Investigating human diversity in the twenty-first century

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ABSTRACT: In recent years, there has been renewed academic and public debate on the topic of race. The present essay compares two books dealing with this subject. Charles Murray's *Human Diversity* states that the social sciences are permeated by a rigid orthodoxy that puts unnecessary strain on researchers working on sex differences, race differences, and individual differences. Far from being scary, Murray argues, these differences are interesting and can be lived with. Adam Rutherford's *How to Argue With a Racist* examines various claims with respect to race. It includes four sections dedicated, respectively, to skin color, ancestry, sport, and intelligence. The essay assesses the authors' factual claims as well as their tone, their general mindset, and their personal attitude toward science.

KEY WORDS: human differences, race, genetic variation, ancestral populations

Introduction

Research on human evolution and genetics has greatly changed the way humans see themselves. While helping to understand the past and the present of our species, research has also led specialists and the broader public to revise their thoughts on some highly sensitive topics.

In this essay, I discuss two books addressing recent studies on human differences and what they mean for society: Charles Murray's *Human Diversity: The Biology of Gender, Race, and Class* (Murray 2020), and Adam Rutherford's *How to Ar-*gue With a Racist: History, Science, Race and Reality* (Rutherford 2020). While both books have already been reviewed several times by academics and by journalists, I believe a comparative book review has several merits. Firstly, both authors are informed observers and have witnessed the same scientific revolution, and yet came out with very different conclusions; it may be interesting to explore why. Secondly, an assessment of the authors' viewpoints and writing may reveal many differences beyond factual disagreement. Thirdly and importantly, when one uses each book to cast light on the strengths and weaknesses of the other book, it be-

comes easier to overcome the temptation of selecting the best arguments on one side while ignoring valuable points on the other side. All in all, the main lesson I have drawn from comparing these two books is that the topic of race requires a great deal of intellectual humility.

Human Diversity is a thick volume summarizing the results of many recent studies on sex differences, race or population differences (see below for the distinction between *race* and *population*), and individual differences in relation to class structure. The book does not require advanced training in genetics or psychometrics. Nonetheless, given how complex the issues dealt with are, one can expect that it will mainly find readers among those who are willing to familiarize themselves with technical notions. Despite its assumed goal of challenging "an orthodoxy that is scared stiff of biology" (Murray 2020: 2), *Human Diversity* is noticeable for its non-confrontational tone.

How to Argue With a Racist is a short book which focuses exclusively on the topic of race. Compared to *Human Diversity*, *How to Argue With a Racist* has a more combative approach, as Rutherford (2020: 3) explains: "This book is a weapon." The book has neither footnotes nor endnotes, only a list of forty references (Rutherford 2020: 189–194).

Before comparing the arguments of both books on the topic of race, it is worth presenting Murray's claims on the two other sensitive issues he deals with: sex differences and class.

Latest research on human sex differences

A substantial part of *Human Diversity* (Murray 2020: 11–127 & 337–372)

tackles sex differences in what Murray calls "cognitive repertoires" (Murray 2020: 8), i.e. differences in personality, mental abilities, and behavior. To enable the reader to understand how large an average difference needs to be in order to matter for society, Murray provides an interlude explaining what Cohen's *d* consists of (Murray 2020: 23), and he points out one of the most important facts about sex differences in cognitive repertoires: even if the vast majority of effect sizes for such differences are tiny, it does not mean than such differences are socially irrelevant, because "in the real world, it is taken for granted that small differences add up" (Murray 2020: 28). A very convincing example of this is given by the comparison between faces of both sexes: for isolated traits, it is often difficult to perceive any difference between the female face and the male face, but when one looks at a face in its entirety, most of the time, it isn't difficult to find out whether it is male or female (see Murray 2020: 29).

