Reconciling Race and Human Adaptability: Carleton Coon and The Persistence of Race in Scientific Discourse

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The primary theoretical shift in physical anthropology in the 20th century was from the "old" to the "new." Championed by Sherwood Washburn (1951, 1953), the new physical anthropology was to be processual and evolutionary, as opposed to prior static and typologically based studies. Problems and questions pertaining to the subject matter of physical anthropology, including primate behavior and evolution, contemporary human variability, and human evolution, would be studied in relationship to evolutionary forces such as gene flow and natural selection (Washburn 1951, 1953). In his clearly titled, programmatic, and influential papers, "The New Physical Anthropology" (1951) and "The Strategy of Physical Anthropology" (1953), Washburn called for a clean break with the past:

> There has been almost no development of theory in physical anthropology itself, but the dominant attitude may be described as static, with emphasis on classification based on types. . . . The new physical anthropology is . . . the desire to understand the *process* of primate evolution and human variation. . . . [Washburn 1951:293, emphasis added]

Race, a pre-Darwinian, folk taxonomic scheme, clearly did not fit with a new (scientific) physical anthropology, and for this reason Washburn suggested it be jettisoned (Washburn 1963). The horror of recent acts of genocide in Eastern Europe and continued racism in the United States certainly played a role, but scientific reasons also called clearly for replacing this outdated concept (Barkan 1992).

The new physical anthropology triumphed, to some extent. As is evidenced by a perusal of introductory texts, scientific meetings papers and journal articles, the study of evolutionary and adaptive processes infused all levels and areas of inquiry.[1] The only hold over from the old physical anthropology is the idea that biological variability is explained by division into races. In a 1985 survey, Lieberman et al. (1989) found that exactly half of the teachers at physical anthropology at Ph.D.-granting institutions agreed that there are human races. Furthermore, the commonness with which race is being used in the papers and presentations of physical anthropologists in the 1990s suggests that the decline of belief in the salience of race may be reversing (Goodman and Armelagos 1996). Perhaps more important still, race

has remained as an unchallenged element of scientific discourse, even among scientists who know that it is an idealist and typological concept with little connection to the realities of human variation (Goodman 1997; Goodman 1995).

How does race, an idea about the structure of human variability that derived from European folk taxonomy, continue to survive a shift from typology to evolutionary theory, uncomfortable ground for a static and typological concept? Why was race not delegated to the scientific scrap heap with the advent of studies of evolutionary and adaptive processes? The purpose of this paper is to sketch a part of the career of the race concept, focusing on how it has blended into new theoretical perspectives—from creationist and typological to evolutionary—and new interests—from description of types to understanding human evolution to concerns for the dynamics of adaptation and disease susceptibility. Carleton S. Coon's major works on race are used to provide an example of how race survived this paradigm shift. Examples of the everyday use of race in epidemiological research from the late 1800s to the last decade are presented to illustrate how the use of race within physical anthropology mirrors and connects to broader scientific discourse. A main point of this paper is that the use of race has remained fundamentally unchanged, and its continued use as a shorthand for human biological variation continues to severely limited our understanding of the extent and significance of biological variation. Furthermore, the scientific maintenance of race, despite its poor fit to current theory and a wealth of data, provides an example of how a scientific practice is influenced by political considerations. Finally, we suggest that the survival of race in scientific discourse is partly a result of a series of subtle and everyday reinventions (Fields 1990). These reinventions have escaped scrutiny, but serve to maintain a social and scientific status quo.

From Race as Type to Race as Evolutionary Unit?

Carleton S. Coon (1904-1981) was raised in the sleepy, upper crust town of Wakefield, Massachusetts. At fifteen he left home for nearby Andover Academy and went on to get his undergraduate and graduate degrees at nearby Harvard University. With regards to future allegations of scientific anti-Semitism and racism, Coon recounts in *Adventures and Discoveries* (1981), his posthumously published autobiography, that there were only four Jewish families and two colored families in Wakefield. He writes: "I can truthfully say that both anti-Semitism and racism were unknown to me before I left home at the age of fifteen, and zero to fifteen are formative years" (1981:6).

