Nomenclature Wars

Ethnologists and Anthropologists

Seeking to Be Scientists, 1840–1910

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Scholarly disciplines are ever-changing and continuously debated constellations of intellectual heritage and contemporary issues. This article discusses debates over anthropological nomenclature, anthropometric indices, and museum exhibit design in the development of European and American anthropology from its ethnological beginnings in the 1840s through nineteenth-century evolutionism to the establishment of the Boasian historical particularist approach after 1904. It also outlines the impacts of those debates and disagreements on the subsequent development of the “four-field approach” in American-university-based anthropology programs. The transitions from ethnology to evolutionism to particularism can be followed through arguments over nomenclature, anthropometrics, and the content and design of museum exhibits, as nascent anthropologists defined and redefined their subfield(s) of study and attempted to become part of the burgeoning Science Establishment of the nineteenth and early twentieth centuries in Europe and North America. The arguments and their (sometimes) resolutions laid the foundations for twentieth-century university-based anthropology programs and ethnographic and archaeological exhibits in anthropology and natural history museums. The article is, thus, a contribution to the developmental history of anthropology in Europe and North America.

Key words: history of anthropology, ethnology, systems of nomenclature, museum exhibits, anthropology as science

Scholarly disciplines or “fields of study” deal with specific sets of phenomena and how questions about them should be asked and adequate answers obtained. Today there is no one definition of anthropology. Self-defined anthropologists hotly debate how many subdisciplines should exist as parts of an ill-defined, hopefully holistic, multivariate intellectual endeavor. Sub-debates focus on how research is to be conducted and data analyzed and interpreted. The situation is not unique. The scope and even the name of the discipline have long been problematic and hotly debated. Our purpose

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herein is to examine the origins and results of these debates in nineteenth- and early-twentieth-century anthropology and ethnology.

From the 1840s until about 1910, scholars and researchers in Britain, France, Germany, and the United States who labeled themselves as “ethnologists” and later also as “anthropologists” engaged in extended, often vituperative arguments over terminology, subject matter, measurements of difference and similarity, scope and boundaries between other fields of study, and the position(s) of ethnology and anthropology within emerging scientific societies. In the 1880s, the arguments were extended to include ethnographic and archaeological exhibits in natural history museums. After about 1895, arguments also centered on the content of anthropological curricula in American universities then being reshaped on the German research-based model.

Central in these quests for intellectual and social authority was the honor of naming, a critical activity that permeates all forms of scholarship. Naming extends from what to call an entire field of study to the systems of nomenclature to be used within each field and its subfields.

During our period of interest, from ca. 1840 to 1910, the arguments were among individuals and groups competing to name fields of study—“ethnology” and “anthropology”—and establish systems of nomenclature therein. That is, nomenclature in the formal sense: “a system of technical terms used in a science or a discipline” (*Oxford English Dictionary* [OED] 1971:1936). Names and what they meant were crucial to how the subdisciplines within anthropology or ethnology were to be organized; how research organizations and their agendas were to be formulated and pursued; how forums for discussion, especially scholarly societies and international congresses and their publication outlets, were to be defined; how museum exhibits were to be organized and presented; and ultimately, after about 1890, what the content of anthropology curricula should be in the newly developing research universities based on the German model (Menard et al. 2017).

KNOWLEDGE MAKING AS COMPETITION AND CONFLICT

The metamorphosis of a “field of study” into a “scholarly discipline” involves creation of a common nomenclature to be used within an agreed-upon “paradigm.” Common nomenclature allows knowledge makers to undertake “normal science,” to use Thomas Kuhn’s (1996) well-known phrase. That is, to agree on research agendas and the methods for pursuing them, to decide on appropriate and significant questions and what are acceptable or unacceptable answers.

Arguments over nomenclature in European and American anthropology during the nineteenth and early twentieth centuries provide examples of Randall Collins’s (1998: 1–79) theory of intellectual change. Collins contends that knowledge making in scholarly disciplines occurs through the social dynamics of competition, conflict, disagreement (and sometimes, consensus) among warring camps of intellectuals who create complex sets of symbols they call “truths” (including “facts” or “valid data”), “theories,” and “new paradigms.” To advance its views, each camp searches for allies and

competes for nodes of attention space within a small number of centers of attention—meetings of scholarly societies, journals, monographs, books, public lectures, and public media.¹

Collins's theory provides a useful vehicle for our discussion. The anthropological wars over nomenclature had to do with theoretical models and research agendas within which the models would be pursued. The contested nomenclature systems were both qualitative and quantitative, the latter as anthropologists, especially physical anthropologists, sought to prove they could do "real science" through valid metric data collection and analyses. Anthropology nomenclature warriors saw themselves engaged in creating a "science of man." By so doing they would become recognized soldiers in a larger campaign, disjointed as it may have been (*sensu* Morus 2007): the creation and validation of "modern science" (Meadows 2004).

The term "science" has a long historical etymology but was being used in its modern sense by about 1725: "Science: a branch of study which is concerned either with a connected body of demonstrated truths or with observed facts systematically classified and more or less colligated by being brought under general laws, and which include trustworthy methods for the discovery of new truth within its own domain" (OED 1971:2268). Enlightenment savants and the positivists who followed them in the nineteenth century sought to describe and understand a universe governed by a set (or sets) of unknown natural laws, discoverable "through the Light of Reason," that is, by the pursuit of rational, usually inductive, metrically based (if possible) methods of investigation (Barrow 1988; Crosby 1997; Milton 1981; Rudwick 2005; Swijtink 1987).

