “Melanesian,” or “native New World.” In fact, (see sec VI) there is some reason to add “southeast Asian” as a fourth large category to the conventional Negroid/Caucasoid/Mongoloid trichotomy. At the same time, the more specific a descriptor, the less pronounced is its racial tone, although many of the objections to the conventional trichotomy to be considered apply with equal force to narrower groupings. In any event, these other terms too are ordinarily meant and taken to be meant as referring to descent by geographical region.

I suspect that the reader who asks himself what goes through his mind when he thinks of the word “race” will find that it is a geographic criterion. Three less subjective lines of evidence also converge on this conclusion. First, it is endorsed by many knowledgeable adversaries of “racism,” among them Andrew Hacker (1992, p. 7), who writes: “In its basic meaning, ‘white’ denotes European antecedents, while ‘black’ stands for Africa.” (E. O. Wilson, 1978, also treats the construal of race as ancestry as uncontroversial.) Second, the geographic criterion explains, as the straw man does not, what opponents of racial discrimination are opposing. It also explains the demand that race-based affirmative action preferences and other reparations be directed to descendants of sub-Saharan Africans brought to America as slaves. Third, the geographic criterion explains, as the straw man does not, the desire of some American Negroids to be called “African-American.”

Since the difference between sub-Saharan African, European, and northeast Asian ancestry is patent, and each category contains numerous individuals, the race concept as ordinarily understood satisfies criteria (a) and (c) of the first section. Whatever further connotative properties of “race” these populations may lack, they are sufficiently race-like for “race” in its ordinary sense to be used to denote them. On this analysis, overt traits including skin color and facial bone structure cue racial descriptors because of an inference from these traits to ancestry. Unlike the association of haggard appearance with supernatural power, however, this inference is highly reliable, especially when, as commonly happens, these overt traits coalesce into gestalts. Thus, light-skinned African-Americans are usually correctly identified on the basis of lip eversion and hair texture as of predominantly sub-Saharan African ancestry while darker-skinned Hindustanis are seldom misclassified as sub-Saharan African. The widespread consensus in the use of “race” does not rest on systematic error.

“Race,” in a word, is used to denote continental or subcontinental clades. Cladistic taxonomy (Kitching et al., 1998; also see Andreasen, 1998, for a similar approach) takes the basic taxon to be the genealogical unit, ancestors-plus-line-(or tree)-of-descent, what according to the present analysis races are. To be sure, the rough-and-ready cladism of customary usage must accommodate three phenomena commonly cited as objections to it: (i) mankind’s origin in sub-

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Saharan Africa and subsequent radiation into Europe and Asia;¹ (ii) hybrids resulting from contact between previously isolated groups, and (iii) offshoot populations. The required adjustments create no fundamental difficulty.

(i) Ordinary speakers acquainted with the out-of-Africa scenario are most charitably construed as intending “Negroid” to denote individuals whose ancestors 15 to 5000 generations ago (with Harris & Hey, 1999, counting a generation as 20 years) were sub-Saharan African and *mutatis mutandis* for “Caucasoid” and “Mongoloid.”

(ii) Hybrid populations with multiple lines of descent are to be characterized in just those terms: as of multiple descent. Thus, American Negroids are individuals most of whose ancestors from 15 to 5000 generations ago were sub-Saharan African. Specifying “most” more precisely in a way that captures ordinary usage may not be possible. “> 50%” seems too low a threshold; my sense is that ordinary attributions of race begin to stabilize at 75%. An individual, half of whose ancestors are East Asian and half Caucasian, is to be categorized as just that, of half northeast Asian and half Caucasian ancestry. Nothing in continental cladistics precludes mixed ancestry, any more than the concept of a breed of dog excludes mixtures. To be sure, there are populations, for instance in the Caribbean and South America, whose ancestry is highly complex from the continental perspective. Moreover, the proportion of individuals with no dominant continent of ancestry has increased in recent centuries because of greater individual mobility and contact between previously separated populations. Someday this may be true of most human beings, and further in the future most human beings may have roughly similar ancestries. Under those circumstances continental clades would be mostly empty and distinct races would no longer exist, just as, should all dogs someday be mixtures, breeds will no longer exist (although all dogs and all humans will still have pedigrees). However, races exist so long as most individuals can trace their ancestry to one of a small number of continental clades, as is currently the case.

(iii) Local groups such as Australids can be regarded either as separate groups (although not “races” if they are too small) or branches of larger ones; clades are sufficiently open-textured to permit and sometimes require these questions to be settled by stipulative decision. At the same time, empirical investigation of distributions of gene frequencies and heritable phenotypes can motivate some decisions as the most reasonable (see below).

