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# Soylent Is People, and WEIRD Is White: Biological Anthropology, Whiteness, and the Limits of the WEIRD

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## Keywords

whiteness, race, WEIRD, Western

## Abstract

WEIRD populations, or those categorized as Western, educated, industrialized, rich, and democratic, are sampled in the majority of quantitative human subjects research. Although this oversampling is criticized in some corners of social science research, it is not always clear what we are critiquing. In this article, we make three interventions into the WEIRD concept and its common usage. First, we seek to better operationalize the terms within WEIRD to avoid erasing people with varying identities who also live within WEIRD contexts. Second, we name whiteness as the factor that most strongly unites WEIRD research and researchers yet typically goes unacknowledged. We show how reflexivity is a tool that can help social scientists better understand the effects of whiteness within the scientific enterprise. Third, we look at the positionality of biological anthropology, as not cultural anthropology and not psychology, and how that offers both promise and pitfalls to the study of human variation. We offer other perspectives on what constitutes worthy and rigorous biological anthropology research that does not always prioritize replicability and statistical power, but rather emphasizes the full spectrum of the human experience. From here, we offer

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several ways forward to produce more inclusive human subjects research, particularly around existing methodologies such as grounded theory, Indigenous methodologies, and participatory action research, and call on biological anthropology to contribute to our understanding of whiteness.

## INTRODUCTION

What sets the sciences apart is that they claim to construct reality but not to be themselves constructed.

—Emily Martin (1998, p. 26)

Western, educated, industrialized, rich, and democratic—WEIRD—populations are a bit of a niche among the sprawl of humankind. The overuse and oversampling of WEIRD populations by WEIRD scientists may have led us to a gross mischaracterization of what it means to be human. Rather than sampling from the broad range of lived experiences, research on human behavior and physiology has been done mostly by WEIRD people, on WEIRD people, without much reflection on how the specificity of that lived experience might influence how we define and value problems, how we collect data, and how we analyze and interpret these data. The oversampling of the WEIRD exposes the ways in which essentialism around human nature does more harm than a recognition of context and inter- and intrapopulation variation.

This acronym, WEIRD, was introduced nearly a decade ago by Henrich et al. (2010) to highlight the prevalent norm within psychological science to use data collected from undergraduate university student populations within the United States and Western Europe in studies that nonetheless purport to represent all humans. It served to identify aspects of these study populations that might differ from those of other groups across the world along a number of social, political, and geographical axes. However, as we discuss in this article, this acronym and its adoption within science, while exposing the weirdness of the WEIRD, may also contribute to the erasure of multiple groups and, in doing so, reinforce rather than disrupt the practices it aims to critique. Here, we join long-standing and recent calls for more rigorous methods and ethical research as well as for a more inclusive anthropological science (Bader et al. 2018; Bardill et al. 2018; Bolnick et al. 2019; Brodtkin et al. 2011; Harrison 1995, 1998; Mukhopadhyay & Moses 1997; Shanklin 1998).

WEIRD is now in common usage in many disciplines: Henrich and colleagues' *Behavior and Brain Sciences* article has been cited 191 times, and the same authors' shorter opinion piece in *Nature* has been cited 817 times as of the writing of this article. These authors and others are also continuing to extend the meaning and reach of the term (Muthukrishna et al. 2018, Schulz et al. 2018). We contend that how this acronym is employed leads to additional assumptions about who constitutes WEIRD that risk erasing black, Indigenous, and other identities. The original authors did not spend significant time defining their terms: Western according to whom? Do we mean rich as a whole, or can a population still be rich if there is pervasive income inequality? Does a population count as democratic if there is rampant voter suppression? WEIRD seems so easy to define; we are clearly talking about all those aforementioned, pesky studies of US undergraduate students. The question is, what are the components of these undergraduate students that are the real problem? As anthropologists, we find limited utility in generalizing findings from one population to all people everywhere and find value in including everyone in research. So, with the appropriate caveats, the problem may not be with studying the WEIRD so much as with understanding WEIRD in context and as the primary comparison point.

Thus, we argue that the main trouble with WEIRD is in how whiteness is made invisible in its invocation. The concept of WEIRD caters to a type of color-blind ideology (Shanklin 1998) that erases the varying lived experiences of racial and ethnic minority undergraduates and other participants. It also appears to provide a critique of the “view from nowhere” once aspired to in the sciences (Smith & Bolnick 2019) while further burying our ability to observe or think about race. Yet the differences in lived experience for nonwhite participants are significant. For instance, racial and ethnic minority undergraduates live with daily racial harassment in the form of racist mascots and racist imagery, as well as microaggressions in the form of exclusion and outgrouping (Cross et al. 2017, Harwood et al. 2012, Lewis et al. 2013). Ample research has shown the negative effects of these factors on mental health, cognition, and school performance, as well as healing paths toward resilience (Bowes & Jaffee 2013, Rasmus et al. 2014, Walters & Simoni 2002). Although hate crimes have been on the rise since the 2016 US election (Levin & Reitzel 2018), the different experiences that racial and ethnic minority students face on college campuses, as compared with those of their white peers, have a long history (Harper 2012, Lawrence et al. 1993). These differences begin in home communities, in K–12 schools, and in the structural racism that fundamentally limits access to the same life granted to white people. We contend that these different experiences are critical, which complicates whether WEIRD/not-WEIRD is the frame that creates the most meaning in understanding variation among human populations.

