

On Gould

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“Truth is hard to ascertain and ignorance is far more common than accuracy” (Gould, 1996, p. 392). No sentence could better capture the essence of *The Mismeasure of Man*, a stunning work by Stephen J. Gould, an evolutionary biologist, paleontologist, and Harvard professor. Gould examines the history and practice in science of biological determinism, the theory that biology (i.e., genes) will dictate one's personality, behavior, and intelligence. As we will see, most of this research has been driven by the conscious or unconscious desire to separate and rank races, sexes, and people of varying socioeconomic status. Gould writes, “This book discusses, in historical perspective, a principle theme within biological determinism: the claim that worth can be assigned to individuals and groups by *measuring intelligence as a single quantity* [his italics]. Two major sources of data have supported this theme: craniometry (or measurement of the skull) and certain styles of psychological testing” (p. 52). Though *The Mismeasure of Man* covers a wealth of additional information, this paper will focus primarily on these two major sources (specifically Morton and Goddard's works) and Gould's arguments concerning them, and how they relate to past and modern education.

Gould's analysis and critique of craniometry is a testament to the inevitable bias of scientific research. Scientist Samuel G. Morton was just one of many researchers who revealed prejudiced views through his writings and through his inaccurate results. During the 1820s through 1850s, Morton amassed a collection of over a thousand human skulls and measured them, believing brain size determined intelligence. “He filled the cranial cavity with sifted white mustard seed, poured the seed back into a graduated cylinder and read the skull's volume in cubic inches. Later on...he switched to one-eighth-in-diameter lead shot...and achieved [more] consistent results” (p. 85). The volume became Morton's single quantity of intellect. The results

revealed whites had the largest cavity, followed by Asians, native Americans, and finally blacks, confirming a ranking of intelligence many whites had previously believed to be true (p. 85).

Morton was one of those believers. Gould promptly points this out and, examining Morton's data, discovers grievous errors. First, “sizes of brains are related to the sizes of bodies that carry them; big people tend to have bigger brains than small people. This fact does not imply that big people are smarter” (p. 93). According to Gould, Morton used mostly black females and mostly male whites in his recordings (p. 100). Women are generally of smaller size, so their brains are smaller. Morton also manipulated subgroups of peoples. “He included [small-skulled] Inca Peruvians to decrease the Indian average, but deleted [small-skulled] Hindus to raise the Caucasian mean” (p. 100). Gould also notes that the packing of the seed, which yielded greater brain size for whites than the more accurate shot, obviously revealed Morton's bias (p. 97).

Gould recalculates Morton's data and reveals a more balanced measure of brain size. A mere four cubic centimeter difference exists between all the skulls from Morton's collection, and whites are not even the largest (p. 98). Gould's methods and science are sound, and I agree with his assessments that racism affected the study. He concludes by saying, “I detect no sign of fraud or conscious manipulation. Morton made no attempt to cover his tracks and I must presume the he was unaware he had left them” (p. 101). Here Gould and I are at odds. Obviously, he has looked at the primary source, done more exhaustive research, and is probably more intelligent (however that may be determined!). However, I harbor doubts about Morton's numbers being a great accident, brought about by unconscious racism while Morton held his head high as an ideal objectivist. I believe that if there were any possibility these mistakes were made unconsciously, Morton would have to be unaware of his own bigoted attitude. Gould says, “Morton's summaries are a patchwork of fudging and finagling in the clear interest of controlling a priori

convictions” (p. 86). Gould believes that Morton held the belief from the start that whites were biologically smarter than Indians and blacks. Morton believed in polygeny, the belief that races were separate species, descended from different Adams and Eves (p. 71). Separate species meant social equality was not a universal right and the idea of biological equality was laughable. If Morton was unaware of his prejudice (unlikely, as a biological determinist in the mid-1800s), I could accept that unconscious motives alone played a part here. If aware of his racism, he never should have experimented at all. Conscious bias has no place in science; we have enough problems with the unconscious. To agree with Gould, I would also have to accept that a scientist with two medical degrees makes multiple rounding mistakes when it comes to simple numbers (p. 101) and that in the course of double-checking his data he never discovered them. I also doubt Morton could “include” and “delete” small skulls from groups unthinkingly; this does not seem like so absent-minded a man. He seems a purposeful man. From the evidence in Gould's book, I believe it is more likely Morton knew what he wanted to see in the end and, if he did not make conscious adjustments during his experiment, at the very least looked back at his errors and determined not to correct them. The errors looked innocent enough in his mind, and there was no downside to leaving them. It was not as if his “discovery” would be unpopular: slave-owners and bigots (Northern and Southern) would love it, and he would prove what he set out to prove. Perhaps Morton even suspected it would take over 130 years for anyone to care enough to reexamine and refute his findings.

