"Even the Most Careless Observer": Race and Visual Discernment in Physical Anthropology from Samuel Morton to Kennewick Man

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In a classic essay, folklorist Alan Dundes argued that the popular metaphor that "seeing is believing" codes a broader series of cultural attitudes that Americans bring to their engagement with vision, reason, and truth. He observed that, notwithstanding our society's professed commitment to objective science, "American science is not culture free." That is, this visual preoccupation often escapes the realm of metaphor to influence the interpretation of phenomena that cannot, in fact, be discerned through the simple act of looking.[1] Dundes essay focused on cross-cultural ethnography, but his observation can also be applied to the subdiscipline of physical anthropology. Today, modern statistical methods trace changes in the physical type of human populations across time and space. This establishes a standard of proof that tends to hinge more on statistical regularities that emerge within a large sample than on physiognomies that can be discerned through the visual examination of individual faces and bodies. However, the idea that things like racial heritage can be discerned through the act of looking at individual faces continues to figure in vernacular publics' engagement with the results of physical anthropology, a phenomenon that has important implications for the larger social and political ramifications of this science.

The work of Samuel Morton provides important insights into the intellectual and cultural history that gave rise to these tensions within modern physical anthropology's public role. Morton is best known for the illustrated monographs *Crania Americana* (1839) and *Crania Aegyptiaca* (1844), in which he argued

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that immutable human racial varieties had existed since the time of creation, and that these races were distinguished from each other by fundamental differences in intellectual and moral capacity. These two books are most often cited today as prime examples of ideologically motivated "scientific racism" that was displaced by modern understandings of human variation. But they also embody a crucial moment in the relationship between analyses based on visual discernment and those rooted in more abstract statistical methodologies.

Although *Crania Americana* and *Crania Aegyptiaca* were both written more than half a century before the advent of modern approaches to population statistics, each included tabulated data sets and some observations based on the mean of measurements from different subsets of Morton's collection. Most treatments of Morton by working biologists and anthropologists have focused on the degree to which he did or did not manipulate his numerical data to justify his polygenist and white supremacist beliefs.[2] However, these histories have tended to overstate the importance that numerical data had in Morton's argument, and they say relatively little about the role that he posited for vision. Many of Morton's most definitive arguments—and the ways in which his "method" was described by his contemporaries—owed more to the visual discernment of features on individual skulls and faces than to the regularities that emerged from the rather basic statistical operations that he applied to his collection. In several cases, Morton found himself sidelining the statistical material, or finding ways to explain why it diverged from conclusions that he derived through other means, and in which he seemed to place far more faith. What is more, the way in which his books were marketed and reviewed placed great emphasis on the reader's ability to reproduce Morton's conclusions by examining the highly detailed illustrations of his collection to "see and believe" for themselves. In this sense, Morton's use of metrical tables might seem to prefigure the kind of statistical analysis that would become important to the science of later generations, but most of his conclusions were epistemologically grounded in the more humane idiom of "seeing."

Contemporary encounters between professional physical anthropology and vernacular audiences suggest that the awkward relationship between statistical proofs and visual discernment that marked Morton's writing was never entirely resolved in American popular culture, even if statistical analysis had scored a series of decisive victories in the realm of institutionalized science by the end of the nineteenth century. One of the most striking recent examples of this tension between modern physical anthropology and the vernacular idiom of seeing involved the skeleton known as Kennewick Man. The skeleton in question was uncovered in 1996 in Washington State and soon became the object of heated legal battles between local Native American tribes, physical anthropologists, and other parties. Essentially, the suits concerned the applicability of the 1990 law known as the Native American Graves Protection and Repatriation Act, or NAGPRA, which defended the right of recognized American Indian groups to claim skeletal and cultural materials to which they had a demonstrable ancestral

connection. Viewed in terms of certain archaeological theories about the peopling of the Americas, there were features of Kennewick Man's skeleton that could indicate that he was not a genetic ancestor to living Native American peoples. This would imply, by extension, that NAGPRA was not strictly applicable.[3]

This volatile legal and political context granted unusual importance to several reconstructions of Kennewick Man's face that were made based on features of the skull and comparisons to living populations.[4] This kind of reconstruction is familiar to much of the American public through the investigative work of anthropologists that identify remains in a forensic context. In real investigations and popular television series, such reconstructions translate the forensic scientist's knowledge of anatomy into a face that can be intelligible to laypersons. Today, the impression that can be derived from looking at an individual face is fairly peripheral to scholarly work on the morphology of ancient populations. However, the way that Kennewick Man "looked" became a frequent point of reference in public debates regarding the peopling of the Americas.

The first facial reconstruction based on the skull was created in late 1997 by forensic anthropologist James Chatters and sculptor Tom McClelland and was jokingly referred to for its resemblance to actor Patrick Stewart. For readers of a range of popular and middle-brow media, this face of Kennewick Man offered clear evidence for claims that he was not a biological ancestor of living Native Americans. A particularly unsettling series of responses to the "look" of this reconstruction was posted on the Neo-Nazi internet forum *Stormfront*. The Chatters-McClelland reconstruction was posted several times in discussion threads arguing for a pre-Columbian presence of "Aryans" on American soil.[5] In 2004, a user of the forum posted an excerpt of an article that quoted Chatters expressing his approval of a court decision stating that Kennewick Man was not genetically affiliated to living tribes. The poster noted:

> Mr. "Native American", how can you say that the Kennewick Man was your ancestor when he clearly doesn't have the mongoloid features that you have? No "ifs", no "buts", no "burials" and no crap! Hey, we/people similar to us were in America first! Ha ha! Go eat your heart out or something, pray to the ancient spirits, smoke some weed. "everythin gonna be aight!"[6]

Even if Neo-Nazi enthusiasm was an unintended consequence of the Chatters-McClelland reconstruction, the idea that the physiognomy of this sculpted bust provided white supremacists with "clear" proof that Kennewick Man looked like "them" or "people similar to them" is consistent with the popular culture described by Allan Dundes,in which seeing for oneself provides the most irrefutable kind of proof. [7] The late historian and activist Vine Deloria, Jr., seems to have anticipated this kind of reaction to the Chatters-McClelland reconstruction when he made his own visual comparison, inviting readers to see and believe that:

> Kennewick man looked like Chief Black Hawk, as painted in 1833 when he came east as a prisoner of war. Jim Thorpe—the legendary Olympian and first president of the National Football League—was a direct descendant of Chief Black Hawk, raising the question of whether Kennewick Man might be an ancestor of modern Indian people after all.[8]

If a perceived resemblance between the Chatters-McClelland reconstruction and Captain Picard provided proof of Kennewick man's non-Indian origin, an equally valid series of visual parallels could be made between the reconstructed bust, paintings of the nineteenth-century Sauk leader, and the ethnic background of his Olympian descendant.

On the surface, these assertions about the historical and political implications of Kennewick Man's "looks" seem like the kind of debate that takes place in arenas—on an open internet forum or in the writing of a humanistic scholar—that exist at considerable distance from the actual work of trained biological anthropologists. However, some of the statements that gained political traction during the struggles over the remains show that these boundaries between the common sense idiom of "looks" and the expertise of professional scholars can be porous. James Chatters was the first anthropologist to examine the remains and he published an account of his initial encounter with Kennewick Man that suggests that he had an almost immediate visual impression that the remains were "different from any Indian" that he had ever seen.[9]

Another popular book dealing with Kennewick Man, Jeff Benedict's *No Bone Unturned*, focuses on the involvement of Smithsonian anthropologist Douglas Owsley. Owsley has contributed to peer-reviewed publications on similarities between different ancient and modern populations, articles that include multivariate statistical analyses that compare tabulated metrical data from ancient crania with parallel measurements from large-scale samples of more recent specimens.[10] Nevertheless, in Benedict's narrative, different findings about the possible affiliations of Kennewick Man tended to be phrased in the familiar and vernacular idiom of "looks." For example, the conclusion of extensive scientific observations of the remains was framed simply with the statement that he "looked much more" like the indigenous Ainu of Hokkaido Japan than like living American Indians.[11] Coming from a professional scholar like Owsley, this last comment might simply be a folksier way of saying that there was a statistical correlation between a significant series of measurements of Kennewick Man's skull and the average of parallel measurements in Ainu crania. However, Benedict's narrative of Owsley's anthropological research tends to revolve around the *mise-en-scène* of a perceptive observer looking at an individual face. When consulting with an artist that was crafting a facial reconstruction of a skull of similar antiquity to Kennewick Man, Owsley observed the resulting portrait with approval, and Benedict quotes him as saying "That is the look. . . . You have captured him."[12] The social and intellectual context of Owsley's anthropological research is

radically different from that of Samuel Morton. But the confidence with which Benedict makes him speak for Kennewick Man's "looks" appeals to a vernacular privileging of vision that would have had more scientific legitimacy for authors in the mid-nineteenth century than it does for Owsley's academic peers.[13]

