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## Gould on Morton, Redux: What can the debate reveal about the limits of data?

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### ABSTRACT

Lewis et al. (2011) attempted to restore the reputation of Samuel George Morton, a 19th century physician who reported on the skull sizes of different folk-races. Whereas Gould (1978) claimed that Morton's conclusions were invalid because they reflected unconscious bias, Lewis et al. alleged that Morton's findings were, in fact, supported, and Gould's analysis biased. We take strong exception to Lewis et al.'s thesis that Morton was "right." We maintain that Gould was right to reject Morton's analysis as inappropriate and misleading, but wrong to believe that a more appropriate analysis was available. Lewis et al. fail to recognize that there is, given the dataset available, no appropriate way to answer any of the plausibly interesting questions about the "populations" in question (which in many cases are not populations in any biologically meaningful sense). We challenge the premise shared by both Gould and Lewis et al. that Morton's confused data can be used to draw *any* meaningful conclusions. This, we argue, reveals the importance of properly focusing on the questions asked, rather than more narrowly on the data gathered.

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### 1. Introduction

Samuel Morton was a 19th century physician, sometimes credited with founding physical anthropology in the U.S., who cataloged and measured skulls. Gould (1978) famously argued that Morton's work (Morton, 1849) reflected unconscious manipulation to fit racist stereotypes. Lewis et al. (2011) posthumously rehabilitated Morton, arguing that it was Gould who fudged the results. Lewis et al.'s article received significant press, both popular and scientific. Much of the press took their work to have "debunked" Gould's claims regarding the influence of Morton's unconscious biases on his analyses. As the New York Times put it: "Study Debunks Stephen Jay Gould's Claim of Racism on Morton Skulls" (Wade, 2011); Nature claimed that Lewis et al.'s research showed

that "Gould's staunch opposition to racism, and desire to make an example of Morton, may have biased his interpretation of Morton's data" (Mismeasure for Mismeasure, 2011).

Lewis et al. note that "were Gould still alive, we expect he would have mounted a defense of his analysis of Morton"; this is not that defense.<sup>1</sup> Rather, while we agree with Lewis et al. that Gould's statistical analysis of Morton's data is in many ways no better than Morton's own, we believe that Lewis et al.'s work is at least equally problematic. Gould was, in our view, right to recognize that there was something very wrong with Morton's analysis; but he went wrong himself in trying to find a "better" analysis. Lewis et al. are right that Gould's analysis isn't better, but wrong to think that Morton's is appropriate. Further, both Lewis et al.'s analysis of the role that Gould's work on Morton plays in the literature, and of the

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E-mail address: [jonathan.kaplan@oregonstate.edu](mailto:jonathan.kaplan@oregonstate.edu) (J.M. Kaplan).<sup>1</sup> Michael Weisberg's "Remeasuring Man" (2014) comes rather closer to providing such a defense.

role played by the measurements of the skulls themselves, are, at best, misleading. Finally, the uncritical “exoneration” of Morton by Lewis et al. incorrectly implies that there was nothing very wrong with either Morton’s methods, or with his overall project. We reject both implications.

We have two main goals in this paper. The first is to note the ways in which the adequacy of the evidence gathered depends critically on the questions one is trying to answer. Gould suggests that Morton had a very specific question in mind regarding race, average cranial capacity, and intelligence. But Morton’s evidence was not adequate to address this question, and Gould’s attempts to find better analyses of the data are equally problematic. Lewis et al. fail to appreciate the problems with Morton’s data, and give the impression that while Gould’s analysis is mistaken, the project as a whole is reasonable. A more careful consideration of the relationship between the data gathered and the questions that can be answered can help make clear why Morton’s data cannot be used to answer the questions attributed to him.

Our second goal is to counter some important problems with the Lewis et al. piece. As noted above, the Lewis et al. article received significant attention in the popular media. But many of the claims made by Lewis et al. in their article are misleading in important ways, and, as we make clear, much of the media attention focused on the most misleading aspects. It is impossible, reading Lewis et al., not to be led to the conclusion that Gould’s work was badly flawed, and that Morton’s was broadly correct. This is, for the reasons we suggest below, not the case. But the kind of sloppiness that Lewis et al. engaged in has real consequences—e.g., members of the White Supremacist website “StormFront” immediately trumpeted Lewis et al.’s results as proving that Gould was “a fraud,” and took them to be broadly supportive of their explicitly racist agenda,<sup>2</sup> a view apparently shared by many in related communities.<sup>3</sup>