Marginal hybrids invite further discussion, since their very existence is often said to discredit racial taxa. This negative conclusion follows only if racial boundaries must be discontinuous, an unduly restrictive condition that (as already noted) misdescribes the everyday race concept, and, consistently applied, would

¹ A monogenist account of human origins, although not without detractors, is the current consensus: see, for example, S. Horai et al. (1995) and C. Stringer and P. Andrews (1988). For a review stressing genetic and linguistic evidence, see Cavalli-Sforza, Menozzi, and Piazza (1994). The primary African/non-African split is usually estimated to have occurred 100,000+ years ago; E. Harris and J. Hey (1999) push the split back toward 200,000 years ago on the basis of African/non-African divergence on an X chromosomal gene; see below.

disqualify many well-established scientific taxonomies. Astronomy, for instance, classifies stars by luminosity class despite borderline cases such as Canopus, and the anomalous subgroup of white dwarfs whose temperature correlates abnormally with magnitude. Barbujani, Magagni, Minch, and Cavalli-Sforza (1995) take the observation that “gene frequencies form smooth clines over all continents” as challenging “a biological basis for human race classification,” and one supposes they would reject as arbitrary any fiat boundaries imposed over this variation. Yet science often imposes sharp boundaries on continua. To recur to astronomy, spectral lines whose strengths vary continuously with temperature are divided into the 70 slots of the stellar spectral sequence. Since spectral types can overlay smooth gradients of temperature, it is unclear why population categories cannot overlay smooth gradients of genetic similarity. The argument from continuity actually impugns not just continental clades but most other classifications by ancestry, including families, since kinship diminishes by steps of decreasing size as monozygotic twins give way to siblings, who give way to cousins, and so on outward. It should also be borne in mind that over sufficient (possibly intercontinental) distance gradual clinal change yields substantial differences.

Nor does the definition of race by ancestry demand genetic signatures, another abatement consistent with post-Darwinian gradualism. Groups differentiate genetically when daughter populations straying from a parental stock accumulate differences through natural selection and drift, a process admitting gene backflow, crossflow, and retention of parental alleles. The nontransitivity fostered by this gradualism stymies even the classical interbreeding test for conspecifics: there are organisms 1, 2, . . . , n such that each i can breed with $i+1$ while pairings of 1 with n are sterile. The Aristotelian idea of natural types rigidly demarcated *per genus et differentia* is foreign to population biology, the ordinary conception of race, and cladistics. Kitching et al. (1998) stress that the dyadic relation “taxon x is/is not the same as taxon y ” is ill-defined; the primitive cladistic comparison is the triadic “taxon x is closer to taxon y than to taxon z .” Divergent branches of the same ancestral tree inevitably share a good deal genetically, their similarities attenuated rather than destroyed by distance over space and time. The various branches of mankind should be expected to differ at most in the frequencies of shared alleles (see secs III and V). The cladistic definition of race does not positively preclude unique racial genes, and such a “fixed DNA sequence difference” has apparently been found at a region of the X chromosome that controls glucose metabolism (Harris & Hey, 1999). At the same time the definition does not require that such genes, should they exist, be expressed as adaptive or socially significant phenotypes, or expressed at all, and indeed the racially differentiated polymorphisms just cited are thought to be “synonymous” (Harris & Hey, 1999), that is, not functionally significant or subject to natural selection.

The methodological moral is quite general: given a definition of race by continental clades, the distribution of genes across races becomes a wholly empirical question, so that, in particular, the existence of races is consistent with any discovery about the distribution of genes, just as the existence of Italy is consistent with any discovery about the distribution of genes over nations. (This

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point must be distinguished from the possibility of eventual homogeneous ancestry.) Because divergent ancestry implies nothing about genetic variety, the repeatedly made observation that all human groups share the vast majority of their genes, in excess of 99.9%, is not an objection to the cladistic definition of race. The datum properly stated is that typical members of the conventionally distinguished races have 99.9% of their genes in common. The interpretation of this overlap among groups is a further empirical question, namely whether .01% or any other specified mean difference in genome between lineages significantly differentiates phenotypes by some independent criterion of significance. That a .01% difference is causally inert is not known a priori. It is, for instance, entirely possible that the genome of the average virtuoso pianist differs from that of the average member of the populace (fixing traits independent of musical aptitude) by less than this. Perhaps the most profitable course at present is to estimate the impact of cladal disparities from the proportion of between-clade phenotypic variance explained by genotypic variance, as determined by conventional behavior genetic designs (kinship, cross-fostering). This option is exercised from a slightly different angle below.

A related issue concerns between-group differences in gene frequency. With striking consistency, the variance in gene frequencies within single populations, including small communities, has been found to be 85% of the variance in frequencies across the human race (Barbujani, Magagni, Minch, & Cavalli-Sforza, 1995; Jorde, Watkins, Bamshad, Dixon, Ricker, Seielstad, & Batzer, 2000), a finding sometimes cited to show that the between-group variance component is too small to support the race concept. Cavalli-Sforza, Menozzi, and Piazza (1994, p. 19) write:

The same polymorphisms are found in most populations, but at different frequencies in each, [but t]here has been too little time for the accumulation of a substantial divergence. The difference between them is therefore small when compared with that within the major groups, or even within a single population.