Next, few scientists are aware of, or offering, WEIRD caveats or context alongside their limited-in-scope research. Most published science is edited and written by white WEIRD scientists, in English, and most human behavior and physiology research is conducted on white WEIRD people (Arnett 2008, Johnson et al. 2018). The dominant (though by no means exclusive) history of science as a practice and a process, as most understand it today, has developed within white Western European culture; this limited and limiting focus trickles down to influence not only our methodologies, but also the questions we find important and the ways in which we interpret results (Kimmerer 2013, TallBear 2013, Todd 2016, Tuck & Yang 2014). The culture of science makes it difficult to criticize from outside of science (Shapin 2010), which limits the abilities of those with appropriate expertise to intervene. For these reasons, cultural psychology, Indigenous methods, and reflexive approaches introduced within cultural and linguistic anthropology have had limited purchase across the quantitative social sciences (see recent counterexamples: Athreya 2019, Bader & Malhi 2019, Smith & Bolnick 2019, TallBear 2019).

The final problem is that, in criticizing oversampling of the WEIRD, there is a risk of exoticizing everyone else. The romance of fieldwork and studying so-called small-scale societies has a long history in anthropology. This tendency, along with our othering of everyone else, continues to set up the WEIRD as the population against which we should always compare as the dominant human norm (Dominguez 1994, Harrison 1995, Martin 2017, Tuck & Yang 2014). Early models of anthropological fieldwork assumed the necessity of the perspective of the scientist as the neutral observer. The people with whom scientists work and study became the Other, and so studying the “exotic” (Henrich et al. 2010, p. 61) in the name of increasing variation in our research base only perpetuates the problem.

This review attempts to coordinate multiple existing and complementary discussions of and community responses to issues with WEIRD research. We offer three interventions into the invocation of WEIRD. First, we attempt to operationalize the term WEIRD and make visible some of the assumptions implicit in the term. Second, we show how whiteness, especially when combined with male privilege, constricts our understanding of human variation owing to the predominance of white male WEIRD researchers and to the prioritization of their research perspectives even among those holding different subjectivities. We hope to invite social scientists into a conversation about our own lived experiences, the history of our disciplines, and the harm

that can be caused by trying to move beyond race and other social identifiers by adopting a color-blind ideology. Finally, our third intervention is to begin to identify the bind in which biological anthropologists find themselves. Not psychologists, but not cultural anthropologists, they occupy a third space that brings with it both the promise and the problems of homogenizing and quantifying people and othering them by situating them outside white researchers' experiences.

The bind in which biological anthropologists find themselves, as scientists who understand the problems of biologizing race but who rarely make visible its social implications, requires that we start interrogating whiteness and make understanding its effects on researchers and research participants a high priority in our research agendas. This bind is also a result of our romanticizing of non-WEIRD populations, particularly those sometimes classified as small-scale societies, as an analog for the environments of evolutionary adaptedness (EEA). How we characterize the EEA (despite recognizing its variation in our research practice) is simply the other side of the coin of color-blind ideology (for a similar argument regarding the out-of-Africa hypothesis, see Athreya 2019). The exoticizing and othering of research participants who are not white and male have already been done: This work represents most of the history of anthropology as a four-field discipline. We suggest the introduction of methodologies that decenter whiteness while incorporating the contributions of scholars of color into our theory, methods, and pedagogy. Reflexive methodologies, as well as the application of a critical lens to how whiteness becomes embodied, will better serve biological anthropology.

## FIRST INTERVENTION: DEFINING WEIRD

Comparative work is important to the research enterprise, in biological anthropology generally and in human biological variation specifically, because it allows us to test hypotheses about variation in lived experience and adaptation across different environments. All comparative work must set some conditions over what makes their groups of comparison distinct. The WEIRD concept emphasizes that those who fall into this designation have some similarity in history, perspective, and lived experience that is often invisible to those of us who practice science because often it is our history as well. The concept also exposes how some of the claims around evolved behavior, adaptability, and human universals have rested on a research base composed mostly of one type of population.

Without operationalizing WEIRD, however, a few problems emerge. First, ambiguity in the term contributes to and worsens its appearance of homogeneity, creating a stronger perception of difference between WEIRD and non-WEIRD groups than may be fair. In their commentary on Henrich et al. (2010, pp. 84–85), Baumard & Sperber point out that ambiguous methodologies lead to participants bringing their own sets of assumptions and biases to the table in their responses to social science experiments. In turn, these ambiguities can lead to researchers also unintentionally fueling their interpretations with the bias of their own, nonneutral perspectives. They note that these misunderstandings could widen the gap between WEIRD and non-WEIRD reactions to ambiguous experiments and lead to our interpreting more difference than may strictly exist between human populations. We suggest that the ambiguity of the terms that constitute WEIRD, and the assumptions that get infused into these terms, produces a similar problem. For example, recent work that includes one of the original authors attempts to quantify the distance between WEIRD and non-WEIRD groups, further reinforcing the original messaging that all other populations should be contrasted with the WEIRD (Muthukrishna et al. 2018). Second, choosing to distinguish WEIRD populations from others only reinforces our historic tendency to measure all human variation against one particular norm—the norm that just happens to be the one experienced by the scientists themselves. Third, in this perceived homogeneity, we erase certain

constituencies and, in particular, feign ignorance about the factor that is arguably its defining one. As we argue in this section, WEIRD is a way for researchers in predominantly white environments to discuss history, culture, and context without having to talk about race. To this end, we enumerate and define the terms within WEIRD to show how, ultimately, WEIRD is just another way of saying white.