Coon's Ph.D. thesis, titled "A Study of the Fundamental Racial and Cultural Characteristics of the Berbers of North Africa as Exemplified by the Riffians," was completed in 1928 under the direction of Earnest A. Hooton. He comments in his autobiography that he wanted to call it simply "Tribes of the Riff." He was instructed

by Alfred Tozzer, however, to change the title, as his choice "sounded purely descriptive whereas a Ph.D. thesis was supposed to be analytical, as mine really was" (Coon 1981:24). Contrary to this statement, there is little more than description in this and all of Coon's writings before World War II, completed while moving up the ranks from Instructor to Professor of Anthropology at Harvard.

As exemplified in his first book on race, *The Races of Europe* (1939), Coon's pre-World War II writing fit comfortably into the old physical anthropology. Dedicated to William Z. Ripley and written as an update to Ripley's 1899 classic of the same title, *The Races of Europe* was an effort to describe races and types. The typological perspective is so infused that there is little clarity as to the difference between race and type. Coon often conjoins race and type, as in "Alpine racial type" and "Nordic racial type." He expressly rejects any specific definition or meaning of race (1939:3) and he uses race to lump together both large and small groups of people, major divisions of humanity and minor variants. Europeans are divided into a multitude of racial groups such as Armenoids, Ladogans and Dinarics, and true Europeans are colloquially united as members of the "white race" (1939:12).

Jews, for example, are at the same time one or many racial types. Coon describes a "pure Palestinian type" Jew (1939:439), a "strait-nosed Mediterranean type" (1939: Plate 45, Figure 3) and a "convex-nosed, long-faced sub type" (1939:435, 439) of Jew; Leon Trotsky and Albert Einstein are mentioned as representing the "brachycephalic, Dinaricized Jewish type" (1939:645). While these small and specialized Jewish subtypes are seen as unique, Coon concurrently expresses the view that there is something primordial about Jews as a race; he expresses confidence that with "study [of] the Jews of the Mediterranean world both separately and as a group we should be able to find the common racial denominator or denominators" (1939:438). There is a distinct Jewish nose (1939:429) and "There is a quality of looking Jewish, and its existence cannot be denied" (1939:441).[2]

Coon views race formation through the lenses of amalgamation, selection and environmental response. Amalgamation—the fusion of pure racial types to form hybrids—is the main mechanism for explaining the many hard to classify individuals and groups. This belief in a fundamental purity of types, and an inability to define them, is a continuing feature of his work. The terms adaptation and evolution are neither found in the book's table of contents nor its lengthy index. Like Ripley's book of forty years prior, Coon's is typological and descriptive, without pretense to anything else, and almost nobody seemed to mind.[3]

Coon explanatory focus changes radically in *Races* (1950), subtitled "A Study in the Problem of Race Formation in Man," co-written with Stanley Garn (Harvard Ph.D. in 1948), his former pupil, and Joseph Birdsell (Harvard Ph.D. in 1941). Coon remarks that Garn did much of the work on this book and Birdsell only a little. He

recollects the outcome as a sort of compromise between his and Garn's ideas (1981:201-2). *Races* is a considerably shorter book than *The Races of Europe*, yet it is full of ideas and speculations that attempt to bridge the old and new physical anthropology. The long list of individuals whose help is acknowledged includes Washburn and many of the contemporary luminaries of genetics and anthropology, including Ashley Montagu, whose speculations on shared human genes are referenced in a footnote. Races of the world are described (thirty of them!) as before. What is new is a discussion of the interaction between environment and genetics and a concern for selection and adaptation. Adaptation is so much the focus that the word is part of the title of four of the book's nine chapters. Without slowing down at the red light marking the intersection between the old typological anthropology and the new anthropology of evolution and adaptive processes, Coon sped ahead, taking race with him.

Perhaps free of Garn's moderating influence, Coon's work in the 1960s brought him into conflict with many of his anthropology colleagues. *The Origin of Races* (1962), Coon's best known book, presents a theory of human evolution as a product of separate racial adaptation to climate and culture. The main thesis of *The Origin of Races* is that five different races (Australoid, Capoid, Caucasoid, Congoid, and Mongoloid) separated long ago. Since separation, they evolved at different rates and reached the sapient stage at different times; Caucasoids arrived first. He continues to reference papers by Washburn, including "The New Physical Anthropology," although there is no mention of Ashley Montagu, who is now a well known critic of the concept of race. At the time of publication of *The Origin of Races,* Coon had moved to University of Pennsylvania and was the President of the American Association of Physical Anthropologists, without doubt a central figure within the field.