The next three chapters tackle sex differences in personality, neurocognitive functioning and abilities, and vocational choices. Murray generally focuses on the issues that are least contentious among psychologists and neuroscientists. The difficult question of whether the sexes differ in *g* (the general factor of intelligence) is treated very briefly, with a footnote allowing curious readers to find articles from both sides of the debate (Murray 2020: 386–387, n. 61). For sex differences in vocational choices, Murray relies on the results of the Study of Mathematically Precocious Youth (SMPY). This study is especially helpful for assessing sex differences in life choices insofar as all participants, male and female, had the ability to embrace

a career in engineering or the physical sciences. Even within the SMPY sample, substantial sex differences in life preferences have been found: among others, on average, females were more likely to choose a part-time employment (either temporarily or definitely), and males were more likely to give weight to a "salary that is well above the average person" (Murray 2020: 69). Females were also more likely to end up in the humanities. Importantly, both sexes viewed their lives as equally satisfying, which suggests "that there are multiple ways to construct a meaningful, productive, and satisfying life" (Lubinski et al. 2014 cited in Murray 2020: 76).

Another chapter deals with the differences that have been observed, on brain scans, between brains of both sexes. For the time being, the most important thing to remember is that this research field is still in its infancy (Murray 2020: 125). Appendix 2 deals with medical conditions that may constitute exceptions to the sexual dimorphism of the human species. Appendix 3 tackles sex differences in brain size, whose implications are not yet well understood, and the phenomenon known as "greater male variance" (see Murray 2020: 357).

Are there additional topics the author should have covered? In the spirit that a chain is as strong as its weakest link, Murray has willfully refrained from discussing the findings of evolutionary psychology (see Murray 2020: 6–7) and studies on rodents in relation to biological sex differences in the brain (see Murray 2020: 103). Some readers will probably miss a discussion of such studies. In the author's defense, though, one cannot say that wariness about unfair critics was not warranted: in a review for the *New Statesman*, Philip Ball

(2020) wrote: "Murray leans hard on the work of Cambridge psychologist Simon Baron-Cohen. But while Baron-Cohen is well respected, some of his published claims have not been replicated (that is, confirmed by subsequent studies). This doesn't mean they are wrong, but that Murray's confidence is unwarranted." In fact, Murray (2020: 35) clearly urges caution about one of Baron-Cohen's most publicized studies: "It is a single, unreplicated study with a sample of 102, no proof to take to the bank, but its finding was in line with many other studies that have found personality sex differences in infants."

Class and individual differences

Human Diversity's section about class mainly presents conclusions that are already accepted among behavioral geneticists. I will summarize them very briefly. The author accepts neither the pessimistic view that socio-economic class is primarily a function of economic or ethnic privilege, nor the optimistic view that "people can become anything they want to be if they try hard enough" (Murray, 2020: 203). Instead, Murray (2020: 204) states: "Class is a function of the genetic lottery plus character, determination, hard work, and idiosyncratic circumstances." To clarify the role of the genetic lottery, Murray outlines his argument in three steps. Firstly (chapter 11), in an overview of solidly established findings of behavioral genetics, he points out that all behavioral traits are heritable, and the g factor substantially so, while the shared environment (parental environment) has little impact on the children's cognitive repertoires. Secondly (chapter 12), he provides evidence as to the crucial role of g in determining educational perfor-

mance, job performance, income, and occupation. Thirdly and finally (chapter 13), he deals with various claims about allegedly substantial effects of external interventions. The sections on the growth mindset (Murray 2020: 255–258) and epigenetics (Murray 2020: 260–268) are very worth reading.