Read against the historical context in which Samuel Morton lived and worked, statements like the ones I have quoted above take on particular significance. The history that I will trace below focuses on how forms of scientific proof that emerged at the end of the nineteenth century worked against the assumption that the simple act of seeing allowed relatively untrained observers to derive credible conclusions about "race." That is, a particular kind of scientific authority based on statistical correlations developed amid the persistence of a vernacular culture that treated the act of seeing as an uncomplicated conduit to truth. The historical relationship between these two kinds of authority complicates the common assumption that simply asserting the value of vernacular forms of knowledge is a privileged basis for post-colonial critique. In particular, it offers a counterpoint to analyses that stress how the hegemony of "objective" science has tended to exclude more humanistic forms of indigenous knowledge. In an article regarding indigenous perspectives on deceased persons like Kennewick Man, Cynthia Lou-Coleman and Douglas Herman critiqued the assumption that "science" trumps other forms of aesthetic, moral, or supernatural knowing. They observe that "Until the 19th century there was no clear boundary in Western thought between science and philosophy. In the 18th century, science was considered just one of many approaches to knowledge."[14]

Morton's race science falls much further into the eighteenth-century side of this divide than it does toward the more carefully delimited epistemological terrain of contemporary physical anthropology. Ironically, deprivileging the statistical standards of modern physical anthropology tends to enable a cultural emphasis on "seeing is believing" that was near to the heart of both Morton and contemporary *Stormfront* posters. Even for those of us who strongly advocate the inclusion of alternative indigenous epistemologies in understanding the past, the political ambivalence of this visual idiom is unsettling.

It is evident that this disjuncture between the epistemological bases of scientific and vernacular culture has been evolving for quite some time. In the two following sections, I will look more closely at the role of visual discernment and metrical data in Morton's cranioscopy, both in how he and his contemporaries characterized his research methods and in how his readers described their own experience with *Crania Americana* and *Crania Aegyptiaca.* Then I will turn to how the late-nineteenth-century developments that made Morton's race science obsolete also called into question the visual discernment that played a central role in the physical anthropology of the 1830s and 1840s. But, as I will conclude, incidents like the politicization of Kennewick Man's "looks" underscore the degree to which the vernacular idiom of "seeing is believing" continues to resurface when the works of modern physical anthropology come into contact with more popular textual media. This reflects the privileging of common-sense

perception and ideas about the visibility of racial difference that pervade the vernacular culture of the United States.

Looking at Faces in the Early Nineteenth Century

Like their present-day counterparts, Americans in the early nineteenth century placed considerable faith in the epistemological validity of the act of seeing. But their confidence in the validity of visual impressions was far more compatible with the credible science of their day than would be the case now. This is particularly evident in the range of different moral and intellectual features that Samuel Morton and his scientific and lay contemporaries thought could be determined from the appearance of individual physiognomies.

Some recent historical studies have focused on the wide appeal that a physiognomic system developed by Johann Lavater had in Europe and North America throughout the late eighteenth and early nineteenth centuries. This was a series of basic principles that allowed Lavater's followers to "read" the configuration of the human head and face as a marker of specific features of individual character. Many Europeans and North Americans seem to have perceived this kind of technique as a necessity in the increasingly urbanized life of the nineteenth century. As a system that allowed initiates to see proof of moral characteristics in the immediately visible forms of human faces, physiognomic study gave many Europeans and Euro-Americans a sense of order in the potentially intimidating spaces of public life. It also served to ground stereotypes of different ethnic groups in the incontrovertible visual evidence that was the distinctive form of their faces.[15] By the 1830s, this Lavaterian tradition dovetailed with the popular science of phrenology, a technique of reading personality traits into the shape of the skull to which Morton had a close but somewhat complicated relationship.[16]

Though Morton's published work includes only a few examples of data generated by the observation of living subjects, an unpublished diary that he wrote during a mid-1830s trip through the English- and French-speaking Caribbean suggests that he practiced this more casual kind of physiognomic looking in the years when he was beginning to amass his cranial collection.[17] Referring to his observations from a boarding house window on a rainy afternoon in Martinique, Morton wrote:

> Among this motley variety of human nature, I observed Africans tatoed [*sic*] from the waist to the forehead, and evidently, from their juvenile age, not long inured to bondage. There were all the shades of colour, from the true negro to the light mulatto and the white Frenchwoman, some in tatters, some in fantastic drapes of all colours, and children in absolute nakedness.[18]

Likewise, on arrival at Barbados, he observed that:

> The streets of Bridgetown were thronged with slaves of every hue, who appeared to have fewer cares and less occupation than any free people I had ever beheld.[19]

In St. Lucia:

> I did not see more than a score of white persons, but the streets were thronged with negroes of every shade of colour.[20]

These passages give important insights into the assumptions about visual perception that Morton would later bring to the work of cranioscopy. For one, they highlight Morton's assumption that he could discern the racial pedigree of different humans through the simple act of looking at them. Strolling through the street or peering from the window of a guest house, he transformed the urban crowds of the Caribbean from an indistinct mass of variously colored humanity to a "motley variety" made up of discreet individuals of "every hue" that collectively represented "all the shades of colour." In his classic study of Conquest literature, Stephen Greenblatt observed how colonial narratives about non-Western people and places tended to move the reader from the experience of an overwhelming encounter with otherness to a process through which the western observer makes sense of, categorizes, and ultimately domesticates the spectacles to which he or she is subjected.[21] For Morton, a similar tendency to typologize and categorize diversely colored "throngs" of humanity seems to anticipate the approach that he would later apply to the study of human racial diversity. In his Caribbean travel narrative, the different physiognomies that are present in these crowds are not simply a testament to the natural variation of human coloration or to an ongoing process of genetic admixture; they represent a spectrum made up of discreet types that Morton's gaze could perceive as a "true negro," a "light mulatto," and a "white Frenchwoman."

The formal project of *Crania Americana* and *Crania Aegyptiaca* was more radical than these casual observations about race mixing in the Caribbean, as it involved a series of propositions regarding the origins of diverse "pure blooded" races. But as with his musings in the Caribbean, Morton's later work with crania was premised on the assumption that a body of data constituted by individual physiognomies could be subdivided into discreet "types" through the simple act of visual examination. For Morton, a visual determination of the "types" of a given series of specimens was a step that preceded his creation of quantitative measurements and mathematical derivation of "racial" means.