“Western” usually denotes countries within Western Europe and the countries they settled, such as the United States, Canada, Australia, and New Zealand. The cultures of these countries originate from the Greco-Roman tradition and are largely Christian. Yet these “Western” countries are not monolithic cultures. Both “American” and “Western” are terms that often serve as a dog whistle for confirming the dominance of white or white Western European perspectives (Said 1978), but many of these Western countries are colonized countries still inhabited by Indigenous people. When we use Western or American as shorthand for white, which is the work these terms are implicitly doing, we reinforce structures of white privilege that define white as normal (Frankenberg 1993, 2001; Harrison 1995) and erase everyone else. In their article, “When Are Persons ‘White’?: On Some Practical Asymmetries of Racial Reference in Talk-in-Interaction,” Whitehead & Lerner (2009) show how scholars of race have noticed the inequities of how we talk about white and nonwhite people:

The color-blind ideology described in this literature is characterized by members of the dominant (white) racial group viewing themselves in nonracial terms, as “just people,” rather than identifying as members of a racial category. Consequently, the framework of norms and values associated with the dominant group comes to be unquestioningly, and hence invisibly, treated as equally applicable to members of other groups. Thus, although discourses of color-blindness may arise from well-intentioned attempts to “move beyond race,” such positions begin from a predominantly white experience of the world, where race is perceived as unimportant, thereby negating the lifeworld of people of color, whose experiences are still very much shaped by race. (p. 617)

The word Western in WEIRD is not intended to be inclusive of everyone living in a Western society, but rather of only those white people with Western European ancestry. For example, at one point, Henrich et al. (2010, p. 67) use Western to contrast with two Indigenous communities in the Western hemisphere: rural Native American communities in Wisconsin (specific tribal nations not provided) and Yukatek Maya communities in Mexico. Here, Native Americans are clearly not considered “American” and Indigenous Maya are not considered Western even though their cultures are original to what is now the United States and Mexico, respectively. Because of the assumption that Western equals whiteness, in cases where who is included within this term is ambiguous, the people of color who have not had the same experience of Western culture that white people have had are rendered invisible. The continued use of the term Western is a means through which race is socially constructed and reinforced even by those who recognize and argue that it has no biological basis.

Other categories and terms have been provided by scholars to point out many aspects often assumed to be part of what Western entails, such as invoking colonial or settler colonial nation-states, the “First World,” the Global North, non-Indigenous, etc. Such examples make clear both how ideologically laden this term is and how its lack of specificity renders it at best useless as a scientific descriptor and at worst a continuation of the anthropological sciences as a tool of empire, racism, and exclusion. The remaining components of WEIRD are similarly often assumed components of what is classified as Western. As such, their use bundled within the WEIRD acronym serves more to reinforce one central idea of what Western means, rather than denoting variation within the term.

The proposed definition of educated within the acronym characterizes someone in the process of getting a degree beyond high school or who has already gotten a higher-education degree. This

is a very specific and white Western notion of education. And so we must inquire again: What are the privileges made invisible by this term's ambiguity? Most likely, when we think of educated in this context, we are thinking of students enrolled in four-year colleges, perhaps even more specifically students who are getting or have gotten traditional four-year degrees immediately after high school—but what about educational processes and university systems outside of this dominant paradigm? Are we criticizing all research performed on students who have ever gotten an education after high school, including trade schools, tribal colleges or universities, and Historically Black Colleges or Universities? Or are we specifically criticizing the research performed at R1 Predominantly White Institutions (PWIs) with large psychology and other social science departments offering high enrollment introductory survey courses where extra credit is offered for research participation? In short, does the term educated capture the reality within the United States: that the universities most likely to have funded research programs and course structures that are currently the norm for gathering quantitative data are those least likely to have student populations that represent the diversity of the national population? Again, education is not monolithic, and the hidden privilege of attending an R1 PWi is not extendable to all educated people.

The term industrialized often refers to those populations or countries where there is sufficient infrastructure for businesses or goods to be produced locally. It is not clear whether industrialized is inclusive of populations with a market economy, which is an economic system where decisions around the pricing and distribution of goods and services are made by individual citizens and businesses rather than by the government. Many if not most so-called small-scale societies marveled at by anthropologists are themselves no longer subsistence economies but are transitioning to market economies or even planned economies. In fact, some of these populations have centuries-old international trade relationships and high rates of participation in both national politics and military service, as with the Shuar in Ecuador (Rubenstein 2001, 2006; Steel 1999). It seems to us that industrialized may in fact refer to an economic state far beyond the simple production of local goods: the postindustrialized economy. The postindustrialized economy, which is the one found in most white, Western European countries to begin with, is an economy defined by reduced manufacturing in favor of increased services, information, and research. In each of these countries, this economy has arisen out of and is maintained by colonialism via the extraction of resources from colonies or territories.