Humanity's genetic variation and recent evolution

The part of *Human Diversity* that deals with race is shorter (Murray 2020:129–202) than those related to sex differences and class. It is also by far the most cautious of all three parts. Murray (2020: 403, n. 1) explains that his attitude was inspired by the reaction to the publication of Nicholas Wade's *A Troublesome Inheritance* (Wade 2014), as the second half of this book largely consisted of speculations and attracted considerable criticism from the scientific community (Coop el al. 2014). After a brief description of how social constructivism regarding race came to be (Murray 2020: 129–132), the author points out that a discussion of race differences in cognitive repertoires would not make sense in his book, since such a discussion cannot establish that the differences are genetic. Instead, he chooses to focus exclusively on the genetic evidence. After briefly presenting notions such as *SNP*, *genotype*, and *genetic drift*, Murray (2020: 143–148) offers an account of the most recent findings on human evolution – an account he had to revise many times, given how fast new discoveries are made. Then, he introduces cluster analysis, which shows one can identify genetic groups within the human species – groups that often correspond to self-identified race or ethnicity.

Importantly, while the number of groups (*K*) is decided by the analyst, analyses conducted with different numbers offer results that are consistent with one another: "different values of *K* do not produce a radically different pattern of results. Instead, they augment the results, giving a greater degree of definition to a previously identified pattern" (Murray 2020: 155).

In a second time, Murray (2020: 158) addresses the view "that humans left Africa so recently that they haven't had time to differentiate themselves genetically in ways that would affect cognitive repertoires." A key element of Murray's argument is that the so-called "neutral theory of molecular evolution" – which states that while natural selection drives most of phenotypic evolution, most of molecular evolution is neutral and is explained by genetic drift – is being challenged by numerous recent analyses, which emphasize the role of *soft sweeps* in *standing variation*, i.e. changes in allele frequencies that affect a high number of alleles related to a specific polygenic trait: "A change in the environment may have only modest effects on the allele frequency at any one locus, but it has those modest effects on hundreds of the relevant sites and thereby produces a cumulatively large effect" (Murray 2020: 171). Crucially, principal component analysis (PCA) shows than ancestral populations also differ in the frequency of alleles under recent selection pressure: "When geneticists use noncoding genetic variation from multiple populations, those populations are genetically distinctive in ways that broadly correspond to self-identified race and ethnicity. When geneticists use genetic variation that is not only functional but has been under selection pressure since the dispersal from Africa, the

same correspondence usually appears" (Murray 2020: 181).

Then, Murray (2020: 182–202) deals with the sensitive question of whether genetic differences in cognitive repertoires are likely to be found between ancestral populations. As the author notes, current polygenic scores for IQ and behavioral traits cannot tell us much about between-population differences, since "the predictive validity of a polygenic score deteriorates as the genetic distance between the test population and the comparison population increases" (Murray 2020: 184). However, due to strong calls to collect genomes from non-European populations, it is expected that researchers will be able "to study genetic differences in personality traits, abilities, and social behavior across continental populations" (Murray 2020: 185). Murray (2020: 186–196) also offers a personal analysis which shows that there are continental population differences in alleles related to cognitive repertoires. The meaning of these differences is unclear, and the author warns: "*I am not presenting proof that those differences cause phenotypic differences*" (Murray 2020: 186; emphasis in the original). Nonetheless, such differences may raise interesting questions in the future.

Race or *population*?

Around the end of the last chapter on race, Murray (2020: 196) wonders: "We have known for years that biologically complex differences in continental populations have evolved since humans left Africa. It is an unlikely assertion on its face – how can "race is a social construct" continue to be the received elite wisdom if such differences are already known?" In my view, this question reflects what may be the most serious problem of *Human Diversity*: the difference between *race* and *population* is not explicitly addressed. This is important because the view that "race is a social construct" historically rested not on one, but on two pillars: (1) the idea that it is impossible to distinguish genetic groups within the human species; and (2) the idea that even if such groups were to be found, they could not be properly described as *races*, because *race* refers to groups that were historically perceived as sharply distinct from one another (see e.g. La Vie des Idées 2014). Murray has successfully challenged the first pillar, but did not address the second one. As a result, one may perfectly accept his data and still state: "race is a social construct." For instance, evolutionary psychologist Nicole Barbaro (2020) wrote that "race is more accurately described as a social construct rather than a biological reality" and also pointed out: "that human *populations* differ genetically is not synonymous with the claim that human *races* differ genetically" (emphasis in the original).