A second important insight that we can derive from Morton's description of the Caribbean is the degree to which casual acts of looking serve as "proof" for the more abstract principles of racial hierarchy that already seemed to define his political ideology in the early 1830s. Throughout the diary, Morton professed his preference for the "gradual" approaches toward emancipation that had been implemented in some American states over the sweeping Slavery Abolition Act

of 1833, which threatened to turn the "indolent" mob of Bridgetown into free subjects of the British crown.[22] As proof of the deleterious effect of their freedom, he finds the physiognomy of the urban crowds of Barbados to be "repulsive," and the people possessed of "genuine African face. Dirty and stupid in their manner, and singularly uncouth in their deportment."[23] Compare this to his comments on a visit to plantations in the mountains of the same island, where it seemed to him that rural slaves were forced to develop their bodies and minds through coerced labor:

> The negroes in the north side of the island appeared to me to be more healthy and better looking than those about Bridgetown. We saw many gangs of them at work in the fields and I was surprised in every instance to find the driver a black man. He carries in his hands a whip with several short cords and uses it at [his] discretion.[24]

Present-day readers are likely to find these facile characterizations of some persons as "repulsive" and others as "better looking" to be as subjective as they are disturbing. It is hard not to see Morton's discovery of physiognomic "proof" for the negative effects of abolition as being cynically concocted to support a white supremacist narrative—which is exactly what Morton's circle of polygenist craniographers did before and after his death in 1851.[25] But the fact that such arguments were made at all is a reminder that his study of human facial and cranial morphology developed in a time when the boundaries between scientific observation, aesthetic judgment, and the ascription of moral values were quite fluid. In writing this unpublished journal, Morton seems to have imagined a reader that would take him at his word regarding the aesthetic judgment he made of Caribbean physiognomies, and the facts about character that were "proved" by these acts of seeing. Given Morton's status as a practicing medical doctor and graduate of the Medical College at the prestigious University of Edinburgh, he was a credible observer of the human body. But the difference between his clinical eye and that of the more casual observer seems to have been a question of degrees of skill rather than a question of fundamentally different methods. As I will show below, the imagined reader of the Caribbean travelogue was a member of a Euro-American and European public who assumed that Morton's conclusions could be reproduced by any reasonably discerning reader and viewer, even in the absence of physical bodies.

Morton's Place in Nineteenth-Century Anthropology

Though Morton's interpretations of Caribbean physiognomies and society would not have fallen far from the mainstream of antebellum racial thought, he would later apply his powers of visual discernment to advance more controversial arguments. In essence, his contention that different races of humanity represented

immutable types that had separate origins in creation ran counter to both orthodox religious views and a popular literature that stressed the plasticity of the human mind and body.[26] Throughout his scientific career, one of Morton's principal goals was to refute the works of Johann Friedrich Blumenbach (1752–1840) and James Cowles Pritchard (1786–1848). Blumenbach and Pritchard both took the intellectual and moral superiority of Europeans for granted and associated these factors with different elements of the physical form of heads and faces. However, both also assumed that these endowments reflected the influences of history and environment on one original stock, and that these influences could be reversed if the conditions of "less favored" races were changed.[27] Unlike authors that would try to reconcile Christianity and polygenism by attributing non-European races to "pre-Adamite" stock, Morton skirted biblical explanation and used comparative anatomy to argue for the immutability of species, a "fact" that would establish the impossibility of a common origin for contemporary races.[28]

Parallels between Morton's arguments for the immutability of species and the paleontological studies of Georges Cuvier are especially striking. One particular argument, which allowed Morton to create a credible segue between the examination of skulls and the kind of physiognomic looking that he practiced on his Caribbean trip, bears strong echoes of the Baron's work with fossils. Cuvier stated that careful examination of skeletal remains could be used to reconstruct the soft tissues of an extinct species. Though taken for granted today, this idea that knowledge of the anatomy of living species could be combined with imagination to put flesh on bones was cited as a relative novelty in the early nineteenth century.[29] As I will mention again later, this ability to re-create faces that had long since rotted away through careful visual examination was one of Morton's most celebrated skills.

A second, and even more significant, debt that Morton owes to this tradition of comparative anatomy involves a particular rationale for arguing for the immutability of species. As Bruce Dain observed, this dimension of Cuvier's comparative anatomy represented a departure from the emphasis on transformative processes in the natural history tradition represented by Blumenbach's anthropology.[30] Cuvier maintained that the existence of fossil species that were no longer living was evidence of earlier creation events and entire faunas that had been eradicated by regional and global catastrophes. In between these catastrophes, however, he believed that the anatomy of species remained essentially stable. Cuvier bolstered this latter argument by noting that fossil species have fundamental anatomical differences to living analogues, whereas mummified animals found in Egyptian tombs were essentially identical to living species. The latter specimens proved that thousands of years of life had seen no significant morphological change.[31] Morton would reproduce this argument in *Crania Aegyptiaca* (see below). Considering human specimens from pharaonic Egypt to be the oldest available examples of the species, he used strictly visual criteria to assign skulls in his collection to "Negro" and "Caucasian" types. Mirroring Cuvier, he argued that the presence of these "types" among the oldest known

specimens of humanity was proof that different races had existed without change since the time of human creation.

Morton died almost a decade before the publication of *The Origin of Species* (1859) and did not live to see the debates regarding the mutability or long-term stability of species that marked the second half of the nineteenth century.[32] By then, the idea of morphological change had reclaimed center stage in discussions of natural history, which was dominated by discussions of phylogeny and different adaptive or evolutionary mechanisms that prompted the origin and transformation of species.[33]Although the eugenics movement and other schools of scientific racism were still decades in the future, the premises that had lent credibility to Morton's assumption about the immutability of species had been displaced from the realm of mainstream science.

The fact that comparative anatomy became a very different enterprise in the 1860s and 1870s than it had been in the 1830s and 1840s also underscores the degree to which Morton's use of quantitative data is largely irreconcilable with the population statistics that would emerge within a growing consensus on evolution and morphological change. His desire to build an unprecedented comparative collection was based on the assumption that having at least one example of all of the different types and subtypes of humanity would allow him to document all of the possible (and fixed) permutations that had been created of a basic human body plan. Thus, it is somewhat anachronistic to view this collecting as an effort to build what contemporary scholars would view as a robust sample size.[34] Even at the very end of the nineteenth century, Franz Boas was one of very few anthropologists in the United States to apply the mathematical procedures that would allow him to state the minimum sample that was needed in order to derive statistically relevant groupings from the comparison of morphological data.[35] Large numbers seem to have played a different role for Morton.

What exactly this role was is debatable. Although Morton's biographers characterized the number of specimens in his collection as something that gave him an advantage over Blumenbach (see note 33 below), the tabulated data play a relatively small role in the ninety-five-page "Introductory Essay on the Varieties of the Human Species" that opens *Crania Americana.* In it, Morton narrates what he considers to be the physical form, character, and historical relationship of different human families. This includes observations about the dimensions of skulls like the following: "After examining a great number of skulls, I find that the nations east of the Alleghany Mountains, together with the cognate tribes, have the head more elongated than any other Americans."[36] Overall, however, the commentary on moral capacity, character, and physiognomic types in the introductory essay is derived from travelers' descriptions of the physiognomy of different races and historical or contemporary narratives about their character and intellectual achievement. Numbers play even less of a role in the narrative of *Crania Aegyptiaca*, in which Morton defers analysis of the metrical data by noting that:

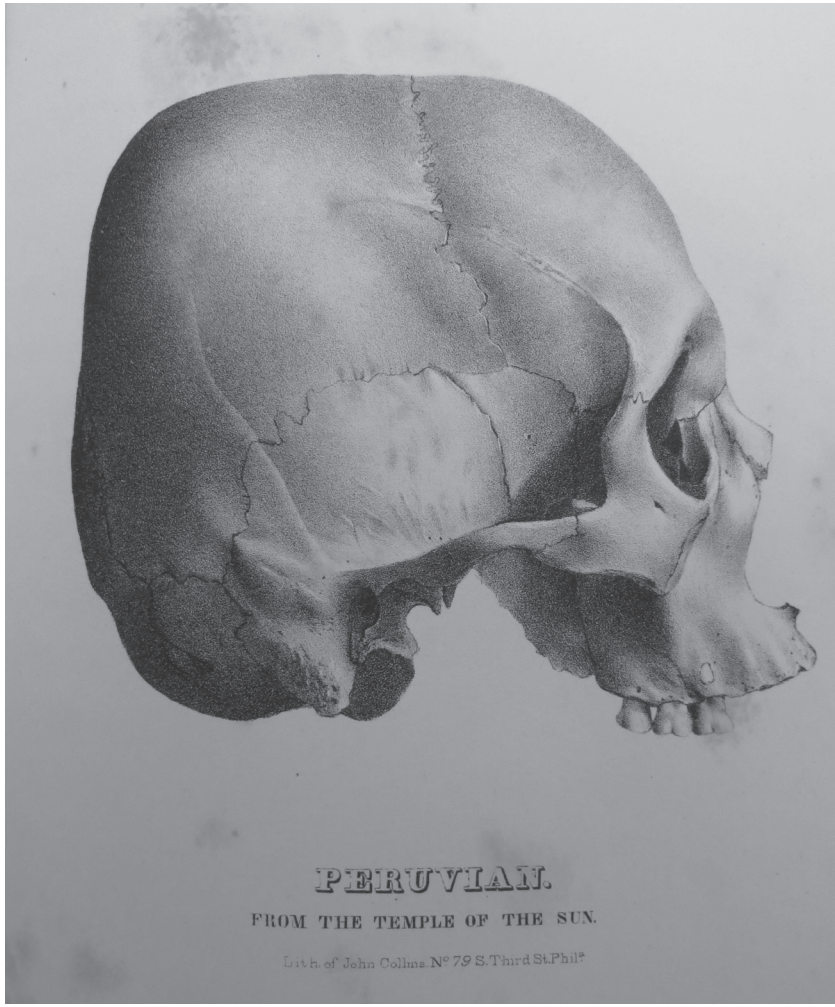

Figure 1: One of the Peruvian skulls showing a pattern of artificial deformation that initially confused Morton. From *Crania Americana*, Plate 8. Courtesy of Special Collections and Archives at Amherst College Libraries.

