

feature

Darwin's Ventriloquists

Jonathan Marks

The past year marked the 200th anniversary of the birth of Charles Darwin, who was clever enough to have published *The Origin of Species* at the age of 50, thus also giving us the 150th anniversary of the publication of that work. There is much here for anthropology to consider, although not just in the pedestrian sense of acknowledging that our species has a biological history. Indeed, Darwin himself made only passing note of that fact in 1859, foretelling that “light will be thrown on the origin of man and his history.” (In later editions he became sufficiently emboldened to amend that sentence to “Much light ...”.)

The issues that Darwin's anniversary year raises for anthropology are more anthropological than that. They are, first, about the value-laden qualities of science; second, about the role of science as a voice of authority in the modern world; and third, about the ever-present threat of scientific racism, perennially recruiting Darwinism for legitimacy.

Nothing-Butism

There are any number of science books telling you that you are an ape. A naked one, a brainy one, a demonic one—you're



Portrait of Charles Darwin (1809–1882), valued at about \$16.67 (collection of the author).

an ape. Now, there is a trivial sense in which that is true. It takes certain attributes to play the guitar like Pete Townshend: a rotating shoulder; a short, stout vertebral column; the ability to flex your fingers; and having fingers at all. Only a few animals have these qualities, and we call them apes.

So why is this observation trivial? Because we are manifestly not apes. We are the ones walking, talking, crying, cooking, building, dressing, sweating, marrying, cleaning, cutting our hair, pulling our wisdom teeth, struggling through childbirth, and threatening one another by brandishing our lawyers rather than our canine teeth. We have diverged from other apes. This is an important point: What is evolution? Evolution is change over time. It is about the origin of species. But that, of course, presupposes that species actually do become different from one another.

To say we are apes, then, is to negate the very fact that motivated Darwin to study the origin of species. To call us apes, to reduce us to our ancestry, is to effectively deny that the divergence Darwin took for granted and

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sought to explain has actually even taken place.

At this point, it's not uncommon for people who have been saturated with the popular biology literature to say, "Hey, you're giving aid to the Creationists." Well, (a) no I'm not; (b) paranoia has never been an effective pedagogical strategy; and (c) it's probably a bad idea to let Creationists dictate the biological agenda. I am simply trying to draw your attention to an obvious, literal fact: evolution is the production of difference. To call us "just apes" is effectively to deny that difference exists—in other words, that evolution has occurred.

Saying that we are apes is denying evolution; it's playing for the other team. We are ex-apes.

Now, the important issue here is that this is not even a controversial point. I am contesting a cultural assumption, namely that you are simply your history, and nothing more. In 1947 the evolutionary biologist Julian Huxley ridiculed this assumption as "nothing-butism," "the [school] who on realizing that man is descended from a primitive ancestor, say[s] that he is only a developed monkey." The issue is the apparent

failure on that school's part to acknowledge difference, the actual product of evolution.

George Gaylord Simpson echoed Huxley's thoughts in his 1949 classic, *The Meaning of Evolution*. "It is a fact that man is an animal, but it is not a fact that he is nothing but an animal. (It is not a fact that man is an ape, extra tricks or no, and so, of course, all the less a fact that he is nothing but an ape.) Such statements are not only untrue but also vicious for they deliberately lead astray enquiry as to what man really is and so distort our whole comprehension of ourselves." Simpson wasn't denying evolution, obviously; he was thinking and writing about evolution as the production of biological novelty. That's what evolution is.

What is striking about Huxley's and Simpson's derogation of nothing-butism is the fact that the most familiar examples of this genre had not even been written yet: *The Naked Ape* (1966), *The Territorial Imperative* (1966), *The Imperial Animal* (1971), *The Third Chimpanzee* (1992), and *Demonic Males* (1994).

And these are, of course, just the Anglophone highlights. In a 2001 book called *Significant Others*, a primatologist exhorts us to see ourselves in the apes, calling particular attention to their "erotic sexuality," in which "the apes and we are far more alike than we are different."

That is, if you happen to find the pink swellings of a female's bottom irresistibly sexy, do not partake of any manual stimulation at all, and have your business finished in fifteen seconds. If I have just described

you, then you may well have the sex life of a male chimpanzee. I can't imagine why you'd want to brag about it, though.