Next, the term rich may have very different meanings if we are applying it to a country, a population in that country, or an individual research participant. Rich in its broadest sense refers to the total value of goods produced and services provided per capita in a given country. Many if not most of the richest countries in the world also have significant income inequality, which refers to uneven distribution of family income. The United States, where studies included in the WEIRD framework are most frequently located, is currently ranked thirty-ninth in the world for its income inequality and has the most income inequality among white Western European countries (CIA 2019). Therefore, the variety of lived experience among those who live in the United States, and other white Western European countries, is far greater than the rich designation seems to allow. So the designation of WEIRD at a national level erases both the great disparities in socioeconomic realities within the country and also the fact that R1 PWIs, discussed above, are still attended predominately by white, upper- to middle-class, US citizens. As such, the participants in such studies are especially not representative of the United States, much less all humans. And, in this way, the categories of educated and rich, as they are utilized here, fail to address differences between nation-states where university education is available to most people for free or with minimal tuition and those where it is available only to those with significant economic resources (i.e., whether being rich is a requirement of being educated).

Finally, the term democratic is intended to refer to a system of government run by elected representatives. However, this term is not specific, including within it an incredibly diverse array of government structures and processes. Depending on the definition of democracy used, as many as 60% of the world's governments are classified under this category—even more if we rely on the self-categorization of nation-states (Wike et al. 2017). Within the United States, the passing and subsequent erosion of the Voting Rights Act of 1965, particularly in the 2016 and 2018 elections, demonstrate the wide variation in people's access to vote in a democratic society. US undergraduates, those most reviled forms of WEIRD participant pools, experienced significant voter suppression in the 2018 elections owing to the closing of multiple campus polling places in efforts to dissuade voting among young adult students (Hakim & Wines 2018, Lanmon 2018, Smith 2018).

Without clearly operationalizing the terms Western, educated, industrialized, rich, and democratic, most people will default to the most dominant and visible forms of these definitions. As we have demonstrated, each of the categories within WEIRD does not operate independently but rather as co-constitutive of each other, adding specificity (and levels of erasure) to an ever-narrowing category. Thus, WEIRD is defined as the white Western European-derived populations of the following regions: North America (excluding Mexico), Europe and the British Isles, the Baltics, Scandinavia, and Australia and New Zealand. It is worth asking whether this list would change if we defined them only as “white Western” given that white people have the majority of the wealth on the planet (Kochhar & Fry 2014, Oliver & Shapiro 2013). Alas, the answer is no. This very specific subset of the global population has most of the wealth and exerts very strong cultural influences all over the world. These populations cannot be divorced from the privilege they enjoy by being white and living in national and global systems that privilege whiteness. Thus, people of color, immigrants, and First Nations and other Indigenous people cannot be categorized as WEIRD.

## **SECOND INTERVENTION: NAMING WHITENESS AND OFFERING REFLEXIVITY**

WEIRD is used predominately to characterize the participants in psychology and other social sciences research studies. What happens when it is not just the participants who are WEIRD but also the researchers? The top five producers of published science research are the United States, China, Japan, Germany, and the United Kingdom. The United States is still the largest producer of science (spending 26% of global research and development funds). Although China and possibly Brazil and Japan are on the rise in terms of research investment and publications, English language researchers from WEIRD populations still conduct by far the largest percentage of published science research (Johnson et al. 2018).

For years preceding Henrich and colleagues' papers on the WEIRD, psychologists have noted that those from the United States dominate, and therefore dictate, psychological research (Arnett 2008). Meadon & Spurrett's commentary in Henrich et al. (2010, pp. 104–5) also makes a similar point. In an analysis of top psychology journals in the early 2000s, fully 73% of first authors were based at United States universities, with an additional 14% of first authors from other English-speaking countries and another 11% from other European countries. Thus, 87% of psychology research is conducted in or by English-speaking, WEIRD researchers, and 98% from WEIRD countries more broadly (Arnett 2008). Fully 100% of the editors in chief in this analysis, and 82% of associate editors, were from the United States. These percentages decrease some as one moves away from the most elite and highly cited journals, and there are, of course, thriving research programs across the world. But when the most elite journals are run by and publish those scientists from the United States, the discipline is going to be determined in large part by that particular worldview and lived experience.

And even here, we need to complicate the picture further. Ample evidence suggests that an inclusive science that creates room for a variety of lived experiences and social identities leads to better problem solving and more interesting research (Amos et al. 2015, Nishii 2013, Shore et al. 2011). Yet the problem is not only, or at least not exactly, the identities of the scientists themselves. Rather, when scientists are trained to see the scientific method as objective—itsself an artifact of white, Western European culture—and are dismissive of other ways of knowing, when scientists are often then encouraged to see scientists themselves as objective, and when scientists are trained that ignoring bias is what helps them overcome it, we end up with problematic science interpreted through only one lens. An added problem is that when scientists most often hold or are trained by scientists with the same subjectivities, all work will necessarily be comparative against this dominant lived experience. Therefore, better science should include a more inclusive and racially and geographically diverse scientific practice that includes more perspectives and better perspective taking on the part of researchers who hold dominant social identities (Fuentes 2019, Smith & Bolnick 2019).