In *The Living Races of Man* (1965), Coon is again assisted by a young physical anthropology protégé, Edward E. Hunt. As with *Races* (1950), Coon and Hunt provide a full treatment of the adaptive characteristics of different races. What is new is that *The Origin of Races* had been harshly reviewed and Washburn, who now also had come out against racial analysis (Washburn 1962), joined Montagu as *personae non grata.*

Racial Adaptations, published posthumously in 1982 and the last book of Coon's productive career, brings to completion Coon's fusing of race with adaptation. Along with morphology, Coon embraces hormones and related genes and behavior to explain racial differences:

> While the behaviors of human beings are specific to Homo sapiens, their forms and directions are strongly influenced by the secretions of

> hormones that each race has been brought to emphasize by the climate in which its ancestors evolved. [Coon 1982:177]

As for whites, Coon wrote: "Blended with adrenaline and smoothed over with cool judgment, [testosterone] has marked the history of the Caucasoids in many parts of the world" (1982:190).

The data Coon uses to construct a theory of biobehavioral racial differences are gland weights from cadavers derived from a 1934 study. Coon is most concerned with the larger adrenals and testes in white versus black males. The original study, however, does not control for body size or age, nor comment on the leap from gland size to hormone production.

In summary, the new physical anthropology called for the replacement of race with a more appropriate evolutionary unit (population) and means of description (clines, adaptive traits). As the survey work of Lieberman et al. (1989) suggests, many physical anthropologist complied. Textbooks since the 1970s almost always explain human variation as resulting from adaptation to local environmental pressures and describe how human differences tended to vary gradually from place to place.

Yet another strategy seen in Coon's major writings was to graft a superficial adaptivist and evolutionary perspective onto the old concept of race. Other influential physical anthropologists such as Alice Brues (1977, 1993) and Stanley Garn (1965) followed suit and continued to define race as an evolutionary unit. *Races* is often cited as one of the first books to apply adaptive and evolutionary principles to explain human variation (Little 1982; Thomas 1996), and many physical anthropologists continue to fail to see what is problematic about the use of race as a modern concept (Gill 1994; Brues 1993).

Race, Risk, Disease and Civilization

Despite the Boasian call for a separation of biology from culture and language, anthropologists such as Coon continued to describe races typologically, often merging biology and culture. They were not alone: physicians also viewed disease through a lens of racial types. The history of discovery of sickle cell anemia (Tapper 1995; Wailoo 1991) provides an example. "Sickling" of red blood cells was initially found in individuals of African descent and was framed as a condition distinct to the Negro type. Vernon Mason reports on the fourth case: "It is of particular interest that up to the present the malady has been seen only in the negro" (1922:1320) and Thomas B. Cooley concurs that "sickle cell anemia is distinctly racial" (1928:1258).

The paradigm of a distinctly racial disease would seem to be challenged the diagnosis of sickle cell anemia in a European. Physicians who discovered suckling in a presumably European patient first searched for evidence of African admixture (Tapper 1995). For example, T. S. Lawrence, an American physician, states of a possible case of sickle cell in a European:

> Special attention was paid to the question of racial admixture of negro blood in the family but no evidence could be obtained. . . . There must be some caution in calling this sickle cell anemia because no evidence of negro blood could be found. [Lawrence 1927:44]

The linking of races as distinct types with distinct diseases blinded physicians from the possibility that sickle cell was not purely a disease of blacks.[5]

The idiom of racially distinct disease also shows up in the epidemiological study of diseases of more complex etiology. Nearly a century ago Thomas R. Brown, M.D., published in *The Johns Hopkins Hospital Bulletin* his study entitled "Ovarian Cysts in the Negress" (1899). The purpose of Brown's study was to ascertain the relative frequency of ovarian cysts of different types in black and white women. With very little epidemiological data at this time, it is apparently already common medical knowledge that ovarian cysts are rare in black women:

> One frequently hears surgeons say: "The tumor before us presents all the features of an ovarian cyst, but inasmuch as the patient is a negress it is certainly not so, but a tumor of different origin (cystic, myoma, etc.), as multilocular cysts are unknown in the negress." [Brown 1899:44]

Brown follows up this introductory quote with the statement "that ovarian cysts are much rarer in negresses than in white women no one will deny" (1899:44). He then states his paper's objective: "to give definitely and numerically" (1899:44) the proportion of ovarian cysts of various kinds operated upon in women of the two races.