Similarly, in a book called *The Great Ape Project*, an advocate for extending human rights to chimpanzees tells us that "Chimpanzees make love rather like humans do." Of course it isn't clear that chimpanzees make love at all, unless you care to use the term in a far more cynical way than people of ordinary sensibilities do. The point of this pseudo-evolutionary reductionism, this nothing-butism, is to illustrate what I think is a general principle of science studies: namely that when apparently intelligent people say ridiculous things, they are generally doing it instrumentally. And it is precisely that rhetorical aspect of human evolutionary narratives that needs to be continually identified, examined, analyzed, and parsed; for it is the most signally constructed aspect of anthropological science.

For example, what the more recent books of this genre share is a discussion of our genetic relationship to the apes, and they tell us that we are, in a base-for-base DNA comparison, between 98 and 99 percent identical to chimps and gorillas (which we are), and that this is likely indicative of recent common ancestry (which it is, although I freely acknowledge the possibility that it could also be the work of a single fairly unoriginal designer, or of two designers, one of whom is a plagiarist).

But the only reason the DNA similarity is noteworthy is because of two cultural facts: (1) our familiarity with the ape's body,

which we have been studying for 300 years; and (2) the exotic nature of DNA, whose comparisons we have only been making for a couple of decades.

After all, a chimp's molar tooth is very much like ours. If you know what to look for you can tell them apart ten times out of ten. But without a frame of reference, a bit of specific diagnostic knowledge, you'd be hard pressed to distinguish them from one another. You know why? Because they're about 99 percent the same. The only difference is, we already know the limitations of trying to encapsulate the similarities of a four-dimensional body part into a single scalar value, and they are considerable. But molecular data lends itself precisely to that kind of comparison. You can put two DNA sequences together, and without context, geometry, or statistics you can say they are 98.6 percent identical.

So the number itself is sort of right (you can have a boring argument about whether to include insertions and deletions in your DNA comparison, in which case the similarity value falls) but what is interesting is the assumption that somehow there is a transparent meaning to the value, that the DNA similarity shows that we are genetically just a trivial variation on an ape theme, and that this is something new and amazing that nobody has ever said before. But since there are only four bases in DNA, the very same DNA comparison by which we seem to be almost exactly chimpanzees (like almost 99 percent) also tells us that we are more than 25 percent asparagus. Any

DNA comparison you choose at random will show that level of base-for-base similarity, and for presumably homologous DNA sequences it would be even greater. This may be true, but there is only one sense in which you could say you are more than a quarter asparagus and be taken seriously by science: you have the data to show it—genetic data.

**AGCATCAAGAGATCTCACAGCAGG
TAGCTAGCGGGGACGATTAATACT**

Two random DNA sequences are statistically constrained to be about 25 percent identical.

These genetic comparisons don't have intrinsic meanings; they are rendered meaningful in a particular cultural context that privileges genetic data and mystifies analysis to facilitate scalar comparisons (think IQ here). The genetic similarity to the ape is not false, but it is a highly constructed fact and needs to be properly understood as such. Evolutionary stories about who we are, where we come from, and what that means are significant in that they speak to fundamental human discourses of kinship and descent, but they do so with the authority of science.

Kinship for Sale

Anthropological genetics has a heritage of flying under the bioethical radar, so to speak, for several decades. We still haven't worked out the rights and wrongs of what constitutes voluntary informed consent for

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genetic research in a cross-cultural context in which the human body is increasingly commodified and DNA may actually be worth something as a natural resource.

The reluctance and ultimate failure to engage this issue—namely, that there are newly emerging relationships among body parts, personhood, ownership, and native peoples—was behind the collapse of the Human Genome Diversity Project in the 1990s. What made that collapse seem so precipitous was the fact that the science media aggressively represented those issues as retarding the progress of science, rather than as improving the quality and practice of science.

Recreational genomics brings population genetics to Wall Street and Madison Avenue, promoting DNA studies for fun and profit—fun for you and profit for them—as companies match your DNA to people around the world. Here we encounter the unfamiliar scene of genetics actually in the service of free market neoliberal capitalism, and the construction of novel kin ties on the basis of new technologies.