> These measurements, it must be confessed, possess merely an isolated interest until they can be compared to those of the other races of men. Meanwhile, I give them as I find them, and in the hope of being able to institute the desired comparisons on some future occasion.[37]

Ironically, this is the book in which Morton made his most concrete statements regarding the separate genesis of different branches of humanity. Through

his visual discernment, he determined that skulls from several sites along the Nile could be divided into a range of "Negro," "Caucasian," and "Mixed" types. Morton had few means at his disposal with which to determine *when* in pharaonic Egypt's three-thousand-year history these individuals had lived. But, just as Cuvier interpreted mummified baboons, bulls, and cats as the oldest specimens of currently living species, Morton took for granted that his Egyptian heads represented the oldest known samples of humanity. Insofar as he was able to divide these into skulls that "looked" like contemporary races of people, he could claim incontrovertible proof of the early origins of racial difference.

This willingness to sideline the numerical data that he went to such lengths to compile—along with a real candidness about cases in which inconsistencies appeared—was a persistent theme in Morton's later writing. This is particularly evident in his struggle with the cranial form of what he called "barbarian" and "demi-civilized" Native American groups. Morton asserted that monumental pre-Hispanic sites throughout the Americas had been built by a "Toltec race" that possessed moral and intellectual qualities superior to living groups of "barbarian" Indians. However, this assertion clashed with the fact that many of his ancient American skulls displayed low cranial capacity and seemingly "degenerate" forms (Fig. 1).[38] It would not be until several years after the publication of *Crania Americana*, when Morton had a better understanding of the physiology of cranial deformation, that he was able to attribute the unexpected shape of skulls from "demi-civilized" ancient Peruvians to artificial modification.[39] But having explained this physiognomic anomaly, he was still faced with the fact that the skulls of his "demi-civilized" Toltec race were essentially similar in form and cranial capacity to those of their "barbarian" descendants. Rather than explain this away as metrical "finageling"—an assessment of Morton's work that was originally leveled by Stephen J. Gould[40]—Morton turned to the ancient history of Europe and Asia for examples of cases in which "civilized" peoples shared language, customs, and physical type with "barbarian" neighbors.[41]

To summarize, although Morton's polygenism clashed with both biblical orthodoxy and the highly regarded works of Blumenbach and Pritchard, it was bolstered with notions of comparative anatomy and paleontological conclusions that had a wide currency in the early nineteenth century. This particular vision of comparative anatomy assumed that species were fundamentally immutable and legitimated both the assumption of fundamental differences between "races" and the approach to description and observation that led to this polygenist conclusion. Measurement and the tabulation of numbers served to better establish the definitive features of static "types," not to locate processes that could explain transformations within or gradations between them. Even so, Morton's use of his own numerical data was not particularly consistent and suggests that one of the primary goals of his obsessive measurement was to bolster the sense that he was providing readers with accurate reproductions of the specimens in his collection. The implications of this attitude toward the reliability of pictorial representations,

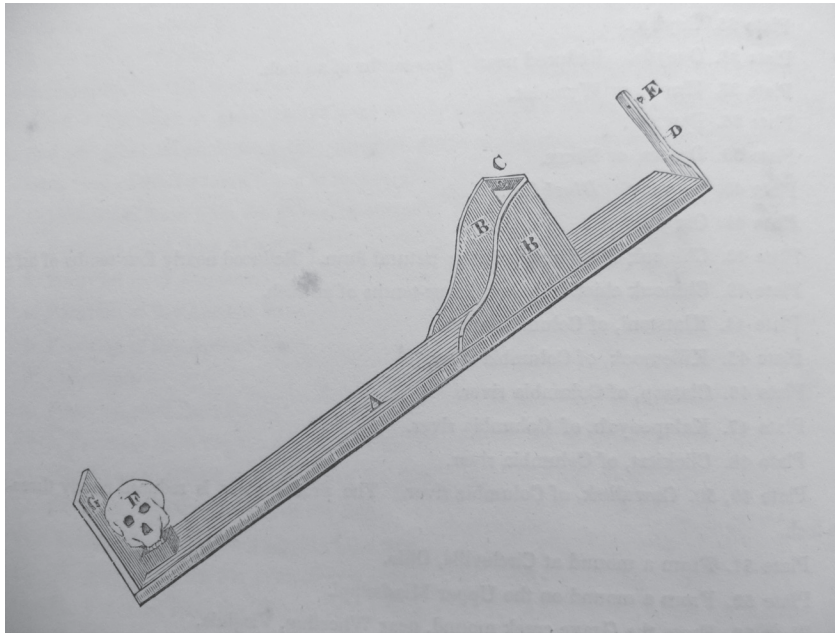

Figure 2: Morton's Craniograph. from *Crania Americana*, p. 294. Courtesy of Special Collections and Archives at Amherst College Libraries.

and the pervasive cultural emphasis on "seeing is believing," becomes clearer when we consider readers' reactions to Morton's books.

Reading Morton in the 1840s

In keeping with the tradition of comparative anatomy, Morton's cranioscopy hinged on the assumption that accurate illustration and description of diverse specimens was essential to understanding the diverse permutations that creation granted to basic anatomical plans. He noted that the plates based from these drawings were crafted and printed without sparing "care or expense," in spite of the risky nature of the mid-nineteenth-century publishing venture.[42] As Ann Fabian observed, the high price of these texts proved a real liability for Morton, who found himself distributing complementary copies to prestigious correspondents rather than treating the books as a really profitable venture.[43] Still, the aura of accuracy that inhered to these illustrations, and the assumption that they allowed readers to reproduce the acts of looking that defined Morton's work for themselves, proved to be one of the most significant factors for the impact Morton had on his immediate contemporaries. As texts that furnished reading publics with illustrations of unprecedented technical sophistication, *Crania Americana* and *Crania Aegyptiaca* were in good company. By the 1830s and 1840s, these included books like Audubon's *Birds of America* (1827–1838), Kingsborough's

Antiquities of Mexico (1831–37), and the numerous camera lucida renderings of Maya ruins that Frederick Catherwood produced for John Lloyd Stephens' *Incidents of Travel* series (1841 and 1843). In effect, Morton's investment in costly illustrations is consistent with the genre expectations established by contemporaneous visual compendia.

While authors like Stephen J. Gould have focused on the tabulation of measurement as the central feature of Morton's "science," it is important to note that Morton's most impressive and precise technical apparati were really applied to the accuracy of illustration. Like Catherwood, Morton employed a device that was designed to remove some degree of human effort and creative license from the art of pictorial rendering. The plates of both of his major works were printed from woodcuts based on drawings that he produced with the aid of a device that he referred to as a "craniograph." This simple rig allowed him to view skulls from a set distance and angle and to render their outlines on a glass pane in India ink (Fig. 2).[44]

Morton's efforts were not lost on his readers. An emphasis on the accuracy of illustrations was common in the commentary published by contemporaneous reviewers. For example, a reviewer for the *Eclectic Journal of Medicine* observed that:

> [The plates] are prepared with all possible geometrical accuracy, and show relative proportion of different regions with a precision just short of actual inspection and handling of the skulls themselves or carefully prepared casts. The most careless observer will soon discover on looking at each plate that the physiognomic expression, either of a people compared with another or of two individuals compared together is greatly dependent on the outline of skull itself.[45]

Accurate images allow even "the most careless observer" to repeat Morton's mental refleshing of skulls and assess the truth of his arguments with their own eyes—to see and therefore believe.