Brown presents the number of different types of cysts determined by clinical observation and macroscopic appearance in 3996 white women and 589 black women who were treated in the gynecological services at the Johns Hopkins Hospital between January 31, 1882 and January 31, 1892. His data suggest that while ovarian cysts are somewhat less frequent in black women, they are nonetheless common. He finds multiple causes of histologically confirmed dermoid, simple, and unilocular cysts, leading him to conclude that

> while the simple retention cysts and the unilocular and multilocular ovarian cysts are seen relatively much less frequently in the negress

> than in the white women, they are present relatively much more frequently that is universally supposed. [Brown 1899:46]

In other words, cysts, multilocular and otherwise, *are known* in black women.

What was the result of Brown's clear contribution to the literature on ovarian cysts? In a search of medical textbooks on ovarian tumors published in the first half of the century, Hammonds (1993) found a single reference to Brown's paper. In *Ovarian Tumors* Samuel Geist continues to emphasize the "racial determination" of ovarian cysts: "If these [Brown's] findings are accepted the role of racial determinants must be considered in the etiology of some types of ovarian tumors" (1942:103).

Daniel Hale Williams seemed to see through what was "universally supposed" about the absence of ovarian cysts in black women. Williams was an eminent black physician, the former chief surgeon at Freedman's Hospital in Washington DC, and the first surgeon in the United States to perform a successful operation on the heart. In his paper entitled "Ovarian Cysts in Colored Women, With Notes on the Relative Frequency of Fibromas in Both Races" (1900), Williams provides insights into the history of the myth that ovarian cysts are rare in black women. He starts by calling this belief an "impression" handed down from generation to generation, an impression that persists despite Brown's paper and other evidence of ovarian cysts in black women. Williams seems to be aware both that the epidemiological facts are incorrect and why the impression has been developed and maintained. In a subtly critical tone, Williams shows how an undercurrent of racism permeates the notion that ovarian cysts are rare in black women. He repeats a comment he heard by a C. H. Mastin (no further identification given) on a prior paper on ovarian cysts: "Possibly the Alabama negro has not evoluted to the cyst-bearing age" (1900:1245).

Williams goes on to show unambiguous evidence for ovarian cysts of all types in black women, three of which, he notes, are from Alabama. He also cites larger epidemiological problems. How does one decide who is negro based on skin color criteria? Who is to determine where the line is to be drawn between black and white? He suggests that some physicians find relatively few cysts in black women because of differences in "health seeking behavior." Due to a history of harsh treatment, black women avoid white physicians and hospitals. Williams gives examples of black women finally diagnosed with cysts weighing 100 and 160 pounds (cyst plus contents). He also makes clear that preconceived notions blind physicians. What was assumed to be true—diseases are racial characteristic—prevented generations of doctors from seeing cysts in black women. Yet William's monumental paper seems to have been totally ignored (Hammonds 1993).

The paradigm of racially distinct diseases has now been replaced in epidemiological discourse by race as a risk factor. Osteoporosis is an age-related disorder characterized by decreased bone mass and increased susceptibility to fractures.[6] By 1980 it was estimated that osteoporosis affected 15 to 20 million people in the USA and that it was the underlying cause of about 1.3 million fractures per year (Wasserman and Barzel 1987). Osteoporosis is a serious health problem and better understanding of its etiology is obviously critical for improved screening, treatment and prevention.

Since at least the nineteenth century, white scientists have thought that blacks have thicker bones than whites. In his "Introduction to Anthropology," Dr. Theodor Waitz wrote: "The skeleton of the Negro is heavier, the bones thicker." And further: "This is especially the case with regard to the skull, which is hard and unusually thick, so that in fighting, Negroes, men and women, butt each other like rams without exhibiting much sensibility" (1863:93).