In its issue of December 10, 2006, *The New York Times* ran an article by Amy Harmon, called “DNA Gatherers Hit Snag: Tribes Don't Trust Them” as part of a series

for which she ultimately won a Pulitzer Prize. The thrust of the article was about reluctance on the part of Native Americans to participate in the Genographic Project—an endeavor similar to the Human Genome Diversity Project, but now with private funding, mostly from National Geographic and IBM.

But there is a bit more to it. Not bound by any formal ethical obligations, the Genographic Project sought to demonstrate its good will by sending its protocol through the Institutional Review Boards of its university-based researchers. In this case, the university's IRB said the researcher could collect blood from native Alaskans, pending the approval of a local Alaskan IRB. That approval was not received, but the blood was collected anyway.

Moreover, based on mitochondrial DNA analysis, the journalist tells us of a Native Alaskan woman who has learned that she is not descended from her own group but from their traditional enemies. Yet no DNA test can tell you that, for no people are that pure and that distinct from their neighbors. So how did she come to think it? Who gave her that misinformation? Unfortunately the journalist chose not to explore that angle.

But all of these things are aspects of a broader and more fundamental question: What are the circumstances under which you can't believe everything a scientist says?

Geneticists these days, for example, are always selling something. Sometimes there is a literal product—a genetically modified crop, for instance. But often it is information—a new diagnostic test for a disease, or

the DNA sequence of the platypus. And sometimes it is the simply the ideology itself, a self-reinforcing belief in the power of genetics as a panacea—and an implicit exhortation to believe the next thing a geneticist tells you. The century of genetics began with R. C. Punnett declaring in his 1905 textbook on Mendelism, that “as our knowledge of heredity clears, and the mists of superstition are dispelled, there grows upon us with ever-increasing and relentless force the conviction that the creature is not made but born.”

And the century ended with the multibillion dollar federal investment in the Human Genome Project, largely on the promise that it would cure genetic disease. Yet nearly a decade after the announcement of the human genome sequence, we still haven't cured a genetic disease with it; and even the association of human genes with heritable traits turns out to be far more complicated than the early “geno-hype” suggested. The product here is simple faith, faith that genetics will be the place to look—for whatever you happen to be interested in.

Stimulated by the Human Genome Project, genetic tests soon became available to determine whether a client has the Y chromosome of the “Cohanim”—Jewish priests ostensibly descended from Aaron, the brother of Moses (who would have shared his Y chromosome). Somewhat bizarrely, this interpretation is predicated upon a literal reading of Exodus, and has been ironically promoted in forums that would never imagine publishing a study that was predicated on a literal reading of Genesis! Other tests purport to link a client's Y chromosome

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to Genghis Khan. Such tests are only available to men (who have Y chromosomes), but both sexes have mitochondrial DNA (mtDNA). Tests of mtDNA purport to link African Americans to particular African tribes, and to link Europeans to “Clan mothers” of 20,000 years ago.

If we conservatively assume 25 years per generation, then Europeans are separated from their “Clan mother” by 800 generations. Since each ancestor had two parents, 800 generations ago everyone had 2^{800} ancestors, or a number with 240 zeroes after it—considerably larger than the number of people alive on earth at the time—in fact, considerably larger than pretty much anything. Most of those are common ancestors, recurring multiple times in individual ancestries, and overlapping other individual ancestries.

The point is that, in a period so remote, the biological aspect of kinship is quite obscure, despite the allure of DNA as a genealogical tool. The “recreational genomics” industry exists not so much for the advancement of knowledge, but for the advancement of corporate profits. Similarly, startup companies providing full DNA se-

quences for their clients, and a list of the risk factors associated with their specific genetic variants, are largely unregulated and are not obliged to mention that many of the positive associations in the literature turn out to be spurious. They have removed the valuable mediating services of a genetic counselor from the interaction of patient and data.

This realm of microevolutionary genetics may be science, but it is an unfamiliar kind of science, consisting of technologically produced data being directly marketed to the public, which is encouraged to interpret the information in traditional contexts and to assign largely folk meanings to it. Contemporary textbooks of “anthropological genetics” pay scant attention to this “applied” area of their field, but they do invariably mention Darwin as their own ancestor.

Avoid Boring People?

Another recreational ancestry test involves comparing a client’s DNA to that of peoples from distant parts of the world, statistically evaluating their patterns of similarity, and marketing the result to clients in terms of their ancestry’s racial percentages.