As we have sought to make clear thus far, white Western European male perspectives and values have long dictated which questions we find worthy of answering and frame how we understand the fundamental nature of research. Defining problems, developing hypotheses, designing and conducting research, and interpreting results are all influenced by a scientist's lived experience. This idea is not new nor is it expressed only by those who wish to critique the sciences. Rather, this meta-scientific observation is often accepted when said by scientists but roundly criticized when the perception is that the person saying it is outside of science (Shapin 2010). When the dominant voices in science are WEIRD, and not only WEIRD but historically and currently white and male, a certain amount of ignorance is, unfortunately, going to permeate the study of humans, which leads to defensiveness rather than openness.

When we talk about WEIRD researchers and WEIRD participants, the ignorance of, or invisibility of, white supremacy creates an unspoken tension around whom we are talking about. Part of the reason WEIRD is so rarely clearly defined, yet seems to be so easy to understand, is that it is aligned with the dominant cultural paradigm of many of our experiences. Charles Mills developed the idea of the epistemology of white ignorance to describe the ways in which white people have developed a lack of awareness around white supremacy (Mills 2007). For those of us who are white (n.b., Clancy is white), it is in our interests not to understand or to see the systems that benefit us. If the dominant group does not see racism, we can enforce the idea that racism does not exist and discredit those who would suggest otherwise. Put another way, white ignorance of white supremacy is “routinely repackaged as credible, authoritative ‘knowledge,’ even as ‘science’” (Fleming 2018, p. 35). Henrich et al. (2010) do not mention the words “white” or “whiteness” anywhere in their paper, and only two commentaries mention white as a racial category at all [Gosling et al. (pp. 94–95) and Stich (pp. 110–11) in Henrich et al. 2010]. Frankenberg (2001) refers to this phenomenon where both “whiteness does not speak its name” and “neutrality or normativity is claimed for some kinds of whiteness” as the “invisibility of whiteness” (p. 81). In their discussion of the continued barriers to anthropology becoming racially inclusive, Brodtkin et al. (2011) highlight this avoidance of naming race, and whiteness in particular, as a central barrier:

Racial inequality remains deeply woven into the fabric of our social institutions, including the academy, so that today's racism includes but is far more than merely the cumulative expression of individual prejudice and bias. Central to its practice are race-avoidant discourses and patterns of institutional behavior that nevertheless index race and promote racially unequal outcomes. (p. 547)

The invisibility of whiteness while explicitly naming nonwhite Others within scientific research is a fundamental process maintaining anthropology as a “white public space” (Harrison 1995,



Hill 1999), whose practices “carry racial baggage but also deny their racial subtexts and racially unequal outcomes” (Brodin et al. 2011, p. 545).

The fact that Western specifically and WEIRD generally are poorly operationalized suggests that those of us who use it (Clancy included: Clancy 2013) have not thought about our own identities in relation to the term or the privilege that becomes invisible when invoking it. Therefore, white scientists are as susceptible as any other group of white people to being blind to their own privilege and assuming that their lived experiences are the default and therefore do not require special reflection. A substantial literature exists that provides the framework for how to decolonize research (e.g., Ciccariello-Maher 2017, Harrison 1991, Smith 2013). In large part, women of color have led this movement, and their work is frequently overlooked across the history of science (Haynes 2014). A short review will necessarily leave out important nuance, but for the purposes of this article, we define efforts to decolonize science as those that decenter white, European ways of knowing; acknowledge the existence of and harm caused by structural oppression; reintroduce variation into our understanding of all populations; and explicitly bring forward Indigenous and other nondominant ways of knowing.

We could stand to improve our ability to turn this lens inward, to our own positionality. Many if not most scientists within our field(s) are white (as well as any number of other privileged positions, e.g., cisgender, straight, able-bodied), and many more are steeped in white European traditions of science. Cultural and linguistic anthropologists, and other social scientists, use reflexivity to turn their analytical lens inward to be aware of how their lived experiences influence their relationship to their research. This component of research methodology emerged, for the most part, out of the field of anthropology’s call for reflexive anthropology in the 1970s and 1980s and is grounded in the understanding of reflexivity as the way in which research is affected by the people and processes involved at each stage of the research process—from identifying the research question through to producing and circulating final results. Reflexivity, then, calls on the researcher to consider carefully their own positionality (and that of their research team) as well as the institutional, disciplinary, and sociocultural dynamics under which their research is shaped. Cultural anthropologists such as Clifford & Marcus (1986) and Behar & Gordon (1995), in particular, have pointed to the importance of reflexivity in the writing and circulation portion of the research process. This approach was echoed last year when biological anthropologists Alyssa C. Bader, Savannah Martin, and Ripan S. Malhi called for biological anthropologists to “improve public trust and support of science,” especially as it relates to genetic and genomic research with Indigenous populations. In their talk, they suggest that “biological anthropologists need to increase their own reflexivity and critically examine the balance of power within their research relationship when engaging with communities who have historically been exploited or otherwise harmed by biological anthropology research” (Bader et al. 2018).