In my opinion, it is a mistake to frame the debate as a choice between two options – "race is a social construct" or "race is not a social construct." Both statements are problematic, because *race is not one thing*. Historically, *race* has been used to refer to a wide variety of concepts, either vertical (X son of Y, son of Z) or horizontal (group living in a certain area at a certain time), scientific or non-scientific, essentialist or non-essentialist, hierarchical or non-hierarchical, and… social or biological. Instead of stating that "race is" anything, it would be more productive to ask: can there be a valid social concept of race? Or: can there be a valid biological concept of race? The two views are not mutually exclusive.

Reflections on skin color, ancestry, sport, and intelligence

Aside from its introduction, Adam Rutherford's *How to Argue With a Racist* includes four chapters on race-related issues: skin color (Rutherford 2000: 27–65), ancestry and genealogy (Rutherford 2000: 67–107), sport (Rutherford 2000: 109–136), and intelligence (Rutherford 2000: 137–175). The book is quite difficult to summarize given the author's tendency to tackle numerous questions within the same chapter.

The first chapter starts with a discussion of skin color and the genetics of pigmentation, and goes on with a history of racial classifications, most of which were in great part based on skin color. Most if not all researchers will agree with the author's statement that skin color is "a very superficial route to an understanding of human variation, and a very bad way to classify people" (Rutherford 2020: 64). Several sections of this chapter are problematic. On the issue of cluster analysis, Rutherford (2020: 49–51) describes the results of Noah Rosenberg's 2002 paper (Rosenberg *et al.* 2002) but ignores the more recent studies led by Li (Li et al. 2008), who used the same sample as Rosenberg but "was analyzing 642,690 variants instead of 377" (Murray 2020: 151), and by Xing (Xing et al. 2010), who included "data from 296 individuals in 13 populations that had not been covered by previous studies" (Murray 2020: 153). Also surprising is the treatment of Lewontin's 1972 paper (Lewontin, 1972) by Rutherford (2020: 49), who writes: "Lewontin found that the vast majority (85 per cent) of genetic differences were *within* classical races, not between them. Only 6 per cent of differences segregated by race. This conclusion has been ques-

tioned on and off since its publication, but remains broadly correct. The main challenge was formalised as 'Lewontin's Fallacy' in 2003 by the mathematician Anthony Edwards, which pointed out that if you aggregate multiple sites of variation across a genome, you can in fact predict the population from which a person comes accurately. Both results are true; it just depends on the detail and the resolution." This misrepresents the point made by Edwards, who criticized not the percentages but "the old statistical fallacy of analysing data on the assumption that it contains no information beyond that revealed on a locus-by-locus analysis" (Edwards 2003: 799; see also Dawkins and Wong 2016: 461–462).

Rutherford then deals with the issue of ancestry testing and genealogy. He rightfully points out that there have been many migrations in human history, and he explores the impact of the Viking exploration of America, the slave trade, and the Rwandan genocide. The end of the chapter discusses at length – and derides – white nationalists "who claim racial purity and therefore racial superiority" (Rutherford 2020: 99). Without a doubt, the author quotes statements that are astounding and indefensible. But this begs the question: what should be done in the face of ignorance and extremism? Rutherford (2020: 102) admits he has little confidence in reasoning and arguments: "As Jonathan Swift said in 1721: 'Reasoning will never make a Man correct an ill Opinion, which by Reasoning he never acquired.'"