In and of itself this is not terribly threatening, for the snake-oil vendor is as much a part of Americana as is the center fielder. Further, the fact that genomics and hucksterism would converge can hardly be surprising either, given that the Human Genome Project was itself founded on false promises to the public. What is worse here

is that the reification of race has been invariably followed, if not accompanied, by a hierarchical ranking of the races. The naturalness of race has been debunked as frequently as young-earth creationism; consequently, the genomic reification of race for profit does not reflect well upon genomics, nor upon science.

The first generation of Darwinists was faced with a rhetorical problem. In their dispute with the 19th century traditionalists, they wished to argue that humans were genealogically connected to the apes, but they lacked a fossil record with which to demonstrate the point. In the absence of such documentation diachronically connecting humans to the apes, they adopted a proxy synchronic argument: the connection between Europeans and apes was demonstrated by the living non-European races.

The German Darwinian Ernst Haeckel was most explicit, in his immensely popular 1868 exposition of Darwinism, *The History of Creation*. Acknowledging “no fossil remains of the hypothetical primeval man,” Haeckel instead invited his readers to consider “the extraordinary resemblance between the lowest woolly-haired men, and the highest man-like apes” to comprehend that a fossil record was not really needed after all.

The Darwinian Revolution had remarkably little impact on scientific racism. In fact, it has never been terribly embarrassing to be a Darwinian racist. But it should be. For some reason, it is still not as much of a mark of dishonor to be a Darwinian racist as it ought to be.

The next Darwinian generation was even worse. Karl Pearson, the leading Darwinist in England, wrote: “A capable and stalwart race of white men should replace a dark-skinned tribe which can neither utilise its land for the full benefit of mankind, nor contribute its quota to the common stock of human knowledge.” But if evolutionary biology rationalizes or naturalizes genocide, then it is evil. Given a choice between genocide (on the one hand) or creationism (on the other), the correct answer has got to be creationism. If, however, evolutionary biology does *not* rationalize or naturalize genocide, as I assume the vast majority of us believe, then that’s also a problem. It’s a problem because it means that we have not been able to rely on leading evolutionary biologists in the past for an honest and accurate assessment of the implications of their science for modern life. We consequently have no reason to think that their assessments are any more reliable today.

The subsequent generation of Darwinians were the eugenicists. Each country had a local strain of eugenics, but the key element of eugenics was again the claim to be speaking for evolution. In the UK, Darwin’s cousin Francis Galton first led the eugenicists, and then Darwin’s son Leonard took

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over. In the United States, Charles Davenport led the eugenicists; he was the country's leading human geneticist (and at the time of his death in 1944, the sitting president of the American Association of Physical Anthropologists), along with Henry Fairfield Osborn, the country's leading evolutionary biologist. The connection of eugenics to both evolution and genetics is important here, because if you argued against it, they beat you over the head with both Darwin and Mendel.

What eugenics brought to the discussion, aside from the claim to be speaking for genetics and evolution, was the recognition that the lower classes were outbreeding the upper classes. If you couple that with the assumption that the lower classes are genetically inferior to the upper classes, it follows that what we have now (1920) is a subversion of nature, and specifically a subversion of Darwinian nature. The least fit are now the most fit, and the most fit are now the least fit, and basically we need the federal government to fix it. In the United States, the eugenics movement clamored for restricting the immigration of Italians and Jews, and for involuntary sterilization of the poor, and they got them both.

Now the most common reaction to the eugenics movement is to say, "That was then, this is now. Nobody believes in sterilizing the poor on account of their bad genes any more, and we're not racists."

Possibly, but let's not get too far ahead of ourselves. What has that got to do with us? Is it possible that that was then, and this is *still* then?

The biggest mistake that geneticists of the 1920s made was to fail to identify and engage the political evils that attempted to draw legitimacy from their science.

The biggest mistake that geneticists of the 1920s made was to fail to identify and engage the political evils that attempted to draw legitimacy from their science. To varying extents they may have shared those ideologies, but, more commonly, they saw their best interests being served by standing by and not criticizing them. Anything that got people interested in supporting genetics was good for business.