In the context of considering work in which the researchers could also be categorized as WEIRD, reflexivity requires the naming of whiteness (Harrison 1995) and its role within our field(s). The reflexive naming of whiteness by white WEIRD researchers is thus one way to answer the calls within anthropology to make race central to the discipline (Mukhopadhyay & Moses 1997) in order to undo the harm its dominance and yet its invisibility have caused (Brodin et al. 2011). Efforts to decenter white, European ways of knowing should cause us to ask about the fundamental methods we use to measure humans. We should also ask about the trope of the detached scientist whose perspective of those he studies is the most valuable and objective (Haynes 1994). A recent Vital Topics Forum for *American Anthropologist* edited by Rick W.A. Smith, Deborah Bolnick, and Agustín Fuentes covers these and other related topics and shows the specific harm that false objectivity and dominant white framing cause both to the narrative of human evolution

and to researchers themselves (see in particular, Nelson 2019, Pérez 2019, Smith & Bolnick 2019, TallBear 2019).

### THIRD INTERVENTION: FIGURING OUT WHERE BIOLOGICAL ANTHROPOLOGY FITS

Science culture is characterized by a few factors: positional hierarchy, an emphasis on pedigree, principal investigator control over funding, and a firm belief that all processes are inherently meritocratic (Natl. Acad. Sci. 2018). Many of these phenomena are intertwined: science culture is dictated in large part by the culture of elite institutions in the United States, themselves founded on models of Western European institutions. Elite universities tend to collect scientists with the goal of hiring the “best” in any given discipline, which solidifies the belief that there can be such a thing as the best in any area of scholarship. Obtaining federal funding increases the chances that one will receive more funding in the future (Bol et al. 2018) and is tied more to one’s networks than to productivity or number of citations (Ebadi & Schiffauerova 2015). These relationships between funding success, networks, and long-term success perpetuate the belief that once the best are identified, their future success is justified. The runaway success of networked scientists can lead to a belief among those who are successful that their success is tied entirely to their abilities and never to their privilege(s).

The hustle culture, where success is built on effort, is one that frequently appears in the social and biological sciences (Leslie et al. 2015). Cultures of hustle encourage a work–life blurring, as well as the transgressing of other boundaries. When professional boundaries are blurred, misbehavior such as harassment and assault can be perpetrated in the name of collegiality or overfriendliness (Natl. Acad. Sci. 2018), particularly when tied to a culture of silence around “what happens in the field stays in the field” (Nelson et al. 2017). Fieldwork is fundamentally less accessible for certain social identities, where we define accessibility as being included fully in the research enterprise, being mentored equally well as students with dominant identities, and having equally successful career outcomes. Women in biological anthropology are still less visible and successful than expected given our numbers, and in a recent mixed-methods paper, this success is at least partly attributed to mentoring (Turner et al. 2018). Students of color abound in undergraduate biological anthropology programs but pursue graduate school and beyond in far fewer numbers (Antón et al. 2018). And scientists who are underrepresented on account of race, gender, class, or all of the above often face additional hurdles owing to family commitments that complicate their ability to conduct this fieldwork (Lynn et al. 2018).

Thus, we are left with a culture among anthropologists that prizes hard work and hustle in a way that excludes people who may not be able to participate in work–life blurring. Women of color and white women, non-Western scholars, and other people who do not have the resources or networks that white male WEIRD scientists have may not have the pedigree or network to conduct field research in the first place. And so the fieldsites that are most prized—the limited number of sites that continue to work with small-scale societies in the most remote parts of the world—are accessible to, and thus advance the careers of, a limited number of people.

Yet many claim that fieldwork among small-scale societies is the bedrock upon which the study of humans should instead rest. Henrich et al. (2010) write, “Such in-depth studies of seemingly ‘exotic’ societies, historically the province of anthropology, are crucial for understanding human behavioral and psychological variation” (p. 61). Yet, as pointed out by Astuti & Bloch’s commentary (in Henrich et al. 2010, pp. 83–84) on this article, the term small-scale societies is never operationalized and is taken up as terminology throughout the other commentaries. The term small-scale societies functions as a euphemism for the thoroughly problematized category of

“primitive” (Durkheim & Mauss 1963), which depends on out-of-date realities of societies and is defined, not by an inherent set of characteristics of their own, but rather in contrast to the WEIRD. Among biological anthropologists, small-scale societies are typically equated with foragers or human populations that in the last few hundred years lived as nomadic foragers in small groups of about 150 people or fewer. However, many populations were identified as foragers owing to Eurocentric (and later US) ideologies of cultural evolution that did not recognize the varieties of agricultural practices and economic systems central to their societies. Given how the few actual forager populations have been oppressed, driven out of or denied access to their traditional lands, or otherwise marginalized, it may no longer be appropriate to call all of them nomadic or foragers. Therefore, it is not possible nor particularly desirable to better operationalize this term; those who live in communities frequented by biological anthropologists, while certainly living in conditions different from white WEIRD people, are themselves both incredibly variable and rapidly changing.