Over eighty years later a review of the etiology of osteoporosis listed race as the third risk factor, after age and sex and before heredity, physical activity and dietary factors (Wasserman and Barzel 1987). The section on race begins with the declarative sentence: "It is a well-known fact that blacks do not suffer from osteoporosis" (1987:285). That "fact" is backed up by reference to the seminal study of Mildred Trotter et al. (1960) on bone density changes by age, sex and race. Trotter et al. (1960) measured bones of 80 cadavers from Washington University, selected to provide 20 black males, 20 black females, 20 white males and 20 white females. Individuals' ages at death ranged from 25 to 100 years and the mean group ages at death varied from 59.6 in black males to 67.2 in white females. The authors do not provide a description of the method of selecting cadavers or whether the samples were matched for causes of death, socioeconomic status, diet or other known risk factors. The dried bones were weighed and their volumes estimated by displacement of millet seed. Ten different bones were studied. The authors conclude that cervical, thoracic and lumbar vertebrae, sacra, humeri and ulnae are heavier in blacks than white and there is no significant racial difference for radii, tibiae, ribs and femora. Furthermore, the decline in density with age occurred at "approximately the same rate" for each sex-race group (Trotter et al. 1960). Are these results strong enough to proclaim race as a known risk factor? Races do not get diseases, individuals do. It is of more than theoretical importance to know if a proclamation of group protection pertains to individuals.

In a follow-up study, Trotter and Hixson (1973) provide scatterplots of the original data of Trotter et al. (1960) on individual bone densities by age, sex and race. The scatterplots are instructive because they provide a visual sense of the degree of variation within race-sex groups, and how well individuals conform to the central tendency of the group. Figure 1 is a copy of the scatterplot of bone densities for the

radius. White males are represented by open circles, white females by open squares, black males by black dots and black females by black squares. This scatterplot clearly illustrates an overall trend of declining bone densities with age. What is not clear are the racial differences. The majority of the lowest bone densities, in the .40-.60 range, are black dots and squares.

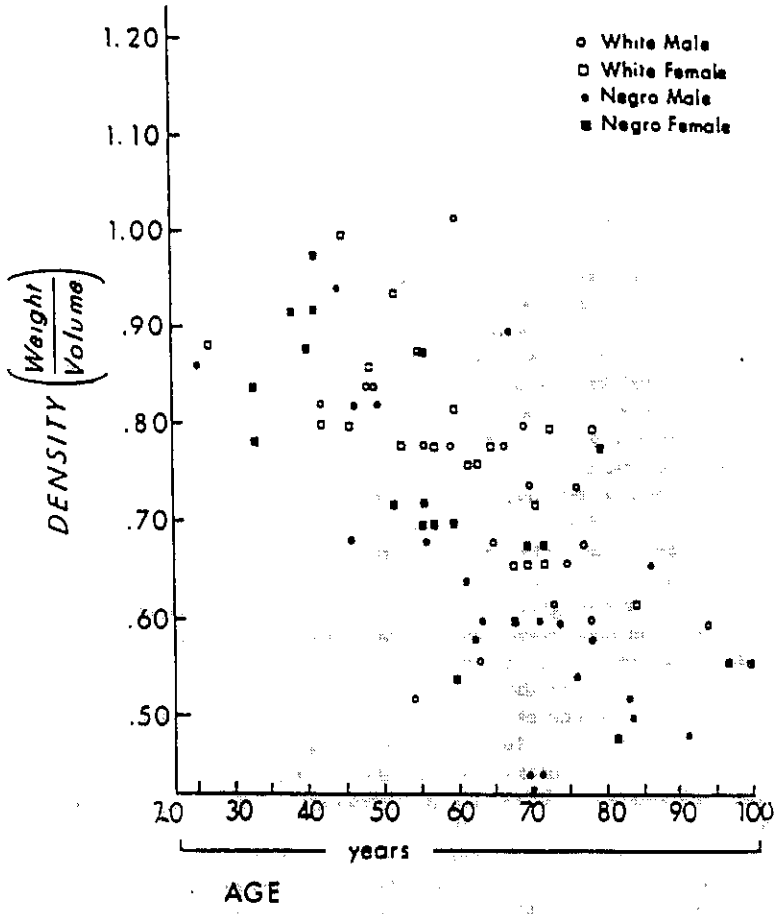

Figure 1. Scatter diagram of radii bone density values by race, sex and age (modified from Trotter and Hixon 1973:12, Figure 2).