As before, however, the frequency variance is an empirical datum about races construed as continental clades, or as Cavalli-Sforza et al. (1994) prefer to say, "major groups." Indeed, this finding cannot be formulated unless "major groups" are identified by nongenetic criteria. If the existence of races did require the between-race component of variance to exceed (let us say) 50% for at least 20% of any random sample of loci, it would be undermined by the variance data, but, once again, the cladistic concept makes no such quantitative demand. Gene frequencies may consistently be supposed to be roughly or exactly the same in all major groups, since the group discriminator does not involve genetic polymorphisms. And the variance data too must be interpreted carefully, for, given reasonable assumptions and standards of importance, a 15% between-group variance component may be highly important. To take a simplified but not wholly unrealistic example, suppose variation among certain genes corresponds in 1-1 fashion to a normally distributed phenotype, for instance IQ. In particular, imagine equally numerous populations A and B for which $\mu(A) = 95$ and $\mu(B) = 105$, while

$\sigma(A) = \sigma(B) = 14$ (var = 196). Then var for $A \cup B$ is 225, of which the between-group component is somewhat less than 15%. Let it finally be assumed that an IQ of 135 is necessary for scientific innovation. Now, 135 lies $2.14z$ above $\mu(B)$ and $2.85z$ above $\mu(A)$, hence is reached by 1.3% of B but only .2% of A. There may therefore be expected to be about six creative scientists in population B for each one in A, with corresponding group differences in comprehension of nature, technology, medicine and related outcomes. Mean differences that appear small relative to intragroup variation may matter greatly.

The foregoing discussion suggests how to operationalize any hypothesis connecting race to other phenotypic and genotypic variables. Saying that Caucasoids are on average taller than Mongoloids, for instance, amounts to saying that individuals of European descent are on average taller than individuals of northeast Asian descent. Saying that Negroids possess on average less body fat than Caucasoids amounts to saying that the mean fat-to-body-mass ratio among people of European descent exceeds that of sub-Saharan African. A comparison of two races with respect to a genetic trait is tantamount to a comparison of the mean genetic value of that trait for individuals of the one ancestry to the mean genetic value of that trait for individuals of the other.

Validation

A serious critic of race will, I think, grant the existence of continental clades. He might add with some justice that this much was never in dispute; his claim, rather, is that classifying mankind by continental clade is pointless. All manner of classificatory schemes are conceivable; I am told that Borges playfully imagines the canine kingdom divided into dogs that are surprised and dogs that are not. Pressing criterion (b), the critic maintains that the racial division of mankind is no more interesting than Borges'.

This critical stance must be distinguished from an overall methodological "splitter" preference for narrow taxa as opposed to the "lumping" of mankind into large groups. The a priori objection to taxonomic lumping is its arbitrariness; given that, in general, every lineage includes subtrees and is itself a subtree of larger structures, nothing distinguishes the sub-Saharan African/northeast Asian/European partition or any augmentation thereof: "There are clearly no objective reasons for stopping at any particular level of taxonomic splitting. In fact, the analysis we carry out . . . shows that the level at which we stop our classification is completely arbitrary" (Cavalli-Sforza, Menozzi, & Piazza, 1994). At the level of abstraction at which this argument is pitched, however, no substantive disagreement separates splitters from lumpers, because any set of objects, including human beings, can be carved up in many ways, into a large number of small bits or a small number of large bits. None is more correct than, and all are consistent with, any other. This is obvious when one partition refines

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another;² there is no anomaly in an individual being both European and western Mediterranean. It holds as well for nonoverlapping partitions; there is no oddity in an individual being both European and 6' tall. Logicians would note that a set of predicates over a domain is neither right nor wrong, notions that enter only when one of the predicates is ascribed to a member of the domain. It is true but entirely trivial that classification by continental clade is arbitrary; so are all narrower (and wider) classifications. (Here one recalls Locke's insistence that nominal essences are "the workmanship of the understanding," and that no concrete thing has a unique nominal essence. But Locke did not overestimate the significance of this point.)

The intended complaint against continental clades must then be made more specific. Thinking again of Borges' dogs, it must be that the facts of genetic variety preclude interesting generalizations linking geographically extended lineages to other traits, particularly genetic ones, in explanatorily fruitful ways. "Race" is not a scientifically valid construct, or, in older philosophical parlance, it is unprojectible. In more recent parlance, predicates that do occur in explanatory generalizations are said to pick out "natural kinds," and in this sense races are not natural kinds.

It is quite true that scientists who employ the race concept do coordinate the geographic criterion with a genetic one. Brues' (1977, p. 1) text *People and Races* initially characterizes a race as "a division of a species which differs from other divisions by the frequency with which certain hereditary traits appear among its members," only afterwards associating races with "particular geographic areas." So without systematic heritable differences between ancestries derived from different continents, races as conventionally understood may be ignored. I hasten to add that it would not therefore follow that races do not exist, since races would continue to satisfy criteria (a) and (c) discussed in the first section.