Though Morton's illustrations were a technical triumph, they were not "revolutionary" in the sense that they automatically displaced alternative forms of visual proof. Morton and his reviewers were quite comfortable in comparing these "geometrically accurate" images with ancient works of art that later scholars would consider to be dubious sources of anthropometric data. Morton was not alone in this respect: Blumenbach (1865) and Pritchard (1813) had also combined the examination of skulls with the use of pictorial monuments. This underscores the degree to which the mid-nineteenth-century emphasis on vision veered into epistemological and aesthetic territory that was quite distinct from the objective facts coded in the tabulated measurements.

The European and Euro-American readers to whom Morton directed his texts seem to have understood the study of ancient physiognomies as an application

of subjective discernment onto images whose technical precision ranged from various works of art to the "geometrical accuracy" of Morton's craniograph. A review published in the *Medical and Chirurgical Review* praised Morton's use of "pure induction from architectural, sculptural, pictorial, and other sources," to prove that the ancient Egyptians were distinct from and superior to "the Negro race." This reviewer's opinion bears an interesting parallel to some comments in the correspondence between Morton and Samuel Gliddon, the diplomat and Egyptologist who furnished him with many of his pharaonic skulls. In a letter from 1842, when Morton was composing *Crania Aegyptiaca*, Gliddon noted the difficulty of obtaining illustrations of Egyptian monuments in America. By combining those texts with his own observations of crania, he told Morton that:

> You would have portraits of every monarch from 2000 B.C. to 200 after as a proof of Caucasian formation in all Egyptian dynasties into which no Ethiopian blood was intermixed, and whenever it was, as in the case of Amenhoph 3rd and later Shabak or Tahraka, the Egyptians invariably portrayed the difference. You would have examples to show that the Egyptians were not niggers or defective in drawing as artists, but that they were not only full blooded themselves and careful and [illegible] and competent as far back as 2000 B.C. to distinguish between a Negro and a Nubian, and Abyssinian and a Greek, an Indian and a Persian, a Shepherd and an Egyptian.[46]

When Gliddon equates the Egyptians' not being "niggers" with their ability to accurately render human racial differences, he is invoking vernacular racist terminology to differentiate between the enslaved African descendants of southern plantation society and ancient natives of the African continent whose technical and aesthetic cultivation he attributed to their inherently different racial composition.[47] But beyond the smug reaffirmation of North American racial hierarchies, this passage suggests that Gliddon was placing Morton's own work within a tradition of depicting racial differences that began to develop within an ancient civilization and that reached its fullest expression in the nineteenth-century craniograph.

Judging art is a fundamentally subjective task, and doing so in the context of mid-nineteenth-century cranioscopy evolved a negotiation between aesthetic appraisal and physical specimens. Morton's reliance on the accuracy of ancient Egyptian monuments was not unconditional. For example, he was able to express faith in the mimetic competency of Egyptian artists when he interpreted the elongated face and peculiar proportions of portraits of Akhenaton[48]—whose reign was marked by a range of artistic innovations that distinguished it from different periods—as signs of the pharaoh's "Hyksos" racial origin.[49] However, when it came to the fact that ancient Egyptian art tends to place people's ears in a position parallel to and above the eye—a position that could not possibly

be supported by actual cranial anatomy—he made vague references to artistic convention or the distorting effect of the elaborate headdresses depicted on pharaonic figures.[50]

Contrary to what one might expect, this inconsistency does not seem to have dispelled readers' faith in Morton's ability to derive conclusions from a diverse series of anatomical specimens and pictorial sources. In fact, the ability to find reasoned solutions to such inconsistencies was cited as one of Morton's great virtues as a scientist. Where present-day biological anthropologists tend to judge the rigor of a scientific paper based on the correct use of standardized procedures, a reviewer from the *Medical and Chirurgical Review* simply considered "reflection and experience" as the sources of Morton's authority. Likewise, the reviewer from Kentucky's *Western Journal of Medicine* focused on personal qualities rather than the use of a single infallible research instrument:

> And, if we mistake not, he has the discernment to perceive, and the firmness and independence as a man and a writer, to select and avow, the variable grounds out of which those differences of human condition and standing essentially arise.[51]

This emphasis on Morton's personal qualities—faith in his subjective abilities of discernment—is also evident in a posthumous biographical sketch written by Henry Patterson. Patterson describes Morton in the Cuvierian process of projecting flesh onto the bone of skulls in his collection. What is striking in this description is the unhesitating attribution of an artistic nature to this refleshing, and the degree to which kinds of discernment that would seem thoroughly subjective today are given a credibility that is on par with the quantitative procedures that produced Morton's tabulated measurements:

> The ordeal of examination that each had to undergo was rigid to the extreme. Accurate and repeated measurements of every part were made. Where the case admitted doubt, I have known him to keep the skull in the office for weeks, and, taking it down at every leisure moment, sit before it, and contemplate it fixedly in every position, noting every prominence and depression, estimating the extent and depth of every muscular and ligamentous attachment, until he could, as it were, build up the soft parts on their bony substratum, and see the individual as in life. His quick artistic perception of minute resemblances or discrepancies of form and color, gave him great facility in these pursuits. A single glance of his rapid eye was often enough to determine what, with others, would have been the subject of tedious examination.[52]

Patterson's *mise-en-scène* juxtaposes the "rigid ordeals" and meticulous measurements with the workings of Morton's "quick artistic perception" and his ability to make determinations with "a single glance of his rapid eye." This kind of combination of quantitative rigor and subjective vision has contemporary parallels in collaborations between artists and anthropologists in the creation of facial reconstructions, or in occasional comments like Chatters claim that his first look at Kennewick Man suggested that the remains did not belong to a Native American. But in the 1840s, these moments of collaboration between art and science were not simply a pragmatic gesture to provide a convenient illustration to the uninitiated: They were at the very heart of the science of making sense of human diversity.

The credibility of this kind of looking is evident in the way that Morton's contemporaries attributed the reproducibility of results—one of the hallmarks of modern science—to the work of the cranioscopist's "rapid eye." For example, an anonymous reviewer for the *Medico-Chirurgical Review* opened his discussion of *Crania Americana* by delineating the epistemological nature of the "facts" illustrated by Morton. The reviewer asserted that "facts" were "things accomplished so as to become deeds or . . . discerned so as to become existences" and could further be divided into three kinds. These were "casual facts" based on faith in the "veracity of the observer," "demonstrable facts" based on the reproducibility of experiment, and "perceptible facts" that could be attained by different persons upon undergoing the same process of logical ratiocination. Given some of the texts that I quoted earlier, a present-day reader would probably assume that the emphasis that authors placed on Morton's character and personal abilities would constitute his observations as "casual facts." But the reviewer for the *Medico-Chirurgical Review* characterized Morton's conclusions regarding the character of the American race as "demonstrable" facts, given that they were discerned from the "manifest physical entities" of the skulls. The detail with which these crania were reproduced in drawings and tables of metrical data would allow readers to produce results that were identical to Morton's.[53] In the 1840s, seeing and believing for oneself was tantamount to reproducing an experimental result.

Statistics and the Rise of Modern Physical Anthropology

Classic histories of anthropological thought in the United States have tended to treat Morton as a figure that embodied much of the negative baggage of the nineteenth century, from uses of scientific data to justify slavery and white supremacy to polygenist theories that denied the common humanity of different regional populations. But the emergence of modern physical anthropology entailed more than just the debunking of polygenism and racial hierarchy. It also involved some fundamental shifts in the kinds of evidence that were considered to be credible in scholarly writing. By the end of the nineteenth century, the idea that Morton's "artistic" perception could constitute a reproducible scientific result would be far less credible among professional academics.