What, then, is the basis for the "well-known fact that blacks do not suffer from osteoporosis" (Wasserman and Biesel 1987:285)? What seems to have occurred is a double leap of faith. First, a condition (cysts, osteoporosis) is considered to be genetic (although environment is not adequately examined). Could the differences be due to diet or other known risk factors such as exposure to sunlight and activity patterns? In the absence of such data there is an assumption of genetic etiology. Second, anything that is genetic is used to mean pan-racial, a characteristic of all members of the racial-type.[7]

Conclusions

Coon is best known today for popularizing a fanciful theory of the separate evolution of races (Coon 1962), but this is not his main legacy. He classified races, as many did, and this too is not the main reason for his historical importance. Rather, what we find most problematical is Coon's molding of race into the new physical anthropology of adaptive and evolutionary processes (Coon et al. 1950). Coon attempted to unify a typological model of human variation with an evolutionary perspective and explained racial differences with adaptivist arguments. The significance of this shift was recognized immediately by LC Dunn, who in the first line of his review in *American Anthropologist* states that *Races* "marks a transition stage in the anthropological thinking about race" (1951:105). Dunn makes clear that the old typological view is on its way out. Writing eleven years later, between the publication of the first and second edition of his *Human Races*, Garn announces that "Typology is dead" (1962:917).

What was under-appreciated is the paradox of continued support for the significance of *Races* and the continued salience of a typological view of race. A recent paper by George Gill (1994) illustrates the continued significance of *Races* (1950). In his published abstract Gill states:

> Confusion and ambiguity surrounding the controversial four letter word "race" was alleviated greatly by the early 1950s following the classic work of Coon, Garn and Birdsell (1950). . . . The underlying basis of the race concept (and racial taxonomy) has shifted entirely in recent decades from a typological to a populational one. [1994:163]

And further:

> Montagu and his followers have failed to notice . . . this modern "politically correct" approach to the question of human variation is creating a social taboo on a subject greatly in need of rational, dispassionate examination. The anti-intellectualism inherent in this

> recent approach is damaging to the progress of knowledge in human microevolution . . . and is even self-threatening to the social goal of racial harmony. . . . [1994:163]

Has race changed so dramatically, and is the position against the continued use of race just "politically correct"? We suggest, contra Gill, that race has not changed so much; it has only been subtly reinvented. Coon's work provides an important example of how and when this reinvention took place. Finally, politics certainly play a role in the "Montagu" position; however, there are also political consideration to examine in the maintenance of the concept of race.

What is scientifically problematic about the continued use of race has been previously addressed (Goodman 1995, 1997). However, two aspects of race bear repeating here. First, race is never defined in a way that one can replicate with scientific studies. In fact, the looseness of the definition of race is assiduously maintained by Coon and others who should know better. In studies such as those on osteoporosis, identification of race is either not specified or identified by self classification. In a review of race and nutritional status, Garn and Clark (1976) state that "since self assignments to racial categories are commonly used, the problem of racial identification is minimal" (1976:262).

We disagree. Racial identification, self-defined or otherwise, changes from place to place and time to time. In the United States, identification is based in part on the "one drop rule," meaning that any African admixtures assigns one to a non-white category. This social convention has little to do with biological populations. How boxes are checked off in surveys does not match biology. Second, unlike other systems of classification that may shift from place to place, the main problem of racial classification remains the conflation of culture, class and lived experience with biology. It is all too frequently not clear whether a racial difference in a disease or other condition is due to genetics or specifics of lived experience.

In a frequently used textbook, "Biological Variation in Health and Disease" Theresa Overfield says: "The terms *biological variation* and *racial variation* are used interchangeably here. Although the word *race* is somewhat unfashionable today, it is a good short word" (Overfield 1985:4). We think most everyone would agree that word length is a poor criterion for continued scientific usage. George Armelagos has suggested that using race in epidemiological studies should be considered scientific malpractice. We call it a form of ideological iatrogenesis.

Race and adaptation do not fit well together. Adaptations occur on a small scale of individuals and local groups, responding to specific, local environmental conditions, and these responses are mostly non-genetic. Human variation is far more complex and intricately varied than race allows for, and it certainly does not obey

racial boundaries. Jonathan Marks (1995) has noted that science is advanced through the commission of mistakes and their subsequent recognition and correction. There should be little to grieve about in making mistakes. The problem lies in perpetuating them.

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Notes

[1]Spencer (1982) provides a series of articles on the historical development of sub-areas of physical anthropology from 1930-1980, most of which comment on the influence of the "new physical anthropology." Forensic anthropology is the one sub-field of physical anthropology in which race remains a major focus of analysis (Gill and Rhine, 1990; Gordon, 1993).

[2]Franz Boas may be an exception. In his autobiography Coon reports that a review copy of The Races of Europe was sent to Boas, as editor of American Anthropologist (1981:137-8), however, it was never reviewed in that publication. Partly by way of explanation, Coon goes on to comment on the excessive sensitivity of Boas and others to Hitler's "treatment of minorities." (1981:137).