In fact, heritable traits do vary systematically among Negroids, East Asians, and Caucasoids. The most familiar involve the facial features that critics of race deem superficial: the shape of the nose root, ears, lips, jaw, and cheeks, thickness of beard, and shape and thickness of hair. Less visible somatic differences between clades include age of tooth eruption (earlier in sub-Saharan Africans than in Asians and Europeans; Bailit, 1976), subcutaneous fat (Caucasoids over Negroids), muscle (Negroids over Caucasoids), and elongation of physique (Negroids tend to narrow hips, short trunk, long arms and legs; Mongoloids tend to long trunks and short legs, Caucasoids intermediate). Descent predicts litter size: Negroids produce on average roughly 16 fraternal twin pairs per 1,000 births, Caucasoids 8, and Mongoloids 4 (Brues, 1977). Continental clades also differ in the frequency of blood groups in the A/B/O, M/N, and Rh systems and in protein components of the blood. Since blood groups express genes fairly directly, they are prominent in estimates of genetic diversity and relatedness, discussed below. Entine (2000) cites a variety of descent-related anatomical and microphysiological differences

² A partition is a scheme of mutually exclusive and jointly exhaustive categories; one scheme refines another when every category in the second is partitioned by the first. In view of hybrids and vague boundaries, the racial scheme is more like the topologist's open covering.

affecting athletic performance. (Some of these involve intracontinental populations; see the discussion of averaging in the section of that name.)

There are also apparent heritable differences in psychological functioning, particularly in phenotypic IQ, a valid, unbiased proxy for intelligence (Neisser et al., 1996). (It is unnecessary in the present context to decide whether “intelligence” names a unitary ability or a cluster of more specific ones.) A mean one-standard-deviation difference in measured phenotypic IQ between American Negroids and Caucasoids is not seriously disputed, and a Mongoloid/Caucasoid difference is suspected. Older studies and more recent psychometric experiments consistently show indigenous sub-Saharan Africans underscoring European reference populations and controls by one to two standard deviations (Lynn, 1991; Rushton, 2001; Zindi, 1994). While systematic review of the question of genetic factors in these discrepancies is inappropriate here (see Hocutt & Levin, 1999; Levin, 1997), two lines of evidence support genetic involvement firmly enough to warrant retaining broad racial categories pending further inquiry. The first is the correlation of the size of white/African-American mean differences on IQ subtests with (within-group) subtest heritability, a result difficult to explain by means of environmental variables, for these variables would have to produce larger effects as sensitivity to environment dwindles. The second concerns the results of transracial adoption, the experimentum crucis in this subject. The IQs at late adolescence of Negroids and Mongoloids reared in Caucasoid families have been found to differ from the Caucasoid mean and approximate Negroid and Mongoloid means, respectively; moreover, the IQs of adoptees with one Caucasoid and one Negroid parent fall about midway between those of adoptees with two Negroid parents and those of the birth children of the adoptive families, a result hard to reconcile with wholly environmental causation (Frydman & Lynn, 1989; Levin, 1994; Weinberg, Scarr, & Waldman, 1992).

In virtue of the differences cited, continental clades appear to satisfy condition (b).

The reader might protest that I have ignored studies that fail to find differences between clades, but this objection is ill-founded empirically, and more importantly, methodologically. As an empirical matter, few psychological and sociological studies in this area confirm null hypotheses. Where intergroup comparisons are possible, particularly in heterogeneous societies, the usual pattern is phenotypic variation with, for example, northeast Asians most successful academically and least crime prone, Caucasoids somewhat less successful academically and more crime prone, and Negroids least successful academically and most crime prone (Jaynes & Williams, 1989). The sense of controversy in the literature on racial differences is sustained largely by conceptual criticisms of the phenotypic data, often the alleged shortcomings of IQ tests, and the urgency of the search for environmental explanations (however forced) of the outcome differences. These criticisms are discussed in the publications cited in Levin (1997) and Hocutt and Levin (1999). A third conceptual criticism, the possibility of disaggregating data about continental clades into data about subgroups, is considered in a later section.

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Methodologically, the selectiveness objection overlooks the asymmetry between claims of sameness and claims of difference. To establish that two things are so similar that distinguishing them is pointless, they must be shown to be alike in all (or, more weakly, virtually all) respects belonging to a contextually specified but normally wide range. Wine from vineyard A is indiscriminable from wine from vineyard B, for instance, only if they share the same aroma, flavor, alcohol content, color, and so on for all oenologic variables. To distinguish two things, on the other hand, they need only be shown to differ in some significant way (or some minimum number of significant ways), whether or not there are also many similarities, some possibly significant. The difference in mass of the nuclei of uranium 238 and uranium 235 atoms shows that uranium comes in two kinds, a physical difference not offset by the identical chemical behavior of U235 and U238. This asymmetry also governs the differentiation of groups. The cladistic construct is invalid only if there are *no* significant differences in heritable phenotypes between individuals of differing conventional races (clades), valid if there are some significant differences, however many exact resemblances there may also be. One must not be gulled by the defense attorney who argues “The prosecution has only a few witnesses who saw my client rob the bank; I have hundreds who didn’t.”