The British philosopher and historian of science William Whewell (1967:113) coined the term "scientists" in 1840. Scientists sought and found (or at least asserted) "objective truths," or "demonstrated truths," and made intellectual war on the vagaries of Romanticist metaphysics and religious ideologies. This reification and mystification of science—asserted to be the *only objective* knowledge-making system, and the *only* system capable of discovering "real truths" about the universe and its operations—had begun by 1850 (Cantor et al. 2004) and continued well into the twentieth century. Many will recall the oft-used conundrum from the 1880s to at least the 1970s, "SCIENCE TELLS US. . . ."

Eighteenth-century science included natural history—studies of the earth and the living things thereon, including humans—and natural philosophy—studies of chemistry, physics, astronomy, and the mechanics driving a Newtonian clockwork universe. In the period 1800–1840, "natural philosophy" metamorphosed into specialized disciplines later called the "physical sciences." Anthropology fell within the realm of natural history (Fowler 2003). Natural historians saw themselves as scientists, at least until about the 1880s when university-based biologists, zoologists, and geologists began distancing themselves from their natural history, museum-based colleagues (Meadows 2004).²

Interestingly, at about the same time, museum-based anthropologists sought to distance themselves from practitioners of "speculative" social sciences. In 1884,

Smithsonian National Museum curator Otis T. Mason, commenting on a library classification system that included a category for “social science,” wrote, rather haughtily:

In common acceptance, social science means more than it does in the anthropological sense. The latter includes only those works in which *the rigid methods of natural history are applied to society*. The former includes every speculation on the natural ills that flesh is heir to (1884a:645, emphasis added).

Mason here used the operative judgmental buzz-words (then as now) for inclusion in, or exclusion from, the Science Club: “rigor” versus “speculation.”

“Rigor” has definite rules. First, each datum in a set should be as comparable as possible to every other datum. Investigative results should be *replicable*, within statistical limits. Ideally, this is achieved through calibrated instrumentation.

Scientific instruments create replicability. Observation is no longer the observation of the there-and-then: it is the observation of a universal, the phenomenon, the effect. . . . [Instrumentation has led,] to paraphrase Karl Popper, to observation without an observing subject. [Instruments] . . . have diminished and in some areas almost eliminated the use of personal judgment in recording what is observed. [They] . . . made scientific observation objective. Scientific data do not belong to the consciousness of the perceiving subject, we believe, because different observers will obtain the same data (Swijtink 1987:267–68).

True measures, then, of any science are the sophistication of its instrumentation and the replicability of its data—metric or other. Anthropologists, especially physical anthropologists, throughout the nineteenth century struggled with the triad of nomenclature, instrumentation, and replicability of data. Full admission to the Science Club depended on all three.

TOWARD A “SCIENCE OF MAN”

James Hunt (1863:2), founder of the Anthropological Society of London, famously—and perhaps erroneously (cf. Liddell and Scott 1940: Arist. EN 1125a5)—credited Aristotle as the first to define “anthropology” as “discourses treating of man.”

Between about 1580 and 1840, several discourses were written from a variety of viewpoints, but not within any fully organized field of study (Eriksen and Nielsen 2013:11–14; Fox et al. 1995; Vermeulen 1995). For example, the French scholar Alexandre Cesar Chavannes (1787, 1788) first proposed the term “ethnology” in 1787 as “the history of the progress of peoples in civilization,” and the following year he published a 400-page treatise on *Anthropologie, ou Science générale de l’homme*. This “general science” included ethnology as well as subfields later known as sociocultural anthropology, linguistics, and human biology. Some of Chavannes’ ideas were carried

forward by the short-lived “Society of the Observers of Man” (Bouteiller 1956) into the field manuals developed in 1799–1800 by Georges Cuvier (Hervé 1910) and Joseph-Marie de Gérando (1883, 1969) for the ill-fated Baudin Expedition to Australia and Tasmania (Baudin 1974). But the society went defunct, and no ongoing organization of either ethnology or anthropology existed in France until the founding of the Ethnological Society of Paris in 1839. Nor was there any ongoing organization in Britain or the United States until the creation of the Ethnological Society of London and the American Ethnological Society in New York, both in 1842 (Stocking 1971).³

The Development of Scientific Associations

Centrally important to self-identified ethnologists was their admission into, and ongoing participation in, general scientific associations. The British Association for the Advancement of Science (BAAS) was organized in 1831, and its American counterpart (AAAS), in 1848 (Kohlstedt 1976); see below. The creation of the BAAS and AAAS, and the practice of linking related associations and societies to them in various ways, mark the organizational beginnings of the modern sciences.

In Collins’s terms, the associations were self-defined camps of intellectuals who saw themselves in opposition to metaphysicians and other “non-scientists.” The associations were organized into “sections,” reflecting self-identified fields of study; as new fields arose, new subsections and sections were added. Warring camps arose within sections and subsections as individuals and their followers asserted, debated, and defended variant theories, hypotheses, data sets, and systems of nomenclature. The wars are reflected in articles and accounts of meetings published in the journals of the associations and related organizations (Hall 1984). But the issue of who was a “real” scientist remained. For example, after 1865, anyone could join the AAAS, but recognition as a “real scientist” was accorded only those, after 1874, elected as fellows by the AAAS Council. Many scientific organizations still follow a similar format. In some associations—for example, the National Academy of Sciences and the American Academy of Arts and Sciences—all members are elected.