One important process involved the definitive rejection of creationist and catastrophist theories that constituted "races" as immutable morphological types. By the end of the Civil War, Louis Agassiz was to be one of the last polygenists to enjoy a degree of respectability within the American academy. Though debates regarding the exact role of natural selection or the possibility of transmitting acquired traits would continue for decades,the balance of mainstream scientific opinion had tipped definitively in favor of mutable species and morphological change.[54]

This changed the basic terms for discussion of cranial and facial morphology, even though evolutionists developed their own arguments to justify the subordinate position of nonwhites. In essence, the form of heads and faces became one more element of morphology that was subject to a range of evolutionary factors. For example, by the 1880s, Morton's fellow Philadelphian Edward Drinker Cope had published essays in which he interpreted the physiognomy of different groups of humans not as markers of static racial types, but as a concatenation of separate features whose differential development reflected the influence of a series of active processes.[55]

A later, and equally important, series of developments involved the relationship between metrical data and the more subjective kinds of analysis that Morton and his contemporaries tended to treat as equally valid elements of cranioscopy. Late-nineteenth-century anthropologists like Franz Boas were careful to establish clear differences between acts like viewing art or measuring heads. In essence, the emergence of American anthropology as a modern academic discipline fixed a series of boundaries between methods and objects of research that had a far more fluid relationship in the age of Samuel Morton. Today, Boas is most often remembered for having imported a Germanic philosophical heritage that stressed the historical uniqueness of cultures rather than the teleological evolutionary typologies that had marked Anglophone ethnology since the late 1850s.[56] His critiques of evolutionism and racial formalism are consistent with the antiracist ethos that he and his students brought to American anthropology.[57] But even without this political project, the Boasians instituted a series of disciplinary assumptions that would have made it very hard for Morton to pass the combination of his historical erudition and the observations of his "rapid eye" as reproducible "facts."

One of the most important elements of Boas legacy was the establishment of anthropology as a "four field" discipline marked by internal methodological boundaries between the subdisciplines of ethnography, linguistic studies, archaeology, and physical anthropology. This reflected Boas own eclectic training, which had ranged from ethnology and experimental psychology to studies of anatomy under Rudolph Virchow.[58] In an 1899 essay entitled "Some Recent Criticisms of Physical Anthropology," he seemed to recognize that the different methodological approaches of anthropology's subdisciplines corresponded to the distinct roles that culture and biology played in human experience and would yield different results regarding the nature of human history:

> It will be seen that that part of human history that manifests itself in the phenomena that are the subject of physical anthropology is by no means identical with that part of history that manifests itself in the phenomena of ethnology and of language. Therefore we must not expect that classifications obtained by means of these three methods will be in any way identical. Neither is it a proof of the incorrectness of the physical method if the limits of its types overlap the limits of linguistic groups. The three branches of anthropology must proceed each according to its own method; but all equally contribute to the solution of the problem of the early history of mankind.[59]

We can read statements like these as suggesting that physical and cultural anthropology could provide contradictory conclusions about the history of human groups, conclusions that nevertheless had equally valid ontic grounding in the distinct trajectories that culture and biology traced in the course of human history. This presents an especially striking contrast to Morton and his readers, for whom the application of visual discernment to cranial specimens and ancient Egyptian artworks were part of a methodologically flexible science in which the boundaries between physical and mental types was also very permeable.

Given Boas observation that the distinct methods of physical, linguistic, and cultural anthropology would yield different kinds of "classification," statistical analysis seems to have had a central place in physical anthropology's distinct contribution. In "Some Recent Criticisms," Boas reflected on the history of physical anthropology and placed special emphasis on the emergence of methods that reduced scholars' reliance on visual discernment. In characterizing the origins of statistical studies, he seems to aim a nod at Morton's use of numerical data to improve the quality of his illustrations, thus providing his readers with a visual record from which they could draw their own conclusions:

> The necessity of making measurements developed when it was found that the local varieties of mankind were very much alike—so much so that a verbal description failed to make their characteristics sufficiently clear.[60]

However, the real substance of Boas researches on physical anthropology, and the project that he outlines in "Some Recent Criticisms," underscores just how much the study of human morphology had changed in the half-century since *Crania Aegyptiaca.* In terms of field studies in physical anthropology, Boas is best known for a comparative study of immigrant parents and their American-born children, which produced widely acknowledged empirical proof for the plasticity of morphological types. This was intended, in large part, as a criticism of the idea of fixed physical types that had been at the heart of Mor-

ton's polygenism and that lingered in different guises in the various schools of scientific racism in the second half of the nineteenth century.[61] This is not to say that Boas rejected the possibility that metrical studies could generate proof of some consistencies of physical form. He observed:

> The statistical study of types will . . . lead to an understanding of the blood relationship between different types. It will consequently be a means of reconstructing the history of the mixture of human types. It is probable that it will lead also to the establishment of a number of good types which have remained permanent through long periods.

However, even under the ideal circumstances in which there are clear morphological consistencies within a population, Boas did not expect these to be the kind of things that are discernible through the visual inspection of individual skulls or faces:

> [Physical a]nthropological study is not a study of individuals, but of local or social varieties. While it may be impossible to classify any one individual satisfactorily, any local group existing at a certain given period can clearly be characterized by the distribution of forms occurring in that group.[62]

This observation of Boas's is particularly striking when compared to an 1854 narrative in which Henry Patterson described Morton applying his almost uncanny powers of discernment to an unprovenienced skull that was sent to him by a R. K. Haight, Esq., from Naples:

> The box contained a skull, but not a word of information concerning it. It was handed over to Morton, who at once perceived its dissimilarity to any in his possession. It was evidently very old, the animal matter having almost entirely disappeared. At last he announced his conclusion. He had never seen a Phoenician skull; and had no idea where this one came from; but it was what he conceived a Phoenician skull should be. And it could be no other.[63]

According to Patterson, a delayed letter from Naples would later confirm Morton's impression about the origins of the cranium. But Boas observation about the difficulty of identifying an individual skull suggests that such an act of physiognomic ratiocination would have been far less credible by the end of the nineteenth century. At the very least, such a prodigious talent would have been of dubious usefulness in a field that was increasingly interested in how morphological changes and continuities indicated different environmental and

or selective pressures on a population. Still, the idea of "seeing is believing" that had lent credibility to Morton's work seems to have lingered in American popular culture and contributes to the tensions and confusions that emerge when the work of modern experts and scholars is communicated to and interpreted by vernacular publics.

Epilogue: Faces of Kennewick Man

Over a century and a half after the publication of *Crania Americana,* and a good hundred years after Boas' "Some Recent Criticisms" essay, *National Geographic* researcher Darcy Bellido de Luna made the following observations about a new reconstruction of Kennewick Man that had been commissioned by the magazine:

> We felt it would add greatly to our story if we could illustrate the morphological characteristics of Caucasoid and Mongoloid skulls. This would help our readers understand the significance of finds like the Kennewick Man and allow them to form their own opinions regarding the ancestry of Native Americans.[64]

In some ways, this rationale for making cranial reconstructions shows how much mainstream notions of racial types have changed since the early nineteenth century. Bellido de Luna takes pains to establish the fact that the magazine's reference to "Caucasoid" and "Mongoloid" refer to morphological "types" and should not be construed as a suggestion that Kennewick Man resembled one geographically specific "race" or another. In this regard, he reflects the cautious attitude that Boas brought to relating apparent morphological similarities to common "racial" origins. But there is just as much continuity here with the venerable idiom of vision. In assuming that the reconstruction would allow readers to "form their own opinions," *National Geographic* is also complicit in fostering a tendency within popular culture that tends to marginalize the advances in scientific culture that contributed to the critique of racial formalism and that reinstates the ethos of "seeing is believing."

On the surface, the idea that readers should be provided with an image from which to draw their own conclusions seems consistent with the kind of epistemological relativism that has led many scholars to explore different models for reconciling indigenous perspectives with modern science. But the history of Samuel Morton and his readers suggests that *National Geographic*'s interpretive populism has more ambivalent historical and cultural baggage. The freedom to interpret information like the physiognomy of Kennewick Man's face was also assumed by American readers in a time before authors like Franz Boas drew a firm epistemological boundary between the methods and objects of cultural and biological anthropology. In this sense, opening debates about human origins to the visual impressions of nonacademics is not necessarily a

new or radically democratic gesture; it is simply the reaffirmation of a kind of epistemological populism that has deep roots in American popular culture, and that is more compatible with the humanistic cranioscopy of Samuel Morton than it is with the methodological rigor of modern physical anthropology.