A pair of studies (Exner et al., 2001; Yancy et al., 2001) of the interaction of heart medicine with self-identified race clarifies the point. One found that the drug enalapril significantly reduced the risk of hospitalization for heart failure in white patients but did not reduce this risk among similar black patients (Exner et al., 2001; the authors speculate that the difference is due to race differences in response to certain enzyme inhibiting agents); the other study found no relation between race and response to the drug Carvedilol. It would clearly be fallacious to conclude that the similarity of response to Carvedilol cancels the difference in response to enalapril so that the studies taken jointly add nothing to our knowledge of the biochemical role of race. By itself, the enalapril result shows race x medication interaction and the need for the associated interaction term in multivariate regression equations seeking to predict heart failure. One editorial accompanying these studies (Wood, 2001) references further differences among “whites, blacks and Asians” in polymorphisms for receptors for certain types of drugs, and remarks:

Genetic differences among racial and ethnic groups usually reflect differences in the distribution of polymorphic traits, which occur at different frequencies in different populations, rather than a trait unique to a particular racial or ethnic group. . . . Polymorphisms of the enzymes responsible for drug metabolism [and, as noted, reception] are distributed differently among different racial and ethnic groups. (p. 1394)

This repudiation of the need for unique racial traits is essentially the view taken here.

Ironically perhaps, the self-identification of race by the participants in the studies enhances rather than reduces their biological significance. Enalapril (like

Carvedilol) can hardly be supposed to differentiate individuals on the basis of an “arbitrary social construct” (Schwartz, 2001). It is hard to see how enalapril, a mere chemical, knows not to affect blacks, as it would have to if being black or white is exhausted by a tendency to self-ascription. How does it know what patients call themselves? Self-ascriptions of race evidently correlate with a biological substrate.

There is a curious catch-22 that threatens to stop discussion of racial dimorphism before it starts. One objection to hypotheses of phenotypic and genotypic race differences—an increasingly common one, as the accumulating empirical data makes straightforward denial of these hypotheses very difficult—is that there is no such thing as race. To meet this objection, the existence of race must be established before the question of dimorphism is reached; as should be clear, the present paper is concerned mainly with this prior issue. But then it is objected that for races to be said to exist, significant connections between race and other traits must be shown! The present section is partly a response to that second objection, but adequately meeting both at once is as impossible as bringing them both is illicit. Suitably reworded, this double-barrel dilemma can be aimed at any subject. Astronomy is a pseudoscience; for to state laws about planets you must first show that planets exist, and to show that planets exist you need laws about them. This circle is best broken by operationalizing the disputed term, as “race” is operationalized in terms of continental clades. The quest for laws involving the term can then proceed without worry about the clarity of the term itself. Validity issues can still be raised, but the concept whose validity is under scrutiny is clear.

Averaging

The correlations cited in III might seem to fall short of validating continental clades because they are aggregative. For instance, the cited “Mongoloid” twinning rate is an average over numerous lines of descent, including the very low Japanese rate and higher ones elsewhere in Asia, leaving the overall datum unclear. Similar questions arise for other “racial” traits. Generalizing about “Africans” on the basis of African-American data might be thought particularly suspect, since most American blacks are of west African ancestry. (Sober & Wilson, 1998, criticize the “averaging fallacy” in another context.)

Averaging is by no means a contrivance for establishing large groups, for it can cloak differences as readily as display them. For instance, should the mean of group A on a trait T be $+z$ and that of equinumerous group B on T be $-z$, the 0 mean for $A \cup B$ obscures the T/A relation. A more fundamental problem with this objection is that it implicitly calls into question all statistical description. For while data about descendants of northeast Asians, southeast Asians, Europeans, and sub-Saharan Africans all represent averages over diverse subpopulations, so do all non-trivial statistical data. Despite the many forms fires take, fires citywide—a composite of arson, accidents, and lightning—predicts municipal population, stringency of building codes, local rainfall, and other variables. National farm productivity for most countries covers disparate climates and soils and could in

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principle be replaced by individual data points for each acre, or square foot. Data so atomized are plainly useless, and failure to look beyond them risks blindness to real trends. Furthermore, once skepticism about averaging becomes a principle (“Don’t generalize over heterogeneous domains”), there is no way to confine it before it grinds everything to bits. Doubts about the European-descent category based on its subsumption of Celtic, Mediterranean and other lineages must in consistency be extended to each of these lineages, which are collections of clans, and each of these clans, which are collections of families. There is no stopping short of individuals and their genotypes.