The idea of polygeny fascinated me, and made me consider the origins of man in new ways. Though *The Mismeasure of Man* is not about human origins, it mentions polygeny and its traditional (only one Adam and one Eve) counterpart, monogeny. I had actually been open to the idea of polygeny before I knew the word, though not as a means of discriminating between races.

Rather it was a way to explain the different races (that were unlikely to develop in so short a time as the suggested 6,000 years) and explain where Cain, the Biblical third human who ever lived, was able to find a wife when he left Adam and Eve after slaying Able. Generally, I put a fair deal of trust in decades of scientific evidence, and trust that the earth is indeed billions of years old, but my verdict is still out when it comes to humanity on earth. Historians disagree on when man emerged: estimates range from 6,000 years to 40,000 to over 150,000. I have always felt comfortable with the 10,000-40,000 year range, though really, this number is inconsequential to me. *How* is more important, but while not inconsequential in my view, it is not faith-threatening. I would feel comfortable with Darwinian evolution explaining the emergence of Adam and Eve, though my verdict is also out on that theory: there is much evidence for it, but also some against, from writings like *Darwin's Black Box* by biochemist Michael J. Behe. But, after all these musings, Gould wrote something that made all the pondering seem pointless.

Morton looked at tombs in ancient Egypt which, besides natives, “also contained blacks and Caucasians. Morton dated the beaching of Noah's Ark on Ararat at 4,179 years before his time, and the Egyptian tombs at just 1,000 years after that—clearly not enough time for the sons of Noah to differentiate into races. (How, he asks, can we believe that races changed so rapidly for 1,000 years, and not at all for 3,000 years since then?)” (p. 84). Morton decided that races had to be separate from the start based on this analysis (p. 85). But if the global flood story is true, this does not matter. All life was destroyed but Noah's family and the specimen he brought with him. Humanity had just 1,000 years to go from one Middle-Eastern family to hundreds of thousands or millions of people of *multiple races*, spread across the globe. At this time, the great civilizations were arising! The evidence of history refutes the flood story. 1,000 years is a terribly short period of time; believers in the flood would have to also believe in full-throttle

microevolution and global migration/breeding unlike anything the earth had ever seen.

Doubts about the logic and legitimacy of Noah's flood aside, it is important to note here Gould's own biases. He is an evolutionary biologist, and calls Darwin his hero (p. 19). While he is never offensive to religious readers, he does not hesitate to confront Christians about their beliefs. The above telling of why Morton believes in polygeny is probably unnecessary and does not even make sense, unless Morton recants his belief in Noah. Gould also cites Sir Thomas Browne's *Pseudodoxia Epidemica* (Latin for “a plethora of false truths”):

Book 7, Chapter 2 debunks the legend “that a man hath one rib less than a woman”--“a common conceit derived from the history of Genesis, wherein it stands delivered, that Ever was framed out of a rib of Adam.” (I regret to report that this bit of nonsense still commands some support. I recently appeared on a nationally televised call-in show for high-school students and one young woman, a creationist, cited this “well-know fact” as proof of the Bible's inerrancy and evolution's falsity) (p. 393).

Gould simply cannot resist poking holes in Christian beliefs, but I support him for it. I see critical thinking of faith as the greatest use of our minds, and too small a percentage of the faithful do it. Faith should be supported by the pillars of evidence, science, logic, and reason. While I applaud Gould's critical analysis of Christianity, it is perhaps better left out of a book on biological determinism and reserved for a book of its own. I suppose one could write a similar statement on this essay.

If the volume of one's cranial cavity was the single intelligent-measuring quantity for Morton, for H. H. Goddard, a research director in the early 20th century, it was the IQ score. The IQ test was originally developed in 1904 by laboratory psychologist Alfred Binet, who created “a hodgepodge of diverse activities” for children involving ordering, comprehension, invention, and correction, with the purpose of identifying special needs public education students and the areas in which they need help (p. 181). Binet understood the danger of misinterpreting a child's score.

He wrote that the scale does not measure intelligence because intellectual qualities are varied and unique (p. 181). Gould writes, “The number is only an average of many performances, not an entity unto itself. Intelligence, Binet reminds us, is not a single, scalable thing like height” (p. 181) and “Intelligence, in any meaningful sense of the word, can be augmented by good education; it is not a fixed and inborn quantity” (p. 184).