As for the section on sport, the author does not seem to believe that any safe conclusion can be reached. Rutherford (2020: 119) even writes: "The point is this: elite sprinters in the Olympics are not a dataset on which a statistician could

draw any satisfactory conclusion." The chapter's conclusion contains a puzzling statement: "As well as entertainment, sport is a celebration of the extremes of human capabilities. To reduce it to mere unearned biology is racism, whether conscious or not" (Rutherford, 2020: 136). However, did any observer *reduce* it to a phenomenon determined 100% by biology and 0% by training? At least not Jon Entine, author of an influential monograph on the topic of black athletic success (Entine 2000) – a book which Rutherford does not refer to. Entine (2000: 18) explains: "the opposing and incompatible claims that black athletic success can be explained by environmentalism or evolution are equally simplistic. Sports success is a bio-social phenomenon."

On intelligence, the author broadly agrees with current intelligence researchers on the most basic facts, e.g. the predictive validity of IQ tests for various life outcomes (Rutherford 2020: 146–149). However, there are substantial flaws in his discussion of group differences in intelligence. Rutherford (2020: 151) suggests: "It could therefore be sensibly argued that a big part of the alleged discrepancy we see between some African and European countries can be attributed to the Flynn effect not having happened universally, and significantly not in some African countries." In fact, it is now admitted by researchers that the Flynn effect and group differences in IQ scores have different causes (see this recent meta-analysis: te Nijenhuis and van der Flier 2014); James Flynn himself has stated that these differences "cannot be explained by the Flynn effect" (Wilby 2016). With respect to the same topic, i.e. IQ scores in Africa, Rutherford (2020: 150) writes: "while it is not possible to fully exclude genetic factors, these seem unlikely due to the immense genetic diversity that is now well established across that continent." But a few pages later, he states: "It would be perfectly possible for two populations with different sets of genetic differences to get the same IQ scores" (Rutherford 2020: 158–159). Finally, while it is true that current polygenic scores are "not particularly adept at dissecting the differences *between* populations" (Rutherford 2020: 158; emphasis in the original), Rutherford (2020: 175) lacks cautiousness when he concludes: "People are born different, with different innate capabilities and potential. How these abilities cluster within and between populations is not easily explained by fundamental biology, by genetics. Instead, when digging into the data as best as we can, the answers lie not in DNA, but in culture." That no genetic cause has been identified doesn't mean that cultural explanations have been vindicated; it only means that one should avoid hasty conclusions, and keep an open mind.

Discussion

Aside from factual claims, many differences between the two books can be noticed. As explained above, *Human Diversity* is generally more restrained in tone than *How to Argue With a Racist*. Language precision is another element: while *Human Diversity* is easily read, it is not always easy to understand what the author of *How to Argue With a Racist* means, for instance when he writes that IQ "makes a much better predictor of many more things than a sprinting times does" (Rutherford 2020: 147), without detailing what these "many more things" are; or, when he writes, on the question of whether genetic variants are associated with specific ancestral populations:

"The answer is yes. And no. And maybe" (Rutherford 2020: 121). When it comes to the reference system, *Human Diversity* has extensive endnotes and a full list of references at the end; in *How to Argue With a Racist*, the author's choice of listing forty articles or other publications at the end (Rutherford 2020: 189–194) makes it very difficult to find out which claim is backed by an article (in *A Brief History of Everyone Who Ever Lived*, another book written by Rutherford for a general audience, the references were at least sorted by chapter; see Rutherford 2017). Moreover, it is unclear which criteria led to the choice of these forty publications. The list of references includes neither Lewontin's 1972 paper nor Edwards' 2003 rebuttal, although both are discussed in the book.

Ultimately, however, I think the most striking difference between Murray and Rutherford lies in their personal attitude: Murray spends most of the book analyzing data and is generally charitable with the researchers he disagrees with, e.g. Eric Turkheimer (see Murray 2020: 279–286). He also shows his excitement about future discoveries. By contrast, Rutherford talks very little about the future and regularly mocks those he disagrees with, more than he helps the readers to understand why they think the way they do (which does not mean the disagreement is not justified). Among others, he describes anthropologist Johann Friedrich Blumenbach as "a particular sort of biblical creationist" (Rutherford 2020: 41), writes that Thomas Huxley "used indecipherably imprecise language" (Rutherford 2020: 44), and calls James D. Watson "old and infirm" (Rutherford 2020: 143). Is it that difficult to reject an idea without utterly tearing down the human being who subscribes to this idea?