“Place,” Ethnology, and Anthropometry

The overarching concern of nineteenth-century ethnology was the place of various “races” in greater cosmological schemes of things, as those schemes were conceptualized by Europeans and Euro-Americans (Sera-Shriar 2013). As Daniel Brinton (1892a:264) would later put it:

Chavannes, in 1787, was the first to propose the term *Ethnology* to express “l’histoire des progrès des peuples vers la civilisation.” . . . This is very nearly its true scientific sense; and we owe it to the illiteracy of the French Société d’Ethnologie in 1839 that they assigned to it what Topinard calls “la définition si regrettable”—“l’ethnologie est l’étude des races humaines.”

In 1843, Prichard wrote: “The history of nations termed ethnology, must be mainly founded on the relations of their languages” and then goes on to say, “Every new ethnologist subdivides the nations which his predecessor had connected” (1843:132).

But for those concerned to justify—or argue against—ethnocide, slavery, the subordination of colonial peoples, and national systems of stratified social classes, ethnology had other meanings, best expressed by Nott and Gliddon in their polygenist panegyric to white superiority, *Types of Mankind*: Ethnology includes

the whole mental and physical history of the various Types of Mankind. . . . Ethnology demands to know what was the primitive organic structure of each race – what such race’s *moral and psychological character* – how far a race may have been, or may become, modified by the combined action of time and moral and physical causes – *and what position in the social scale Providence has assigned to each type of man* (1854:49, emphasis added).

Such justification debates had begun during the Spanish conquests in the Western Hemisphere and continued as European imperialism and colonialism expanded across much of the world. The Spanish argued about whether subjugated people were “fully human,” or “natural slaves.” Later, French and British savants argued about whether humans formed one, or several, “links” in the Great Chain of Being; whether subjugated “races” were “inferior” links; and whether “savages” were “noble” or “ignoble” (Fowler and Fowler 1991:41–45).

Anthropometrics and “Place”

By 1776, metrics entered the picture, particularly in the study of craniometry as formulated especially by Johann Blumenbach (1865:235–43, 264–69, 298–300), whose treatises were first published between 1776 and 1795. Blumenbach thought that head form was a true indicator of “race” and that cranial capacity was a true indicator of relative intelligence. Both head form and cranial capacity could be measured; hence “races” could be defined *metrically*—that is, “scientifically.” Cuvier’s instructions for the Baudin Expedition (Hervé 1910) were basically anthropometric, following Blumenbach’s lead. Works by the American physician Samuel Morton (1839, 1844) seemed to verify the assumption that different “races” had statistically different cranial capacities, and that variations in head form were indeed “true” indicators of race.

But while Morton was pouring buckshot into the foramina magnum of a thousand skulls and, perhaps, misinterpreting his data (Gould 1981:73–112; but see Lewis et al. 2011), it was Lambert Adolphe Quetelet (1796–1874), the great Belgian mathematician, who was the true founder of statistics, which he conceived of as a bridge between mathematics and social phenomena. For Quetelet (1835, 1842), “statistical regularity” demonstrated that the natural history of humanity was guided by Divine Will (Hankins 1908; Mangello 1989:73–74; Porter 1986:12). This was reflected in the statistical measures that underlay his concept of the “Average Man.” The concept initially

came about as “Quetelet sought to summarize anthropometric data for the purpose of investigating the relationships between and differences among groups of people” (Stigler 1986:170).⁴

Heartened by Morton and Quetelet, physical anthropologists (as they would later call themselves) set out to do “science.” Craniometry, osteometry, and anthropometry flourished. Practitioners’ results provided ammunition for both polygenists and monogenists in the years before Darwin, and for both Darwinians and anti-Darwinians afterward (Nott and Gliddon 1854; Prichard 1843; see also Stocking 1973, 1987). Between 1840 and 1900, hundreds of thousands of skulls, long bones, and living people (often whole armies) were measured. Over time, the French, led by Paul Broca, built an enormous, government-supported scholarly institute devoted to anthropometry (Schiller 1979; Topinard 1890, 1891).

The crucial concern was a metric—hence “scientific” (and therefore “objective”)—definition of “race.” Broca created the cephalic index, the ratio of length to breadth of the skull. The index came to be the prime indicator of “race,” at least for socio-political purposes. Many of the studies generated by Broca’s program were used to justify various elitist and racist schemes in France and elsewhere (Spencer 1979:105–19).

But various camps of craniometrists could not agree on *how* and *what* to measure: Exactly *where and how* on skulls or heads should measurements be taken? *Which* calculated ratios were the *true indicators* of “race”? These “craniometric wars” can be traced in the literature in the second half of the nineteenth century; for example, Meigs (1866) and Cleland (1870a, 1870b). In 1879 Otis T. Mason noted that “craniometry . . . is becoming of great importance . . . [but] a great deal of work is vitiated by the multiplicity of methods employed” (1879:129).

At last, in 1884, sixty-seven German, Swiss, Austrian, Italian, and Russian anthropometrists agreed on a system of “uniform craniometry,” both measurements and nomenclature (Mason 1884b:839–42). The French and the British held out, but they finally capitulated and signed an “international agreement on the classification and nomenclature of the cephalic index” in 1887 (Garson 1887).