We begin this paper with Lewis et al.’s re-measurements of the skulls in Morton’s collection. Their discussion of the re-measurement takes up a significant portion of their paper, and much, indeed most, of the media coverage focused on this aspect of their work. We argue that this re-measurement was completely irrelevant to an evaluation of Gould’s published analysis of Morton; the exercise was pointless, and there was no legitimate reason to feature the results of that work. The space Lewis et al. devote to their re-measurement of the skulls, as well as the media attention it garnered, form part of a larger pattern of a reframing of Gould’s criticisms of Morton that is, again, at best misleading. We next explore briefly some of the ways in which Lewis et al.’s article misrepresents Gould’s basic claims, as well as misrepresenting the ways in which Gould’s claims are generally interpreted and used.

Gould’s actual disagreement with Morton, we maintain, was a disagreement about the correct methods to deploy in the analysis of Morton’s data; Gould argued that Morton’s choices (which skulls to include and which to exclude, how to compute averages, etc.) were the result of unconscious biases on Morton’s part. Lewis et al. counter that Morton’s choices, far from being the result of racist biases, were objectively sound, and that Gould’s choices were influenced by his own biases, and were unsound. We argue that the methods deployed by Morton and Gould were both inappropriate. Given how the skulls were actually collected, there are no interesting ways to summarize the dataset in order to draw broader

conclusions about the world; questions about the average sizes of the skulls Morton happened to have in his collection are, we maintain, not worth asking, let alone trying to answer. We note here as well that while the application of modern statistical techniques to the skulls in Morton’s collection can tell us something about that collection, at best such methods provide more reasons to think that the data from the collection cannot be used as it stands to answer the sorts of questions Gould believed Morton was asking.

## 2. Remeasuring skulls<sup>4</sup>

Lewis et al. (2011) remeasured 308 skulls from Morton’s collection; their results, correcting for systematic changes due to methodological differences, align well with the results Morton reported in his 1849 “catalog” of skulls (Morton, 1849). While their report of this undertaking is only about a quarter of the substantive text of their article, it was the focus of most of the media commentary on their work. For example, Nicholas Wade, writing for the *New York Times*, declared:

They identified and remeasured half of the skulls used in his reports, finding that in only 2 percent of cases did Morton’s measurements differ significantly from their own. These errors either were random or gave a larger than accurate volume to African skulls, the reverse of the bias that Dr. Gould imputed to Morton. (Wade, 2011)

Writing for *Wired*, Brandon Keim claimed that:

In a study published June 7 in *Public Library of Science Biology*, researchers led by anthropologists Jason Lewis of Stanford University and the Paleoanthropology Institute’s David DeGusta re-measured 308 skulls on which Morton had published data. Their conclusion: Morton’s numbers differed significantly from their own in just 7 cases, and those few mismeasurements didn’t favor the narrative of Caucasian superiority that Gould ascribed to Morton’s motivation. (Keim, 2011)

A *New York Times* editorial noted that:

Now a team of six physical anthropologists has filled almost half the skulls with pellets and concluded that Morton’s data were generally reliable and not manipulated. (“Bias and the Beholder,” 2011)

And an editorial in *Nature* claimed:

Now, in a paper published on 7 June, Jason Lewis, an anthropologist at Stanford University in California, and his colleagues test Gould’s assertions in detail. They remeasured the volume of some 300 skulls in Morton’s collection, which survives at the University of Pennsylvania’s Museum of Archaeology and Anthropology in Philadelphia, while taking care to blind themselves to knowledge of the population that each skull came from. Comparing their measurements to Morton’s, they find no evidence that his were distorted by bias. (“Mismeasure for Mismeasure,” 2011)

Finally, note that in a press release for an exhibition on race from the Penn Museum, where one of the study’s co-authors (Janet Monge) is a curator and was a consulting scholar on the exhibition being announced, it is claimed that:

Gould’s charges, the first to popularly discredit Morton’s scientific methodology, were not challenged until researchers at Penn

<sup>2</sup> See e.g. <https://www.stormfront.org/forum/t861796-8/#post9942864> accessed 11/16/2014.

<sup>3</sup> See e.g. <http://www.occidentaldissent.com/2011/06/14/the-mismeasure-of-man-stephen-j-gould-refuted/> and <http://www.theoccidentobserver.net/2011/06/stephen-jay-gould-next-to-judas-iscariot-brutus-and-cassius-in-the-devil%E2%80%99s-mouth-at-the-center-of-hell/>. Accessed 11/16/2014.

<sup>4</sup> While developed independently, our analysis here is very similar to Weisberg’s (2014).

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