Race has now become an extremely sensitive topic. There is urgent need for more data, more curiosity, and more civility. In this regard, *Human Diversity* is an important step in the right direction. The same cannot be said about *How to Argue With a Racist*; having found *A Brief History of Everyone Who Ever Lived* enjoyable and informative, I believe that Rutherford's 2020 book could have been much better. While we all make mistakes, underestimating one's opponents is a very dangerous one. Rutherford would be well advised to pay attention to these wise words of Ernst Cassirer (1946: 296): "In order to fight an enemy you must know him. That is one of the first principles of a sound strategy. To know him means not only to know his defects and weaknesses; it means to know his strength."

Conflict of interest

The author declares that the present work was prepared in absence of any financial, professional or personal relationship with either author whose book is reviewed here.

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References

Ball P. 2020. The gene delusion. New Statesman, 10 June. Available at: https://www.newstatesman.com/class-race-genetics-science-human-diversity-charles-murray-review.

Barbaro N. 2020. Thoughts on Human Diversity. Nicolebarbaro.com, 23 February. Available at: https://nicolebarbaro.

com/2020/02/23/thoughts-on-human-diversity/

Cassirer E. 1946. The Myth of the State. New Haven – London: Yale University Press.

Coop G., Eisen M.B., Nielsen R., Przeworski M., Rosenberg N. 2014. Letters: "A Troublesome Inheritance." Stanford University, Center for Computational, Evolutionary and Human Genomics. Available at: https://cehg.stanford.edu/letter-from-population-geneticists

Dawkins R., Wong Y. 2016. The Ancestor's Tale: A Pilgrimage to the Dawn of Evolution. Boston – New York: Mariner Books.

Edwards A.W.F. 2003. Human genetic diversity: Lewontin's fallacy. BioEssays 25(8):798–801.

Entine J. 2000. Taboo: Why Black Athletes Dominate Sports and Why We're Afraid to Talk About It. New York: Public Affairs.

La Vie des Idées. 2014. Interpréter la diversité humaine. Entretien avec Bertrand Jordan. Available at: https://www.laviedesidees.fr/Interpreter-la-diversite-humaine.html

Lewontin R.C. 1972. The Apportionment of Human Diversity. Evol Biol 6:381–98.

Li J.Z., Absher D.M., Tang H. et al. 2008. Worldwide Human Relationships Inferred from Genome-Wide Patterns of Variation. Science 319(5866):1100–4.

Lubinski D., Benbow C.P, Kell H.J. 2014. Life Paths and Accomplishments of Mathematically Precocious Males and Females Four Decades Later. Psychol Sci 25(12):2217–32.

Murray C. 2020. Human Diversity: The Biology of Gender, Race, and Class. New York: Twelve.

Rutherford A. 2017. A Brief History of Everyone Who Ever Lived. New York: The Experiment.

Rutherford A. 2020. How to Argue With a Racist: History, Science, Race and Reality. London: Weinfeld & Nicholson.

te Nijenhuis J., van der Flier. 2014. Is the Flynn effect on *g*? A meta-analysis. Intelligence 41: 802–7.

Wade N. 2014. A Troublesome Inheritance. New York: The Penguin Press.

Wilby P. 2016. Beyond the Flynn effect: new myths about race, family and IQ? The Guardian, 27 September. Available at: https://www.theguardian.com/education/2016/sep/27/james-flynn-race-iq-myths-does-your-family-make-you-smarter

Xing J., Watkins W.S., Shlien A. et al. 2010. Toward a More Uniform Sampling of Human Genetic Diversity: A Survey of Worldwide Populations by High-Density Genotyping. Genomics 96(4):199–210.