This is not to say that dialogue between cutting-edge science on the history of human populations and vernacular epistemologies is not essential to making anthropology politically and socially relevant. However, an effective dialogue is one that communicates the perspectives of each party, and it is important to question the value of the specific images and other communicative tools that scientists use to characterize their own epistemology. So long as "looks" that can be perceived by a casual gaze are still the most common idiom for making anthropology intelligible to vernacular publics, the real epistemological substance that contributed to the debunking of polygenism and racial formalism has not necessarily made its way into mainstream discourse. The processes to which academic anthropologists attribute morphological difference and change are phenomena that emerge from the analysis of tabulated data from large populations. They are not, in fact, something that can be discerned by looking at the physiognomy of an individual face, let alone a glance by "the most careless observer." An image like a facial reconstruction might seem like an ideal didactic tool that humanizes the subjects of physical anthropology for broader audiences. But this particular kind of humanism can also conceal some of the more important lessons of modern physical anthropology behind an all-too-comfortable idiom of "seeing is believing" that has empowered audiences since the time of Samuel Morton.

Notes

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1. Alan Dundes, *Interpreting Folklore* (Bloomington: University of Indiana Press, 1980), 90.

2. Jane Buikstra, "Crania Americana: Introduction to the 2009 Reprint Edition," in Samuel Morton, *Crania Americana* (Davenport, Indiana: Gustav's Library Facsimile Reprint, 2009), I–XXXVI; Stephen J. Gould, *The Mismeasure of Man* (New York: W. W. Norton, 2010); Michael Little and Kenneth Kennedy, "Introduction to the History of American Physical Anthropology," in *Histories of American Physical Anthropology in the Twentieth Century,* ed. Michael Little and Kenneth Kennedy (Lanham, MD: Lexington Books, 2010), 1–24; Emily Renschler and Janet Monge, "The Samuel Morton Cranial Collection: Historical Significance and New Research," *Expedition* 50, no. 3 (2003): 30–38; George Stocking, *Race, Culture and Evolution: Essays in the History of Anthropology* (Chicago: University of Chicago Press, 1968); Jason Lewis, David Degusta, Mark R. Meyer, Janet Monge, Alan E. Mann, and Ralph L. Holoway, "The Mismeasure of Science: Stephen Jay Gould versus Samuel George Morton on Skulls and Bias," *PLoS Biology* 9, no. 6 (2011): e1001071. doi:10.1371/journal.pbio.1001071.

3. Parties interested in removing Kennewick Man from NAGPRA jurisdiction ranged from physical anthropologists who hoped to carry out extensive research to white separatist groups that cited early comments about Kennewick Man's "Caucasoid" features to claim him as their own ancestor. My intention here is not to claim that anthropologists and white separatists had overlapping ideological agendas, simply that the furor over Kennewick Man created shared interests among

unexpected groups of nonindigenous stakeholders. The Asatru Folk Assembly, like a number of physical anthropologists, had been among several groups pursuing legal arguments to keep Kennewick Man outside of the strict jurisdiction of the Umatilla Tribe. In his *Ancient Encounters: Kennewick Man and the First Americans* (New York: Touchstone, 2001), anthropologist James Chatters suggested that the Asatru Folk Assembly, like the Umatilla Tribe, should be permitted access to the bones for their ritual purposes once these had been thoroughly studied. For a discussion of the Asatru Folk Assembly's links to white separatist and white supremacist movements, see Mattias Gradell, *Gods of the Blood: The Pagan Revival and White Separatism* (Durham, NC: Duke University Press, 2003).

4. Alan Goodman, "Racializing Kennewick Man," *Anthropology Newsletter* (Oct. 1997): 3–7.

5. See http://www.stormfront.org/forum/t235728/ and http://www.stormfront.org/forum/t167376/.

6. See http://www.stormfront.org/forum/t90613-7/.

7. Dundes, 90.

8. Vine Deloria, Jr., quoted in David Hurst Thomas, *Skull Wars: Kennewick Man, Archaeology, and the Battle for Native American Identity* (New York: Basic Books, 2000), xviv–xvi.

9. Chatters, *Ancient Encounters,* 30; Jeff Benedict, *No Bone Unturned* (New York: HarperCollins, 2003), 3.

10. R. L. Jantz and Douglass Owsley, "Variation among Early North American Crania," *American Journal of Physical Anthropology* 114 (2001): 146–55.

11. Benedict, *No Bone Unturned,* 98.

12. Ibid.

13. See Henry Patterson, "Notice of the Life and Scientific Labors of the Late Samuel Morton, M.D.," in *Types of Mankind: or Ethnological Researches, Based on Ancient Monuments, Sculptures, and the Crania of Races*, ed. Josiah Nott and George Robins Gliddon (Philadelphia: Lippincott, Granbo, 1854), xvii–lviii.

14. Cynthia Lou Coleman and Douglas Herman, "Revisiting Kennewick Man," *National Museum of the American Indian* (Winter 2010): 29–33.

15. Christopher Lukasik has argued that the popularization of Lavaterian physiognomy in the United States reflected a shift in American popular and literary culture in the first decades of independence. Members of the eighteenth-century public assumed that an individual's nature could be transformed by the performance of public civility. Lukasik observes that educated people in the early republic were increasingly likely to assume that certain immutable elements of character lurked beneath the face of goodwill and cultivation, and could only be descried by a careful examination of physical features that could not be dressed up. See Christopher Lukasik, *Discerning Characters: The Culture of Appearance in Early America* (Philadelphia: University of Pennsylvania Press, 2009), 73–120. Writing about a slightly later period of English history—roughly from the 1830s to the 1860s—Sharrona Pearl correlates the popularization of physiognomic methods with the anxieties of an urbanized society that faced an unprecedented level of social diversity and individual anonymity. See Sharrona Pearl, *About Faces: Physiognomy in Nineteenth-Century Britain* (Cambridge, MA: Harvard University Press, 2010).

16. Morton's relationship to phrenology remained ambivalent throughout his academic career (see Patterson, "Notice of the Life and Scientific Labors"). There is a mention of Morton's attitude toward the popularization of phrenology on p. xxxii. Though Morton's training as a medical doctor in the University of Edinburgh would have made him familiar with the science, he deferred the creation of phrenological tables of *Crania Americana* to George Combe, citing his own "imperfect" knowledge of the field. Patterson's biography also suggests that phrenology was losing its appeal among serious men of science in the United States by the 1840s. *Crania Americana* and *Crania Aegyptiaca* would have circulated alongside the writings of the New Yorker Orson Squire Fowler (1808–87), who soon amassed a community of lay practitioners that rivaled that of Lavater. See Daniel Thurs, *Science Talk: Changing Notions of Science in American Culture* (New Brunswick, NJ: Rutgers University Press, 2008). Morton's ambivalence toward phrenology could have been a reaction to the rapid and somewhat faddish popularity that this science had attained in the United States.

17. This manuscript diary is archived as part of the Samuel G. Morton papers at the American Philosophical Society in Philadelphia. It consists of a notebook with 30+ pages that includes a travelogue, observations of weather, and a play that Morton wrote at some point that I have not determined. It will be henceforth cited in the notes as "Morton's Diary." Morton did not number his pages, and the pagination is my own, with "page 1" being the first page of text in the notebook.

18. Ibid., 15.

19. Ibid., 3.

20. Ibid., 13.

21. Stephen A. Greenblatt, *Marvelous Possessions: The Wonder of the New World* (Chicago: University of Chicago Press, 1992); see also Mary Louise Pratt, *Imperial Eyes* (New York: Routledge, 1992). For a discussion of texts from the nineteenth century in which parallel processes of

ordering space are central to the constitution of whiteness, see Martin A. Berger, *Sight Unseen: Whiteness and American Visual Culture* (Berkeley: University of California Press, 2005).

22. For a brief discussion of Morton's comments on Jamaica in the context of U.S. attitudes toward emancipation in the British West Indies, see Bruce Dain, *A Hideous Monster of the Mind: American Race Theory in the Early Republic* (Cambridge, MA: Harvard University Press, 2002).