Averaging is justified when it reveals real, persistent patterns; nothing further is needed. The within-nation heterogeneity of data sources does nothing to undercut ongoing international discrepancies in farm productivity. If France keeps outproducing China in wheat, milk, meat, soybeans . . . (more arable land? something in the soil? government policies?) France and China may be treated as units. The variety of within-continent lineages is likewise irrelevant, if the discrepancies among humans sorted by continent of ancestry are robust. At the risk of flogging the point to death, there is an obvious sense in which all groupings are man-made. Things do not come with labels to indicate their unity. It is no more or less correct to group (and then average) by continent of ancestry than by any other variable. One may perfectly properly limit oneself to noting the worldwide dominance in sprinting of descendants of west Africans and the worldwide dominance in long distance track events of descendants of inhabitants of present-day Kenya. But the possible confinement of generalizations to subregions of Africa in no way conflicts with the equally accurate generalization that Africans and their descendants dominate short and long-distance track.

Ancestry by region is a distinction that *is drawn*, not an invention of renegade biologists. In Wittgenstein’s words, this language-game is played. All reasonable versions of this distinction, including the one in which the regions are continental in scale, satisfies conditions (a) and (c) of the first section rather trivially, and, in virtue of observable characteristics reliably correlated with ancestry, the less exigent condition (b). In virtue of the correlations between heritable functional phenotypes and ancestry, the conventional division of ancestries by region apparently satisfies (b) at a deeper level as well. The indeterminacy of aggregation raises secondary issues at best.

Genetic Distance

Systematic differences in heritable traits do not demonstrate variation in allelic frequencies. It is conceivable (I do not speak of probability) that global variation in within-group heritable phenotypes such as IQ are wholly due to environment factors. The most exhaustive direct study of allelic variation is Cavalli-Sforza, Menozzi, and Piazza (1994), which focuses on 120 genetic markers at 49 loci, most controlling blood components, among 42 populations. Since its authors repudiate race on the basis of their results, they merit close attention.

Of primary interest is “ F_{ST} distance,” the metric by which Cavalli-Sforza, Menozzi, and Piazza (1994) encode variation in allelic frequency. $F_{ST}(X, Y)$ for diploid populations X, Y is, intuitively, the sum of the distances of X and Y from a hypothetical mean population. In the simplest nontrivial case, one biallelic gene at one locus, let the alleles be M and N, and let the frequency of M in X be .9 (hence that of N = .1) and that of M in Y be .2 (hence N = .8). By Hardy-Weinberg the homozygosity of a population is the sum of the squares of the frequencies of its alleles, so the homozygosity of X is $.9^2 + .1^2 = .82$ and that of Y is .68. Heterozygosity is unity less homozygosity, so the heterozygosities for X and Y are .18 and .32, and the *mean* heterozygosity for {X, Y} is $(.18 + .32)/2 = .25$. *Total* heterozygosity for {X, Y} is derived from the mean frequencies of each allele, here $(.9 + .2)/2 = .55$ for M and .45 for N. The squares of the mean frequencies yield the average homozygosities of each allele, .3025 and .2025, the sum of the squares is the total homozygosity of the population, and unity less this sum is the total heterozygosity, here .495. As the separation of X from Y varies directly with the difference between total and mean heterozygosity, in the example $.495 - .25 = .245$, and inversely with total heterozygosity, the desired measure, F_{ST} , is the ratio of the difference to total heterozygosity. In the example it is $.245/.495 = .49$. Reversing the frequencies for Y, so that M = .8, would keep mean heterozygosity at .25 but put the allelic frequencies in the “midpopulation” near those in both X and Y, reducing total heterozygosity to .255 and F_{ST} to .02. Cavalli-Sforza et al. (1994) measure the separation of groups in their ensemble by averaging F_{STs} over the 120 alleles, with correction factors.³ Distance between two populations decreases as genetic variations within them parallel each other.

It is obvious from the construction that, as Cavalli-Sforza et al. (1994) suggest, nothing in this metric corresponds to absolute closeness, apart perhaps from the triviality that $F_{ST}(X, X) = 0$. There is no natural value f such that X and Y belong together just when $F_{ST}(X, Y) \leq f$. Nothing in the metric permits the judgment that populations X and Y are “near to” or “far from” each other genetically. So far this gradualism meshes smoothly with cladistics, which also rejects absolute closeness (as discussed earlier), and indeed the primitive cladistic comparison “X is closer to Y than to Z” is operationalizable as $F_{ST}(X, Y) < F_{ST}(X, Z)$. However, the F_{ST} metric, and cladistics, do admit clustering: given an ensemble E of populations, populations X_1, \dots, X_n cluster when for all $i, j \leq n$ and $X \notin \{X_1, \dots, X_n\}$, $F_{ST}(X_i, X) > \max[F_{ST}(X_i, X_j)]$. To be sure, a cluster in E may dissolve when embedded in E' . If in our example neither X nor Y is within .5 of any other population in an ensemble, they cluster; if other populations lie within .48 of either, they do not. Obviously, clustering is undefined for a pair {X, Y}. But within a given ensemble clustering is absolute, invariant under all reasonable transformations of F_{ST} .

³ Cavalli-Sforza, Menozzi, and Piazza (1994) actually reserve the term “genetic distance” for a slightly different statistic. They conceive F_{ST} as growing over time t for populations of very similar size in accordance with a normalized logistic model, so that $F_{ST}(t)$ is of the form $1 - \exp(-kt)$. Then “genetic distance” is $-kt$.