Whether or not every anthropometrist fully subscribed to the classification and nomenclature, measuring people and skulls proceeded apace and even entered the popular domain through “laboratories” at World’s Fairs. Franz Boas had a functioning anthropometric laboratory in the Anthropology Building of the 1893 Chicago World’s Fair and had done, and continued to do, other anthropometric studies (Cole 1999: 132–34, 151–52). An even larger laboratory devoted to both anthropometric and psychometric measurements operated at the St. Louis World’s Fair in 1904 (Parezo and Fowler 2007: 305–23).

But there had always been naysayers, especially about the validity of the cephalic index as an “indicator of race—for example, the British anatomist John Cleland (1870b). In 1899, Franz Boas struck a fatal blow in an article aptly titled “The Cephalic Index,” in which he wrote:

The correlation between the length and breadth of the skull is not an expression of a biological relation between two measurements, but an effect of the changes which both undergo when the capacity of the skull increases or decreases. It follows from these considerations that while the cephalic index is a convenient practical expression of the form of the head, it does not express any important anatomic relation (1899:448).

It was Aleš Hrdlička who gave anthropometry its scientific cachet in America. Trained as a physician, Hrdlička spent four months in 1896 studying at Broca's Institute in Paris. There his principal mentor was Leonce Manouvrier, who was very much opposed to the racialist bent of the Institute. Manouvrier stressed the plasticity of humans and the influence of environment on bodily form, including the skull. Hrdlička (1899) brought this philosophy back to the United States. In 1902, he was hired to create the Division of Physical Anthropology in the US National Museum of the Smithsonian Institution, which still exists (Spencer 1979:252–88).

He quickly became part of the "Washington Anthropological Establishment" and played the principal role in establishing physical anthropology in the United States, although it was a slow process. Hrdlička is best known for his anthropometric and osteometric studies of American Indians, and long-term support of William Henry Holmes in the latter's fight to ensure that any claims of great antiquity of humans in the Western Hemisphere were geomorphologically valid (e.g., Hrdlička 1925a, 1934; see Meltzer 2015:124–91). In his magnum opus, *The Old Americans* (Hrdlička 1925b), he demonstrated, to his satisfaction, the plasticity of humans and the effects of environment on bodily form, and in 1934 he agreed with Boas (1899) that the cephalic index had become biologically and genetically meaningless (Hrdlička 1934).

Our point here is the importance of metrics and metric nomenclature in the development of nineteenth-century anthropology. "Real science" was seen as quantitative, and anthropometrics provided a major form of quantitative analysis anthropologists had on offer if they were to be admitted into the Science Club.

"Ethnologicals" vs. "Anthropologicals" Wars in Europe

The data and conclusions generated by the anthropometrists were of great interest to ethnologists who warred over the "place" of races in the greater schemes of things and justifications for, and attacks against, colonialism and slavery, as we saw above. In France, the wars led to the demise of the Ethnological Society of Paris and the formation, in 1859, of the Anthropological Society of Paris (Blanckaert 1988). In Britain, the wars led to a split within the Ethnological Society of London (ESL) and the founding of the rebel Anthropological Society of London (ASL) in 1863.

Between 1863 and 1871, the "Ethnologicals" and the "Anthropologicals" warred with each other over section nomenclature within the BAAS. Between 1846 and 1851, there had been an ethnology subsection of the BAAS. In 1851, ethnology and geography were coupled in section E. In 1864 and again in 1865, the Anthropologicals failed

to get section E renamed to include “anthropology.” In 1866, anthropology became a subsection of biology, but in 1867 and 1868, anthropology was excluded entirely from the BAAS. In 1869, ethnology became a subsection of biology. In 1870, an ethnology and anthropology subsection was created. This laid the basis for the merger of the ESL and ASL into the Anthropological Institute of Great Britain and Ireland, brokered by Thomas Henry Huxley (Stocking 1971:380–84). Ultimately, subsection D, anthropology, was created within the BAAS.

Behind the nomenclature battles were complex and confused battles over monogenism versus polygenism, pro-Darwinians versus anti-Darwinians, acceptors and rejecters of the deep time implied by the Three Age system in archaeology, and a host of issues relating to the social placement and treatment of colonial peoples, including the Irish (see Stocking 1971, 1973, 1987:1–283 for the complex histories of these matters). For present purposes, it is sufficient to note that by the early 1870s, “anthropology” in Britain began to take on its modern meaning, comprising cultural, linguistic, archaeological, and human biological subfields (Hicks 2013). In 1881, the rising star of British anthropology, Edward Burnet Tylor (1930), published his influential book, *Anthropology*, covering essentially the “four fields.”

BECOMING ANTHROPOLOGISTS IN THE UNITED STATES, 1856–1885

The parallel developments in the United States were influenced by British organizational activities. The dormant American Ethnological Society was briefly resuscitated as the Anthropological Institute of New York in 1871, then suffered another period of dormancy before reemerging as the American Ethnological Society in 1901 under the guidance of Franz Boas and Livingston Farrand (Farrand 1902). By 1870, Edward D. Cope’s journal, *American Naturalist*, regularly included an “Anthropology” section. For several years it was led by Otis T. Mason (and later Thomas Wilson, and then Frank Russell), and featured articles, reviews, and bibliographies on ethnography, prehistoric archaeology, and physical anthropology.