23. Morton's Diary, 5.

24. Ibid., 7.

25. See Dain, *A Hideous Monster of the Mind,* 216–26; Ann Fabian, *The Skull Collectors: Race, Science and America's Unburied Dead* (Chicago: University of Chicago Press, 2010), 79–120.

26. See Dain, *A Hideous Monster of the Mind,* 62–65, 197–211.

27. By the 1840s, Morton and his associates Josiah Nott, George Gliddon, and Louis Agassiz had entered in a running feud with the Charleston minister/naturalist John Bachman. The debate between Bachman and the Morton group is particularly interesting insofar as it contradicts a historical narrative in which polygenism was primarily a means of legitimizing slavery. Bachman was no opponent to the institution of slavery and held views about the "degeneration" of nonwhites similar to those espoused by Blumenbach. In this sense, his critique of polygenism reflects a more general set of religious and theoretical concerns rather than a straightforward debate over slavery. Bachman employed a two-pronged attack on polygenism: arguing for the common humanity of different races through appeals to Christian orthodoxy and a scientific critique of the notions of cross-breeding that Morton and his associates used to argue that different races were distinct species. Morton and his colleagues tended to frame this controversy as one between the progressive objectivism of science and the blind sentimentality and dogma of faith. See Reginald Horsman, *Race and Manifest Destiny* (Cambridge, MA: Harvard University Press, 1987); Lester Stephens *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815–1895* (Chapel Hill: University of North Carolina Press, 2000).

28. For a discussion of pre-Adamite theories in the eighteenth century, see Thomas Gosset, *Race: The History of an Idea* (Oxford: Oxford University Press, 1963), 49–52. For a discussion of Protestant resistance to polygenism in the mid-nineteenth century, see Jon H. Roberts, *Darwinism and the Divine in America* (South Bend, IN: University of Notre Dame Press, 2001), 19–31. Regarding Morton's colleagues and their response to these biblical criticisms, Nott and Gliddon would make more explicit criticisms of biblical justifications for monogenism in their *Types of Mankind: or Ethnological Researches, Based on Ancient Monuments, Sculptures, and the Crania of Races* (Philadelphia: Lippincott, Granbo, 1854).

29. Georges Cuvier, *Fossil Bones, and Geological Catastrophes: New Translations and Interpretations of the Primary Texts,* ed. Martin J. S. Rudwick (Chicago: University of Chicago Press, 1997), 59–63.

30. Dain, *A Hideous Monster of the Mind,* 209–11.

31. Cuvier.

32. Peter Bowler, *The Non-Darwinian Revolution: Reinterpretation of a Historical Myth* (Baltimore: Johns Hopkins University Press, 1992).

33. The last proponent of this polygenist school to enjoy a degree of academic legitimacy was his former collaborator, the Harvard naturalist Louis Agassiz. His marginal position in the final years of his life was not due to his polygenist view of human origins per se, but to his more general rejection of the growing consensus on the nature of phylogeny. A decade after the publication of *Origin of Species,* the academic tide had shifted definitively from the description of static morphological types that could be observed in individual specimens to the explanation of mechanisms that prompted change. See Edward Lurie, *Louis Agassiz: A Life in Science* (Baltimore: Johns Hopkins University Press, 1988), 282–304.

34. There is some evidence that Morton's contemporaries were aware of this kind of statistical concept. See Patterson, "Notice of the Life and Scientific Labors." Patterson's biography of Morton includes a passage that hints that some of his contemporaries had a basic understanding of the importance of sample size. He observes:

> The results of Blumenbach are invalidated by the small number of specimens generally relied upon by him. For in a case where allowance is to be made for individual peculiarities of form and stature, the conclusions gain infinitely in value by extension of the comparison over a sufficient series to neutralize this disturbing element. (xxviii)

However, the mathematical relevance of this sample size does not seem to have been a major factor in the arguments advanced in Morton's *General Introduction,* and Patterson's own description of Morton's collecting also suggests that his efforts were geared toward amassing examples of multiple varieties of humanity rather than to simply provide a large sample.

35. See Charles Camie and Yu Xie, "The Statistical Turn in American Social Science: Columbia University, 1890 to 1915," *American Sociological Review* 59, no. 5 (1994): 773–805.

36. Morton, *Crania Americana*, 48.

37. Ibid., 31–32.
38. Ibid., 97–101. Note that Morton recognized the work in other artificially deformed skulls during this early period, but it was the particular form of the Peruvian skulls, and their implication for the stages of ossification of several cranial sutures, that confused him.
39. Samuel Morton, *An Inquiry into the Distinctive Characteristics of the Aboriginal Race of America,* 2nd ed. (Philadelphia: John Pennington, 1844), 5–6.
40. Gould, *The Mismeasure of Man,* 84–88.
41. Morton, *An Inquiry into the Distinctive Characteristics of the Aboriginal Race of America,* 13–16.
42. Morton, *Crania Americana,* iv.
43. Fabian, *The Skull Collectors,* 88–91.
44. Morton, *Crania Americana,* 294.
45. College of Physicians of Philadelphia, POM 5186, “Reviews of Samuel George Morton’s Crania Americana.” This is a bound volume of texts from multiple journals dating 1839–1840. This excerpt comes from *Eclectic Journal of Medicine* 5, no. 9.
46. Gliddon to Morton, February 17, 1842, American Philosophical Society, APS Microfilm 1413.
47. Although I have not read letters written by Morton to Gliddon, the latter seems to have enjoyed joking at the expense of African Americans, including several instances in which he writes to Morton in exaggerated African American dialect. See Samuel Morton Papers, American Philosophical Society.
48. Following translations current in his time, Morton refers to this pharaoh as “atenre-backhan.”
49. Morton, *Crania Aegyptiaca,* 54.
50. Ibid., 26–27.
51. College of Physicians of Philadelphia, POM 5186, “Reviews of Samuel George Morton’s Crania Americana.” This excerpt comes from an anonymous review in the *Western Journal of Medicine* (no date or volume present, though presumably 1840), 36.
52. Patterson, “Notice of the Life and Scientific Labors,” xvii–lviii.
53. College of Physicians of Philadelphia, POM 5186, “Reviews of Samuel George Morton’s Crania Americana.” This excerpt comes from *Medico-Chirurgical Review,* October 1, 1940.
54. Bowler, *The Non-Darwinian Revolution.*
55. Edward Drinker Cope, *The Origin of the Fittest: Essays on Evolution* (New York: D. Appleton, 1887).
56. See George Stocking, *Race, Language and Culture* (Chicago: University of Chicago Press 1968); Adam Kuper, *Culture: The Anthropologist’s Account* (Cambridge, MA: Harvard University Press, 2000); George W. Stocking, ed., *Volkgeist as Method and Ethic: Essays on Boasian Ethnography and the German Anthropological Tradition* (Madison: University of Wisconsin Press, 1996).
57. Herbert Lewis, “The Passion of Franz Boas,” *American Anthropologist* 103, no. 2 (2001): 447–67.
58. Benoit Massin, “From Virchow to Fischer: Physical Anthropology and ‘Modern Race Theories’ in Wilhelmine Germany,” in *Volkgeist as Method and Ethic: Essays on Boasian Ethnography and the German Anthropological Tradition,* ed. George W. Stocking (Madison: University of Wisconsin Press, 1996), 79–154.
59. Franz Boas, “Some Recent Criticisms of Physical Anthropology,” *American Anthropologist* 1, no. 1 (1899): 105–6.
60. Ibid., 102–3.
61. Clarence C. H. Gravlee, Russel Bernard, and William R. Leonard, “Heredity, Environment and Cranial Form: A Reanalysis of Boas’ Immigrant Data,” *American Anthropologist* 105, no. 1 (2003): 125–38; Boas, “Some Recent Criticisms of Physical Anthropology,” 106.
62. Boas, “Some Recent Criticisms of Physical Anthropology,” 100.
63. Patterson, “Notice of the Life and Scientific Labors,” xl.
64. http://www.kazstudios.com/kennewick/AliasWavefront_com-en-Community-1.htm.