For example, Madison Grant was trained as a lawyer, but with the luxury of not having to work for a living, he dedicated himself to nature. He helped found the Bronx Zoo, the American Museum of Natural History, and he saved the California redwoods. But his great love was the germ-plasm of the Nordic race. His bestseller of 1916 was called *The Passing of the Great Race*, which advocated the sterilization of "worthless race types." It offered a scientific solution to social problems of the era, and Madison Grant received letters of praise from both Theodore Roosevelt and Adolf Hitler. I'd like to think there were rather few other things upon which they would have agreed.

What was the relationship between Madison Grant and the geneticists in the



Madison Grant, about 1925 (gift of George M. Whitney, collection of the author).

United States? They nearly all served beneath him on the Advisory Board of the American Eugenics Society (along with the two leading physical anthropologists). *Science* reviewed his book kindly as “a work of solid merit.” Why? Because Madison Grant was on the side of genetics and evolution.

Is there something we can learn from the evolutionary genetics of ninety years ago? I think there is. Yes, it’s great to keep public interest aroused and funding levels high. But how far are you willing to go, what are you willing to say, or to tolerate, in order to achieve it?

The most interesting convergence between evolutionary genetics ninety years ago and now is that geneticists have rediscovered that old Faustian deal. When James Watson was quoted in *Time Magazine* in 1989 to the effect that “We used to think

our fate was in the stars, now we know in large measure our fate is in our genes,” he didn’t really mean that genetics is just like astrology, only presumably more accurate, or that our lives and choices are predestined, and we have finally localized them to our cellular nuclei. What he meant was “The Human Genome Project is the most important thing you could ever imagine doing with your money. Please give me three billion dollars. Pretty please. In fact, I will do or say anything it takes.”

Now a couple of decades later, the same James Watson is on a book tour of the UK and is quoted in the *London Times* lamenting the intelligence of Africans. And the quotation is accurate, for it is from Watson’s new book, *Avoid Boring People*. And how does the Nobel laureate rationalize the apparently racist thought? With Darwin: “There is no firm reason to anticipate that the intellectual capacities of people geographically separated in their evolution should prove to have evolved identically.” And he goes on: “Our wanting to reserve equal powers of reason as some universal heritage of humanity will not be enough to make it so.” In other words, says Watson—sure, there are some bleeding hearts who wish it were otherwise, but they are on the opposite side from Darwin and me.

Watson backtracked like mad after the scandal erupted, but not before the racists had pounced and feasted upon the evolutionary thoughts of a Nobel laureate biologist. In context, though, Watson was really just trying to promote funding a search for “intelligence genes.”

Conclusion

For Darwin's celebration, the best gift we can give him is a clear name. Although scientists in every generation since *The Origin of Species* have invoked his theories in support of ideologies that we now judge to be in varying degrees odious, sadly there is still a proportion of scientists who continue the practice. Commonly the scientific question is disguised—for example, as intelligence genes in different parts of the world. How could anyone who is for Darwin (and Mendel) argue against basic research?

The point is that nobody is against intelligence genes. At issue is the question: What do you think they will explain? If you are looking for them because you think they will explain economic stratification, poverty, and illiteracy rates better than the history of slavery and colonialism will, then you need to confront and acknowledge the political nature of the science in which you are engaged, and be prepared to defend it on that basis. Every generation has had to face this, because the political stakes are high, even if the scientific stakes are not. Given the social fact of inequality, one side of the political spectrum sees it as the expression of a history of injustice and seeks to ameliorate it; the other sees no injustice, merely a low position on a social hierarchy dictated by a low position on an invisible underlying natural or genetic hierarchy. Genetics is irrelevant to one side, but not to the other. The latter side wants to recruit scientists—think The Pioneer Fund, or The Ameri-

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can Enterprise Institute—especially geneticists who will say or do, or put up with, anything to keep public interest and funding levels high.

Scientific facts about human diversity are coproduced by the natural along with the cultural/political. That is what we take home from confronting the nothing-butists, the molecular reductionists, the social Darwinists, the eugenicists, the scientific racists, and the genomic entrepreneurs. This is part of an anthropology of science, an ongoing cultural study of the modern world. Sadly, though, it somehow always falls to us bleeding-heart anthropologists to try and keep Darwin's name unsullied, by protecting it against people who like to put their own words in his mouth.

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Suggestions for Further Reading

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