[3]Coon was not alone in his fascination with Jewish physiognomy. Also in 1939 Earnest Hooton, Professor at Harvard and the Ph.D. supervisor of Coon and almost all of Coon's generation of physical anthropologist, wrote in Colliers an article entitled "Why the Jews Grow Stronger." The illustration and the text are mostly about the appearance of Jews and the Jewish nose. Hooton write: " [some types] seem bizarre, baroque and even degenerative .... Most of the Jewish physical types fall into this category. They impress us as exotic, unless we live in New York.". Later he continues: " Jewish facial lineaments are real and objective."

[4]A dozen years after Coon, J. Philippe Rushton, the contemporary devotee of esoteric racial measurements, claims that black males produce more testosterone and have larger genitalia than whites (1994). Rushton uses this fact to explain a diversity of phenomena from the AIDS epidemic to purported intelligence differences among

races (1994). Rushton's work is an example of what Hoberman (1996) has called the pseudo Darwinian "Law of compensation," that evolution emphasizes certain traits at the expense of others, as Rushton theorizes that races put their energies into either sexuality and reproduction or brains and intelligence. Coon, conversely, with his data on larger testes in whites, does not see the need to compromise intelligence.

[5]This same essentialist thinking is what provided the ideological basis for the infamous Tuskegee syphilis study of 1932: the belief that the course of syphilis would be different in blacks than whites, that syphilis might transfer to whites via sexual relations, and that an epidemic of syphilis in blacks might further show their inability to cope with civilization (Brandt 1978).

[6]Much of the initial research into race and osteoporosis was initially compiled by Martin and co-workers (1989).

[7]There are a variety of other examples of pan-racialist explanations for disease. One particularly common example is that Native Americans are all at risk of diabetes and other "diseases of civilization" because of a common genetic predisposition (Weiss 1991). However, Native American diabetes rates are tremendously varied over time and now by region and group.

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The Dangers in Editing Human History to Fit Methodological Constraints in the Present

Robert B. Eckhardt

This paper contrasts two different theoretical approaches to the reconstruction of human evolution: multiregional continuity and genetic marker fission-replacement. In considering these two models it is critical to distinguish among the data, the assumptions of the interpretive framework within which the data are ordered, the conclusions that are offered on the basis of the work, and the significance that is attached to these conclusions. The strategy followed here is to begin with the more recent work, first examining the significance claimed for it and then working back through the conclusions and assumptions to the data. A comparable analysis is then offered of the antecedent alternative model. Finally, some reasons are suggested for the widespread misunderstanding of a multiregional model.

Multiregional Continuity

The interpretive framework for human evolution now generally referred to as multiregional continuity was introduced conceptually by Franz Weidenreich as early as 1936, when he illustrated his views on geographic sequences in fossil hominid lineages. Two years later he formally introduced his Polycentric Theory (Weidenreich 1938). Although neither of these publications ever was widely available, he reiterated these views in more accessible forums. For example, in the same year one paper in *Nature* (1937a:272) concluded with the phrase: "the line linking Pithecanthropus and Sinanthropus, respectively through . . . Neanderthal man, to recent man is continuous," while a second one in *Man* (1937b:51) opens with a specific reference to his first paper on polycentric origins: "The fact that there is a relationship between Sinanthropus, Pithecanthropus and Javanthropus was asserted for the first time in (1936) in my statement to the effect that: 'I came to the conviction that Javanthropus approaches in some regard Sinanthropus, or more correctly Pithecanthropus.' " He published a popularized version in 1946, which contains the classic figure (1946b:30, Fig. 30) showing Weidenreich's views on genetic continuity through time and space.

The base established by Weidenreich subsequently has been updated and elaborated (Wolpoff 1992; Thorne and Wolpoff 1992; Frayer et al. 1993; Frayer et al. 1994; Frayer 1997) to incorporate the enormous strides that have been made in genetic theory since Weidenreich's time, as well as to recognize the extraordinary expansion in numbers of hominid fossil specimens available for study. Because models of regional continuity are persistently misrepresented (e.g., Stringer 1989; Howells 1993; Cavalli-Sforza et al. 1993, 1994; Tishkoff et al. 1996a,b), scientists who wish to