In 1875, Lewis Henry Morgan, Frederic Ward Putnam and others got subsection D, Anthropology, established within the AAAS (see below). In 1879–1881, John Wesley Powell got his *Bureau of Ethnology* placed under the Smithsonian Institution. He chose “Ethnology” because congressmen and other government officials knew the term but were less familiar with the newer “anthropology.” On the other hand, also in 1879, Powell and others created the *Anthropological Society of Washington*, and in his first annual report, Powell declared “It is the purpose of the Bureau of Ethnology to organize anthropologic [*sic*] work in America” (Powell 1881:xxxiii).

American Anthropology and the AAAS

In the United States, the campaign to get anthropology included within the American Association for the Advancement of Science was somewhat easier than in Britain. From the mid-1840s on many scientists were based in Washington, DC, either affiliated

with the Smithsonian Institution or other federal agencies. From 1838 until the Civil War, numerous scientists and naturalists from around the country had accompanied the US Army Corps of Topographical Engineers as they made their great surveys and studies of the American West. Their published reports routinely included ethnographic and archaeological data on Western tribes and sites (Fowler 2010:38–49). After 1866, the four federal Geographical and Geological Surveys, and the Navy's Coast and Geodetic Survey, also employed numerous scientists and naturalists. The annual reports of the surveys carried a good deal of ethnographic and archaeological information (Fowler 2010:79–91).

The Smithsonian Institution and the AAAS

The mandate of the \$500,000+ bequest from Englishman James Smithson was “To found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men.” After ten years of debate, Congress accepted the money and created the Institution in 1846. To further the mandate, the founding Smithsonian Secretary, Joseph Henry, took the lead in forming the American Association for the Advancement of Science (AAAS) the following year.

A critical link between anthropology and the Smithsonian was begun in 1856 when Lewis Henry Morgan attended the annual meeting of the AAAS in Albany, New York. There he met Louis Agassiz, Asa Gray, James White Dana (all affiliated with Harvard), and most importantly, Secretary Joseph Henry and Spencer Baird, the assistant secretary.

Morgan was already deep into his studies of the Iroquois and other kinship terminological systems. Baird and Henry encouraged him to continue (Fowler 2010:95–96). Ultimately, Morgan's kinship systems questionnaire was distributed under the auspices of, and the results were published by, the Institution in 1871, the great *Systems of Consanguinity and Affinity of the Human Family* (Morgan 1871). His *Ancient Society* (Morgan 1877) established him as a major figure in anthropology in America and Europe.

In 1873, Frederic Ward Putnam of Harvard was appointed permanent secretary of the AAAS, a position he held until 1898. In 1875, Putnam, Morgan, Powell, Baird, and others got subsection D, the “permanent subsection of anthropology,” established within the AAAS, and Morgan was named its chair. Soon after, he was elected to the National Academy of Sciences and then president of the AAAS in 1879. In the same year, John Wesley Powell, as we saw above, got his Bureau of Ethnology (later Bureau of American Ethnology) established under the wing of the Smithsonian. Morgan's *Ancient Society* was required reading for Powell's “Corps of Ethnologists,” and Powell arranged for the publication of Morgan's (1881) *Houses and House Life of the American Aborigines*. (Fowler 2010:95–99).

In 1888 Powell was elected AAAS president, followed by Daniel Brinton in 1894 and Frederic Ward Putnam in 1898. There was no doubt that American anthropologists were members of the Science Club. As an aside, the next anthropologists to be

elected AAAS president were Franz Boas in 1931, followed by Margaret Mead (the second woman president) in 1975. There have been none since.

AMERICAN NOMENCLATURE WARS, 1881–1904

But what were the subdivisions of an overarching Americanist “anthropology” to be? The nomenclature debate in the United States seemingly was begun by Otis T. Mason (1880, 1881a, 1881b), curator of anthropology at the Smithsonian National Museum, who proposed various “subdivisions” of anthropology (Table 1)

At the 1883 Montreal meeting of the AAAS, Mason proposed a more elaborate “Scheme of Anthropology,”

designed to enable anthropologists to classify their materials, and . . . to indicate the steps of progress which are involved in a true scientific investigation. For this purpose the Greek words, *Genea*, *Graphe*, *Logos*, and *Nomos* were employed as the suffixes of several series of terms. . . . [thus] the whole study of man would be represented by . . . *Anthropogeny*, *Anthropography*, *Anthropology*, *Anthroponomy*. The first word covers all investigations referring to the origins of man, the second to correct observation, the third to classification, the fourth to discussions of the laws of science. . . . [Thus] for ancient history, *Archaeogeny*, *Archaeography*, *Archaeology*, and *Archaeonomy* . . . for modern anthropology, series of four terms, each beginning with the words *Biogeny*, *Psychogeny*, *Glossogeny*, *Ethnogeny*, *Technogeny*, *Sociogeny*, and *Mythogeny*. For the relations between man and environment, . . . the terms *Hexiogeny*, *Hexiography*, *Hexiology*, and *Hexionomy* (1883: 440).

Mason borrowed *Hexiology* from the British biologist St. George Jackson Mivart (1880:606; see also Mivart 1871, 1879a, 1879b), who proposed it as a cover term for

Table 1. Anthropology, according to Mason (1879, 1880)

1. Anthropogeny – Origin of Man
2. Archaeology – Pristine condition of human groups
3. Biology/Somatology – Anatomical and physiological peculiarities of races or varieties of man
4. Comparative Psychology of different races
5. Ethnography – Descriptive works on extant races
6. Ethnology – Anthropology of races
7. Comparative Philology/Linguistic Anthropology
8. Technology/Arts and Industries – Study of comparative industry in all times and lands
9. Sociology – Comparative studies of social systems
10. Religion – Comparative theology; cults (clergy and laity, ritual paraphernalia and practices)
11. Instrumentalities of research – Books, monographs, journals, archives

the complex “relations between living beings to one another” within their “habitats.” Mivart’s term lost out to Ernst Haeckel’s (1879:114) “ecology,” “the ‘Household of Nature.’ . . . All the various relations of animals and plants, to one another and to the outer world, with which the CEkology of organisms has to do.”