Most anthropologists are aware of our discipline’s history as one that applies colonizing principles to people who are not white Western European, yet we conduct an awful lot of ahistorical fieldwork (Marks 2018). We also, in conference presentations, symposia, proposal and manuscript reviews, and other scientific spaces, applaud those who endure difficult fieldwork conditions and/or work with small-scale societies, without much reflection on how access to these spaces may vary. This work is often necessary to career success, is a core practice of biological anthropology, and is very nearly inaccessible to large swaths of interested scientists. As Lynn et al. (2018) point out,

Fieldwork is a critical practice that thickens and binds anthropology and renders it relevant for explaining human complexity. In training and experience, anthropologists are uniquely situated to compare culture and identify social injustice in the world. Yet struggles with intersectionality among anthropologists make our expertise suspect. Only by addressing the access and socialization within anthropology and other field based disciplines will it begin to reflect those it claims to represent. (p. 23)

The original purpose of Henrich et al. (2010) was to problematize the overuse of US undergraduate students in psychological research and offer the study of exotic small-scale societies as part of the solution. This proposal inserts one problem in place of the other, one to which, in some ways, biological anthropology has contributed for much of its history as we moved from terms such as living fossil and primitive to EEA and ancestral, even as these binaries continue to do the same work (Smith & Archer 2019, TallBear 2019). We have made worthy efforts to understand the full range of human biological variation, often rejecting the psychological or clinical paradigms that seek to universalize and homogenize the human experience. But again, without interrogating the roles of privilege and whiteness in the practice of our science, we continue to place value on certain measures of scientific rigor that continue to diminish variation and erase race and other axes of exclusion. Because of our position within anthropology, we are part of a long history of white scholars othering nonwhite research participants. Because of our position within physical anthropology, we are also part of a history that sought to find scientific rationale for the oppression of nonwhite people. By putting research on non-WEIRD societies on a pedestal, we unreflexively continue to follow these problematic traditions which other branches of anthropology have long sought to change.

While the positionality of white WEIRD scientists who do research on white WEIRD populations is largely invisible and uncritiqued, the positionality of nonwhite, non-WEIRD researchers who also do research within communities with whom they share some or all aspects of their identity has a history of being dismissed as unrigorous and nonobjective. This research position was so marked within anthropology that anthropologists conducting this type of research were once

categorized separately, as “native anthropologists,” and their methods within linguistic and cultural anthropology were referred to as “native ethnography” (see Jacobs-Huey 2002, Medicine & Jacobs 2001, Narayan 1993 for discussions). The hypocrisy of demands by white WEIRD scientists for native anthropologists to defend their work against the “canon” of anthropological research and methods while leaving their own positionalities unexamined was a central component of subsequent calls for reflexivity in the field.

Biological anthropology has immense potential, as a discipline positioned between psychology and cultural anthropology, to take the best of these practices and uncover the full spectrum of human variation in its quest to understand human evolution. As Mukhopadhyay & Moses (1997) have also pointed out, biological anthropologists have made important contributions to our understanding of race as a social rather than a biological construction (Barbujani et al. 1997; Bardill et al. 2018; Gravlee 2009; Gravlee et al. 2005, 2009; Ousley et al. 2009; Raff 2014; Roseman 2014). We have been able to show that, whether using genes, craniometry, or some other metric, biological categorization is not meaningful to our understanding of race. With some analyses, racial groups overlap too significantly to be meaningful (Barbujani et al. 1997). Other analyses have led to a conclusion that there are a nearly infinite number of biological “races,” suggesting that there is distinctiveness in geographic origins so specific as to be meaningless (Ousley et al. 2009). Biological anthropologists have also demonstrated that social constructions of race are quite meaningful. Several studies from a Puerto Rican sample have shown that participants’ self-identity in a particular racial group is more strongly correlated with hypertension risk than is their degree of skin pigmentation (Gravlee et al. 2005) or percentage of African ancestry (Gravlee et al. 2009). Recent work in biological anthropology has also pointed out our colonial/imperial origins (Athreya & Ackermann 2019), our othering of research participants (Clancy et al. 2017), and some theoretical and methodological ways forward (Bader et al. 2018, Bardill et al. 2018).

The main challenge is that, even as we try to adopt our own values around the social construction of race and the importance of understanding variation, we are held back by the additional values we hold around the importance of white Western notions of scientific rigor. Biological anthropology is constantly on the move to quantify and biologize the lived experience, measuring humans in increasingly molecular ways. To perform these types of studies with what is perceived as adequate rigor, we must design our studies to have adequate statistical power and to be replicable. These goals may begin to cause harm in the ways in which they require a return to those methods and sampling procedures that homogenize humans. To have adequate power, we prioritize working with large enough, dominant populations that have the resources to be able to consent and be involved in intensive human subjects research. We risk excluding underrepresented groups or identities within potential research subject pools and, as such, are increasingly likely to exclude participants with multiple axes of difference (e.g., Indigenous, queer, and female). To have replicability, we must sample from groups with tightly defined lived experiences. And so the values of white Western science are, in some ways, in direct conflict with the values that biological anthropologists seem to hold around variation and the importance of understanding adaptations of the lived experience. The demand for expediency in the development, implementation, and dissemination of research also lends itself to easily and immediately available participants (i.e., students at our own universities) with whom we share common language(s) and cultural norms.