To Goddard, that's exactly what it was. Goddard popularized Binet's scale in the United States and “regarded the scores as measures of a single, innate entity. He wished to identify in order to recognize limits, segregate, and curtail breeding to prevent further deterioration of an endangered American stock, threatened by immigration from without and by prolific reproduction of its feeble-minded within” (p. 189). Goddard was an hereditarian; he believed the IQ's measure of intelligence represented a limit of one's mental potential. “Children, so labeled, should be sorted, trained according to their inheritance and channeled into professions appropriate for their biology” (p. 183).

It grows worse. Goddard linked immorality and vice to people of low intellect (p. 190), was open to sterilization and supported institutionalization to prevent “morons” from breeding (p. 194), tampered with photographs of low-intellect subjects to make them appear stupid and evil (p. 201), and supported shipping “idiot” immigrants back home (p. 198). Many immigrants were tested on arrival, and were mostly found to be of low intellect because many could neither read nor write English and were poor, with little education (p. 196). Gould calls what Goddard did a “crucial error” (p. 188) and his results “absurd” (p. 196), and I wholeheartedly agree. What did Goddard expect, with the test in a written form in a language immigrants had never used? Goddard later recanted his conclusions and actions (p. 202), but his beliefs demonstrate how Binet's scale was distorted for American schoolchildren from the beginning. It was only made

worse by later researchers like Lewis M. Terman, who began mass mental testing of grade schoolers to determine innate limits and who was “feeble-minded” and therefore destined to fail school, be an irresponsible citizen, and work in an occupation appropriate for his or her meager mental capacity (pp. 208-209). Fortunately, Terman later recanted as well (p. 221).

Gould does well to position measuring skulls and bodies beside IQ testing. *The Mismeasure of Man* is not only about the past, it is about the present, and in both, science has discriminated against the poor, minorities, immigrants, and women. Some limited English proficiency students are forced to take the same test as students fluent in English! Some IQ tests are still working to separate and label people according to a limiting number. Fortunately, Gould tells us many American schools are now using IQ tests as Binet intended, to help special education students in certain areas of mental development (p. 185). Gould's purpose of this work is to refute biological determinism and advise us against assuming racial bias in science and testing is dead and gone. Our systems and testing can still work against discriminated groups. Gould wanted to call the book *Great Is Our Sin* (p. 19), from Darwin's quote: “If the misery of our poor be caused not by the laws of nature, but by our institutions, great is our sin” (p. 424). Gould would no doubt like to see all school boards in the nation revert to only using IQ testing as Binet designed. It is a personal matter for the author, whose autistic son was indeed helped by Binet-style testing (p. 185). In his purposes for *The Mismeasure of Man*, Gould has succeeded brilliantly.

The author's work explains many aspects of education today. Our A, B, C, D, F grading system is based on a test by Goddard, Terman, and R. M. Yerkes for Army recruits in 1917 to determine military placement (p. 224). Those with low intellect were recommended for low ranks and trench warfare. Though the Army made little use of these tests, schools and businesses began

requesting them (p. 225). The scores essentially revealed that most every soldier was a moron, with the average mental age of just 13 (p. 226). This was in large part due to the poor quality of the tests, with such ridiculous questions as: “The number of a Kaffir's legs is: 2, 4, 6, 8” (p. 230). Is that a question that measures intelligence or one's basic knowledge of racist slang? The Army tests were also mired in “inadequate conditions” (p. 231) and “dubious and perverse proceedings” (p. 234).

Besides grading, we have already seen how Goddard and Terman inspired national intelligence tests, whose grandchildren would be the ACT and SAT. I remember the stress of preparing for the ACT, but also the understanding that the test does not measure intelligence but rather basic knowledge of four subjects, or even simply how well one takes a test (particularly the science portion). The ACT or SAT is a huge determining factor in entrance to college. Most universities base scholarship money directly to ACT scores. Missouri State does. For younger children, national testing is also required for states participating in No Child Left Behind; the scores will determine federal funding for schools. These are all examples of using a single number to determine the worth of a child. Gould writes, “If teachers are told that a student is inherently uneducable based on misinterpretation of low IQ scores, they will treat the student as unable, thereby encouraging poor performance by their inadequate nurture, rather than the student's inherent nature” (p. 387). Binet and Gould feared the self-fulfilling prophesy: teachers will neglect students of supposedly low intellect, resulting in low test scores. In truth, today too much rides on high-stakes tests, on a single number, from elementary school to high school. Such tests do nothing to help the development of *students*. Until Americans realize this, I doubt Stephen J. Gould will rest peacefully in his grave.

Reference List

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