Mason’s complex systems lost as well, although some of his ideas seem to have sparked similar proposals by John Wesley Powell (see below). Subsequent American culture area studies (Holmes 1914; Kroeber 1931; Wissler 1926) did pay attention to human-environmental interactions, but it was not until Julian Steward’s “cultural ecology” (1955, 1968; see also Harris 1968:654–87) that anthropologists focused more specifically on the kinds of “Hexiology” studies Mason was proposing.

Powell versus Brinton

In April 1892, the Anthropological Society of Washington (ASW) invited Daniel Brinton of the University of Pennsylvania (Baker 2000) to present a paper (Table 2) on anthropological nomenclature. He accepted and did so (Brinton 1892a, 1892b; see also Brinton 1895). As Regna Darnell (1988, 2003:30–32) points out, it was a set up. When Brinton finished, John Wesley Powell rose from the audience, took the po-

Table 2. Anthropology, according to Brinton (1892a)

I. <i>Somatology</i> : physical and experimental anthropology
a. Internal somatology – embracing osteology, craniology, myology [anatomy of muscle], and splanchnology [anatomy of viscera]
b. External somatology – embracing anthropometry, color, hair, canons of proportion
c. Psychology – experimental and practical
II. <i>Ethnology</i> : historic and analytic anthropology
a. Definitions and methods – stages of culture, ethnic psychology, etc.
b. Sociology – governments, marriage relations, laws, institutions.
c. Technology – embracing the development of the utilitarian and the fine arts.
d. Science of religion – primitive religions, mythology, symbolism, religious arts, teachers and doctrines, special religions.
e. Linguistics – gesture and sign language, spoken and written language.
f. Folklore.
III. <i>Ethnography</i> : geographic and descriptive anthropology
a. General ethnography
b. Special ethnography – monographs, etc.
IV. <i>Archaeology</i> : Prehistoric and Reconstructive Anthropology.
a. General archaeology – geology of the epochs of man, prehistoric botany and zoology, ages of stone, bronze and iron.
b. Special archaeology – description of special periods and nations.

dium and presented his own system at length (Table 3). The two presentations were published together. Powell (1892b), the perennial ASW president, got more page space than Brinton (1892a). Brinton (1892c, 1895), however, incorporated his system into a short monograph laying out the foundations for a university-based anthropology curriculum, and portions of it were included in his 1894 presidential address to the AAAS.

Powell saw ethnography as a methodological tool and archaeology as one of its sub-methods: "Ethnography . . . designate[s] any description of ethnologic material. . . . Archaeology is not a distinct science, but refers only to some of the methods by which the facts of Ethnology are obtained" (Powell 1892b:271). Here he was following Lewis Henry Morgan's (1881:30) decree: "The facts of American archaeology must be studied ethnologically; i.e. from the institutions, usages, and mode of life of existing Indian tribes"—in short, ethnographic analogy. The decree was part of a research agenda Morgan had proposed and Powell had faithfully followed (Fowler 2010: 92–161; Fowler and Wilcox 1999:211–15).

Table 3. Anthropology, "The Science of Man," according to Powell (1892b)

I. <i>Somatology</i> – origin and development of the human race; development of the individual from the germ to the adult stage; anatomy, physiology, origin and nature of disease, methods of averting premature death, etc.									
II. <i>Psychology</i> – science of the mind (or soul); includes psycho-physics, physiological psychology; comparative psychology, or the studies of the minds of the lower animals.									
III. <i>Ethnology</i> synonymous . . . with the <i>Humanities</i> . Includes <table> <tr> <td>A. Technology or Arts – science of the industrial arts, the decorative arts, arts of amusement</td></tr> <tr> <td>B. Philology, sometimes Glottology, sometimes Linguistics: the science of languages</td></tr> <tr> <td>C. Sociology – the science of institutions. Includes methods of organization: <table> <tr> <td>1. division of labor</td></tr> <tr> <td>2. confederation for government, etc.</td></tr> <tr> <td>3. regulation by laws and maxims</td></tr> </table> These lead to the fundamental sciences of <table> <tr> <td>a. Economics, or political economy</td></tr> <tr> <td>b. Civics, or science of government</td></tr> <tr> <td>c. Ethics, or science of moral conduct</td></tr> </table> </td></tr> </table>	A. Technology or Arts – science of the industrial arts, the decorative arts, arts of amusement	B. Philology, sometimes Glottology, sometimes Linguistics: the science of languages	C. Sociology – the science of institutions. Includes methods of organization: <table> <tr> <td>1. division of labor</td></tr> <tr> <td>2. confederation for government, etc.</td></tr> <tr> <td>3. regulation by laws and maxims</td></tr> </table> These lead to the fundamental sciences of <table> <tr> <td>a. Economics, or political economy</td></tr> <tr> <td>b. Civics, or science of government</td></tr> <tr> <td>c. Ethics, or science of moral conduct</td></tr> </table>	1. division of labor	2. confederation for government, etc.	3. regulation by laws and maxims	a. Economics, or political economy	b. Civics, or science of government	c. Ethics, or science of moral conduct
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1. division of labor									
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a. Economics, or political economy									
b. Civics, or science of government									
c. Ethics, or science of moral conduct									
IV. <i>Literature</i> – literature, romance, drama, poetry									
V. <i>Esthetology</i> – the fine arts: sculpture, painting, music									
VI. <i>Natural Religion</i> – arts of religion (excludes theology, or revealed religion)									
VII. <i>Sophiology</i> – Science of opinions, including <table> <tr> <td>A. Modern science</td></tr> <tr> <td>B. Metaphysics</td></tr> <tr> <td>C. Mythology, including cult-lore and folklore</td></tr> </table>	A. Modern science	B. Metaphysics	C. Mythology, including cult-lore and folklore						
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Neither Brinton's nor Powell's schemes prevailed in toto. In Powell's last years, his sycophant, W J McGee, was able to insert some neologisms, such as esthetology and sophiology, into the *Annual Reports of the Bureau of American Ethnology* (e.g., Powell 1898). The terms were abandoned after Powell's death in 1902. "Somatology" gave way to Hrdlička's "physical anthropology," as in the *American Journal of Physical Anthropology*, which he founded in 1918, and the American Association of Physical Anthropologists, which he co-founded in 1928 (Spencer 1979:624–750).