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There prove to be four clusters in the Cavalli-Sforza ensemble: the sub-Saharan African, Caucasian, East Asian, and South Asian populations. Additionally, each African population is F_{ST} -farther from any non-African population than virtually any two non-African populations are from each other (1994, pp. 79-83, esp. figs. 2.3.2.A, 2.3.2.B, and 2.3.3., and Table 2.3.2; the distance from Amerindians to Australids very slightly exceeds that from Africans to some Caucasoids). Cavalli-Sforza, Menozzi, and Piazza (1994) report a factor analysis of the correlations between allelic frequencies and populations that finds African populations loading heavily and almost exclusively on the first principal component, east Asians loading most heavily on the second principal component, Caucasoids loading about equally on each, and south Asians also loading more heavily on the second component but nearer the origin. The first three clusterings reflect the out-of-Africa scenario, in which the hypothesized European/Asian split occurred less than half as long ago as the African/European. Cavalli-Sforza, Menozzi, and Piazza (1994) note that “the greatest difference within the human species is between Africans and non-Africans” (p. 83). (They report similar results from an analysis of mitochondrial DNA mutations from five geographic regions. Here the major division separates some African populations from the rest of mankind [including the other Africans]). This tracking of gene frequencies by continental clades would appear to reinforce the validation of race by linkage to heritable phenotypes, and it will be noted that three of the four clusters correspond closely to the “black/white/Asian” categories of the everyday race concept. The southeast Asian cluster, although absent from the everyday concept, may be regarded as an addition to it.

Cavalli-Sforza, Menozzi, and Piazza (1994) dissent from this interpretation on the by-now familiar grounds of gradualism and arbitrariness:

By means of painstaking multivariate analysis, we can identify “clusters” of populations and order them in a hierarchy that we believe represents the history of fissions in the expansion to the whole world of anatomically modern humans. At no level can clusters be identified with races, since every level of clustering would determine a different partition and there is no biological reason to prefer a particular one. The successive levels of clustering follow each other in a regular sequence, and there is no discontinuity that might tempt us to consider a certain level as a reasonable, though arbitrary, threshold for race distinction. (p. 19)

Certainly, the populations in the Cavalli-Sforza ensemble can be fused into larger units or fissioned into smaller ones. The next level up consists of unions of F_{ST} -closest groups, with for example the union Eskimo \cup Chukchi replacing the pair {Eskimo, Chukchi}, and the level above that one fuses the F_{ST} -closest of those unions. Equally certainly, nature plays no favorites among these levels. No unification, and that of course includes unification over continents, is the right one. But while these points may reignite philosophical debate about splitting and averaging, they do not affect the validation of (essentially continental) clades by clustering. At all levels the F_{ST} -neighbor of an African (east Asian, European, south Asian) unit is another African (east Asian, European, south Asian) unit. One

level up from the Cavalli-Sforza ensemble, Eskimo \cup Chukchi is F_{ST} -closest to North Turkic; one level up from that, Eskimo \cup Chukchi \cup North Turkic is closest to Samoyed \cup Mongol \cup Tibetan \cup Korean \cup Japanese \cup Ainu, and similarly for other populations. FST neighbors remain spatially contiguous. And at any level the associated African units remain further from all non-African units than any non-African unit is from any other. African/European/Asian clusters emerge for each partition, which show similar factorial structures. Lumping preserves the correlation of genetic distance with geographic origin. In practice, Cavalli-Sforza, Menozzi, and Piazza (1994) recognize continental clustering. They describe “European . . . East Asians [and] Africans” as “the three major ethnic groups” and “the major branches of the genetic tree” (p. 100), and remark that “The first split of the [human genealogical] tree” is that between Africans and others (p. 135).

The primary aim of this paper has been to explicate “race” as “geographically specified clade.” This explication is not committed to any particular choice of continental regions as the right one, although I have taken pains to explain why this familiar choice is no less legitimate than its rivals and why the sense of rivalry is largely illusory. With regard to the colloquial black/white/yellow distinction (with southeast Asians added), introduced when demographics was in its infancy and next to nothing was known of genetics, I have already noted its congruence with the Cavalli-Sforza clusters. In addition to supporting the colloquial distinction as a reasonable first step toward understanding mankind, this match also suggests a final remark on taxonomy.

Critics have observed (as I just did) that the race concept was a product of the 18th and 19th centuries, but from this it does not follow that race is an anachronism. The stellar spectral typology mentioned earlier was also introduced in the 19th century, when the Balmer series, the variation in chemical composition of stars, even the reason they shine at all, were mysteries. Yet spectral type remains part of astronomy as physicists have discovered the nucleosynthetic processes producing the phenomena to which this scheme applies, as well as phenomena like black holes to which it does not. Spectral type is as informative as ever about a star’s light, just as conventional race is as informative as ever about an individual’s ancestry. We know so much more now (about radiation and the transmission of traits) that the *relative* informativeness of these descriptors has decreased, but in both cases the information can be integrated into more comprehensive theories. Max Hocutt has argued in a paper that racial distinctions parallel the earth/air/fire/water distinction of ancient Greek cosmology (2002). For all the woeful inadequacy of that fourfold classification, we recognize that it was not illusory, that it did capture realities the Greeks observed. The impressive advances in physics since that time have still not shown the Greeks were wrong to think that there is such stuff as water or that it differs from fire.