There is value in studying all people, and studying the range of human variation for the sake of better understanding how lived experience affects culture, behavior, and physiology; this is, in fact, one of the final points of Henrich et al. (2010). The major contribution of documenting how over-sampled white WEIRD people are is how underrepresented many other populations are; however, it does not follow that the Other—however they are defined—should be privileged over the study of many other populations. Rather, research questions and problem definitions should be used to

motivate researchers to find populations best suited for study. Prioritizing the best populations for our research will allow us to enter into partnerships that are mutually beneficial to the science and research populations so that scientists' work best represents participants' lived experiences, perspectives, and needs. Therefore, we suggest that, with the introduction of frameworks such as grounded theory, ethnography, Indigenous methods, or participatory action research, biological anthropologists reevaluate the values they hold regarding what constitutes the ideal scientific project. There may be times—perhaps even the majority of the time—where goals of replicability, statistical power, and rigor are in direct conflict with our goal of understanding human evolution, variation, and adaptation. What kind of work does the discipline of biological anthropology need to do to better define its place in social science in order to reconcile this conflict and meet this goal?

As a cornerstone of ethnographic methods in cultural and linguistic anthropology, reflexivity is one small piece of the available strategies to enrich and deepen our research beyond the WEIRD. Many of these encourage greater involvement with the individuals and communities who constitute the data sets we analyze (e.g., Indigenous methods, collaborative/engaged anthropology, community-based participatory research). These strategies also open up opportunities for more ethical methods, as well as the possibility for deeper and longer-term scientific collaboration, and may be successful in increasing the number of future scientists from those demographics. The incorporation of on-the-ground observation into the contexts shaping research development and analysis via grounded theory, ethnography, and/or participatory action research also offers ways to shake up the ideologies and biases inherent in current anthropological work by, for example, providing insight into which and what categories and variables might be meaningful (statistically or otherwise) in a given study.

## MOVING FORWARD

In some ways, the writing of this article has felt to us like a professional moment of shouting, “Soylent is people!” Surely the colonial history, white ignorance, and problematic contrast to small-scale societies were already noted somewhere in the literature. Surely some of us already knew what we were consuming. But, and please forgive us if we missed similar critiques, we appear to be the first to integrate critical discussions of race and subjectivity into our understanding of the WEIRD. As such, the first goal of our article was to shout “WEIRD is white” and use our observations to guide readers toward the work we scientists need to do to improve our scholarship.

To this end, we invite our colleagues to introduce more reflexive practices in their research. Reflexive research practices should lead, at times, to an acknowledgment of our own theoretical or methodological limitations, which can invite opportunities for cross-disciplinary collaborations. Biological anthropologists have an enormous breadth of knowledge on the biological and biocultural body as a whole, but our subdisciplinary divisions mean we often have more specialized expertise on genetic, hormonal, behavioral, or paleontological approaches. Most of us are still ensconced in four-field departments and have colleagues only doors away (or, in the case of this article's authors, two floors apart) who can offer subject matter expertise to help us interrogate our practices as much as our participant pools.

Part of being reflexive also means being willing to use grounded approaches to developing projects, rather than always having a priori hypotheses motivate research. Grounded approaches start from the assumption that our research participants can help generate knowledge about their own lives and bodies. These methods address long-standing biases within scientific research and anthropology and increase a broader and more diverse participation in our fields, but they also provide avenues through which to generate knowledge and produce more accurate analysis of

research data. For example, Atalay (2012) calls for community-based participatory research “to value information and ways of knowing contributed from diverse knowledge systems” and “combines knowledge that has been arrived at through different traditions and experiences” (p. 4). This approach then creates “braided knowledge” (Atalay 2012, p. 27) whereby community knowledge is intertwined with anthropological data. Leonard (2017) has demonstrated that such approaches can allow our fields to avoid reproducing their colonial legacies. His study demonstrated that the definitions and implications of even core terms such as “language” differ significantly between non-Indigenous researchers and the Indigenous individuals and cultures who were represented in their research, thereby inevitably producing research that “gets it wrong” (Leonard 2017, p. 17).

This starting point is very different from the one more commonly taught across the sciences. As in color-blind ideology, scientists are often encouraged to be objective in a way that is not reflexive but ignorant, inherently privileging the perspectives and biases of the researcher. Yet we are taught that participants’ own beliefs, experiences, and ideologies are suspect and thought to influence their responses in research. Starting from the point where scientists assume participants cannot be unbiased justifies methodologies intended to avoid priming, obscure the purpose of the project, or even deceive the participant. Even in their most benign or well-meaning forms, these methods imply that white WEIRD researchers have the knowledge and objectivity that those they study lack. The reality is that all people are equally susceptible to behaving in ways that reinforce their own beliefs, researcher and researched alike. Therefore, we call on social science researchers to consider first the ways in which engaging with research participants can help generate knowledge, theory, and new insight, before assuming their own knowledge to be an impediment to objectivity.

Biological anthropology is a discipline that sits somewhere between the quantified biological sciences and the mixed-methods and qualitative work across the social sciences. This position offers significant problems because we run the risk of unreflexively quantifying Others if we combine the dominant belief systems of the disciplines that sit to either side of us. However, our positionality also offers significant promise, as a space where we can think about the embodiment not only of oppression but also of privilege; of the effects not only of weathering but also of whiteness. Biological anthropologists have enormous potential to advance our understanding of race, but only if we are brave enough to shed our color-blind ideologies, our romanticization of small-scale societies, and to confront the ways in which whiteness, not WEIRDness, limits the practices and advancement of our science. Therefore, we recommend that biological anthropologists move away from the sanitized protection of a term like WEIRD and toward the messier acknowledgment of the ways in which their own history, values, and current practices are informed by whiteness so that we can push for a more inclusive and scientifically rigorous future.

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