Exhibits and Nomenclature Wars in the Museum

Another battle of the nomenclature wars in American anthropology in the 1880s and 1890s was over the design and naming of ethnographic and archaeological exhibits in museums. The brief skirmish, however, had important consequences for the development of American anthropology and museology in the twentieth century.

Although museums had existed in one form or another for millennia (Fowler 2003: 9–11), natural history museums that include anthropological and archaeological exhibits, as well as museums specifically devoted to ethnography or archaeology, are primarily a phenomena of the nineteenth century. The great natural history museums of Paris, London, Berlin, Vienna, New York, Chicago, and Washington, DC, were founded between 1850 and 1900. They celebrated both the natural world and the industrial nations' domination thereof. All contained ethnographic and archaeological exhibits of "savage" or "tribal" peoples, who, living closer to, or being seen as part of, the natural world, should "properly" be exhibited therein.

Museums devoted specifically to "earlier" cultures—Stone Age(s), Bronze Age, Iron Age, and so on—were also established in the nineteenth century. Usually, their exhibits were designed and interpreted to demonstrate the evolution of technologies. Exhibits were glass cases filled with stone, wood, bone, or metal artifacts arranged in presumed evolutionary developmental sequences. The most famous, and still extant, example is the Typological Collection in the Pitt Rivers Museum at Oxford University (Chapman 1985; see also www.prm.ox.ac.uk/pittrivers). This model was widely used in many museums with archaeological and ethnographic collections in the nineteenth and early twentieth centuries, including the National Museum of the Smithsonian Institution.

The Boas versus Mason Exhibit War

The "war" over museum nomenclature and exhibit design in the United States was initiated in 1887 by a young Franz Boas, who had recently arrived in the country, had taken a job as the geography editor with *Science* magazine, and was ready to announce his presence. Otis T. Mason (1887), at the Smithsonian National Museum, had put together an exhibit whose "principal object," according to Boas, "is the study of each and every invention among peoples of all races and countries," arranged in presumed evolutionary sequences in glass cases (Boas 1887:588–89). Boas argued that lifeless

rows of artifacts of any “type”—pots, hand axes, rattles, bows and arrows, and so on—tell us very little about humans or human behavior.

Rather, he argued, “the public will be much more benefited by tribal arrangement of ethnological collections,” exhibits that show “all important ethnological phenomena, the historical development of tribes, the influence of neighbors and surroundings, etc.” In other words, exhibits showing peoples in their historical, cultural and environmental contexts. The debate, which involved John Wesley Powell (1887) and others, petered out, but the long-term museological consequences were another matter.

LIFE GROUPS AND WORLD’S FAIRS

During the period 1876 to 1904, world’s fairs or large-scale industrial expositions occurred every two to three years somewhere in the United States (Rydell 1984). Each had a US government building with Smithsonian displays prominently featured therein. Curators and staff were kept frantically busy designing, building, transporting, installing, and managing exhibits for the fairs. The upside was that exhibits, or parts of them, could be taken back to Washington and installed in the National Museum (Fowler 2010:203–19).

There were also numerous world’s fairs in Europe, beginning in the 1870s. Mason (1890) and his Smithsonian colleague Thomas Wilson (1891) attended the Paris World’s Fair of 1889 and were extremely impressed by the several tribal and ethnic “life groups”—manikins dressed in appropriate costumes and using appropriate implements inside appropriate dwellings and environmental settings—on exhibit. In the United States, beginning in 1888–1889, glass cases filled with stuffed animals and birds began to be replaced by life group dioramas designed by Carl Akeley and Frank Chapman of the American Museum of Natural History (Quinn 2006). Thus, the concept of life group exhibits was very much in the air in the museum world, and Mason and his colleague William Henry Holmes became very aware of these new, much more “naturalistic” forms of museum displays.