The “phenomenological” branches of physics deal with molar properties of matter without regard to their possible reducibility to more basic microprocesses. Phenomenological thermodynamics, for instance, states autonomous laws about heat, defined merely in terms of observed temperature, as if heat were not known to be the mean kinetic energy of ensembles of molecules. To some extent these

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laws reflect the historically accidental order in which physical properties were noticed, for had some pleistocene Rumford realized that things feel warmer as their constituent particles pick up speed, heat phenomena might at once have been absorbed into mechanics without first acquiring a special name. Yet this contingency neither undercuts thermodynamics, still a staple of first-year physics, nor implies the unreality of heat. Phenotype/race correlations may be regarded as the phenomenological laws of human genetics, remnants of the historically accidental “chunking” of mankind into easily discernible kinship units before the mechanisms of heredity were understood. This contingency neither undercuts generalizations about continental clades nor suggests that they are unreal.

Summary and Conclusions

All sides in the race debate agree that humans can be grouped by descent in many ways, that relative to some groupings they vary genotypically, and that genetic variance plays some causal role in phenotypic variance. Given this much agreement, which groups if any to call “races” looks like a purely verbal question, on par with which ground elevations are high enough to call “hills.” Ordinary usage (worth more, perhaps, than its critics allow) favors black/white/Asian, but in any case the emotional freight carried by “race” demands that something further be said. The following position strikes me as the most reasonable.

On one hand the coarse division of mankind into sub-Saharan African/European/northeast Asian/southeast Asian/mixtures/ (others classified ad lib) is too crude for many purposes. Reliable generalizations about specific population units should be stated as such, not diluted by reference to larger units to which those populations belong. Better understanding of the genome promises more refined knowledge of this sort, which will also “localize” epigenetic accounts of society and societal differences. As the resolving power of human genetics increases, uses for the coarse division will decrease commensurately.

On the other hand, they are unlikely to vanish altogether. The coarse division matches the clustering of mankind as presently constituted, suggesting that there are some trends in human development that can be captured only by generalizing on a continental scale. Moreover, the narrower populations about which specific information is coming online will still be individuated by geographical ancestry. The taxonomic principle which identifies “Caucasoids” as individuals whose descent can be traced to the European peninsula of Eurasia, is retained when “Lapps” are identified as individuals whose descent can be traced to a specific area of Europe. Once good-sized clades are admitted, there is no principled basis for balking at larger ones.

Retention of taxonomy by descent especially is why avoiding “race” or replacing it with circumlocutions like “major group” is apt to accomplish little. The turmoil surrounding “race” represents a conflict, between an evidently strong human interest in ancestry and the conviction that ancestry should be downplayed—a conviction based in part on empirical doubts about the informativeness of ancestry but also on the moral precept that people should be

judged as individuals. The problem is not racial language but consciousness of the distinctions it marks. Cavalli-Sforza, Menozzi, and Piazza (1994) consider the word “race” misleading and possibly harmful because it “is coupled in many parts of the world and strata of society with considerable prejudice, misunderstanding, and social problems. Xenophobia, political convenience, and a variety of motives totally unconnected with science are the basis of racism, the belief that some races are biologically superior. . . . There is no scientific basis to the belief of genetically determined ‘superiority of one population over another’” (p. 19). It is far from clear, however, that elimination of the race concept would significantly allay these motives. Loss of current racial descriptors might more reasonably be expected to prompt alternatives to express these distinctions, and these euphemisms in their turn to draw the hostility now directed at “race.” The hypothesis that “major ethnic groups” differ in intelligence for genetic reasons would surely be execrated as rancorously as is the same hypothesis about race, once the equivalence was noticed. Nor is disaggregation apt to restore calm. The hypotheses of an Ashkenazi Jew/west African or Japanese/Basque difference in genotypic intelligence would just as surely be condemned as baseless and provocative. It is intriguing to speculate whether in the latter case (assuming psychometric and genetic evidence were decisive) the existence of these smaller groups would be challenged, perhaps with comparisons to witches or phlogiston. The emotional core of opposition to racial concepts, namely anger at genetic explanations of human behavior, will not be appeased by banishing a word.

Conventional racial categories will play a diminishing role in biological anthropology, as spectral types do in cosmology. But given mankind’s present constitution they will not be completely idle. The more specific categories of descent that will play an ever-increasing role are as objectionable as race to those who find race objectionable. In light of the probable futility of Newspeak reforms, there is no compelling reason to abandon “race” as customarily employed.

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