For the 1893 World Columbian Exposition in Chicago (Hinsley and Wilcox, eds. 2016), Mason (1894, 1896) and Holmes produced a series of Native American life groups, based on recent Smithsonian field studies, showing Hopi basket makers, Zuni potters, and Navajo weavers at work (Jacknis 2016). The exhibit was accompanied by a large map showing North American ecological environments and a 12 by 16 foot copy of John Wesley Powell’s (1892a) great *Linguistic Map of North America*, which had previously been exhibited at the Columbian Exposition in Madrid in 1892 (Fowler 2010:207). Mason and Holmes had met Boas’s objections to rows of lifeless objects in glass cases. As Curtis Hinsley (2016:492) succinctly puts it, the exhibit “gave clear evidence that a paradigm shift was under way in aesthetics and perception: the typological evolution of the previous decade (*Kulturgeschichte* or culture history) was ceding organizational authority and interest to new emphases on actual fieldwork . . . attention to environmental factors and emerging recognition of culture areas.” Life groups be-

came standard ethnographic displays, as did life group dioramas of animals and birds, in natural history museums in the United States, Europe, and elsewhere.

The shift to life groups and environmental settings is further exemplified by events in 1894–1895. By then, Franz Boas was deeply involved in his fieldwork among the Kwakiutl of the Northwest Coast. Mason commissioned him to make a “thorough collection” of Winter Dance regalia and create a life group of the dance. It was installed in the Smithsonian exhibit at the Cotton States and International Exposition in the fall of 1895 and then moved to the National Museum (Jacknis 1985:85–87).

The next result of the debate and the idea of showing “tribal” groups in environmental contexts was W. H. Holmes’s (1902a, 1902b) article, published twice, titled “Classification and Arrangement of the Exhibits of an Anthropological Museum.” Therein, he discussed “two great classes of exhibits . . . the *geo-ethic series* illustrating groups of men and their works assembled by geographic areas, and . . . the *culture-history* series, illustrating the achievements of the race in important branches of activity” (Holmes 1902a:495). The accompanying “Map of North America [including Meso-America and the Caribbean], indicating in a general way the ethnic provinces” (Holmes 1902a:495, 497), became the basis for subsequent “culture area” and related “age-area” schemes in twentieth-century North American anthropology (Wissler 1916, 1917, 1926; Freed 2012[II]:622–33).

TOWARD A FOUR-FIELD ANTHROPOLOGY

In 1894–1895, Franz Boas received joint appointments as a curator in the American Museum of Natural History and professor of anthropology at Columbia University (Freed 2012[I]:149–63). He began developing a program to remake American anthropology. He had serious doubts about the theoretical basis and research and museum programs of nineteenth-century evolutionist work, à la Morgan, Powell, and others (Boas 1896). He saw old-style museum anthropology as outmoded (Parezo and Hardin 1993), and university-based, research-oriented anthropology programs as the wave of the future.

WJ McGee, the director of anthropology exhibits at the St. Louis World’s Fair, had organized an Anthropology Congress as part of the fair. Boas (1904:480) was a featured speaker:

The grand system of the evolution of culture, that is valid for all humanity, is losing much of its plausibility. In place of a simple line of evolution there appears a multiplicity of converging and diverging lines which is difficult to bring under one system of control. Instead of uniformity, the striking feature seems to be diversity. . . . [Anthropology] has outgrown the systematizing period and is just now entering on the empirical revision of its theories.

Boas went on to outline the university-based, empirical, revisionist research and teaching programs that in time became the “four-field” approach. The success of those pro-

grams is reflected in biographies of Boas and his students—for example, Stocking (ed. 1974) and Darnell (1998, 2001; Darnell et al. eds. 2015)—and, as of 2017, on Internet websites of numerous American anthropology departments stating that their teaching programs are based on the “traditional four-field approach in anthropology”: archaeology, physical anthropology, cultural anthropology, and linguistics, or variations thereof.

CODA: POSTMODERN NOMENCLATURE WARS

Since the reorganization of the American Anthropological Association in 1983–1985, nomenclature wars within the association have resulted in forty (as of early 2017) “sections” and “interest groups.” “Anthropology” has become the overarching scientific and/or humanistic study of humanity. Nomenclature wars now center on “afterologys,” as Jacqueline Mraz called them (quoted in Sahlins [1999:404]): postmodernism, poststructuralism, postcolonialism, post-Marxisms (plural), and so on. Randall Collins cannot but be pleased.

NOTES

We thank three anonymous reviewers, editor Lawrence Straus, and Brian Fagan and David Hurst Thomas for their very positive and helpful feedback; any errors of fact and interpretation are ours.

1. Ivan Morus presents a similar view of the professionalization of science in nineteenth-century Britain:

The big picture of [the development of] Victorian science as a leisured, progressive institutional consolidation is certainly . . . decisively broken. Professionalization is now seen as the contested outcome of local dogfights over intellectual and institutional authority in particular contexts rather than as the self-evident goal of reformist men of science. . . . [O]ur understanding of what professionalization means is predicated on the institutional structures put in place by the victors in those little local squabbles over territory. . . . Attempts to make the [Royal] society more “professional” and “scientific” were . . . [the results of] strategic maneuvering of ambitious men trying to carve out institutional niches for their own particular vision of what a scientific society should be and do (2007:94).

2. The term “biology” was coined about 1819 (OED 1971:218). But it was not until the 1870s and 1880s that university-based biologists began to separate themselves from natural historians (Allen 1987, 1998). Biologists saw themselves as *natural scientists* doing experimental laboratory work, in contrast to *natural historians*, who still focused on field collecting and classifying specimens. Whether scientist or natural histo-

rian, biologists continued to wrestle with nomenclature (Allen 1987). For example, it was not until 1892–1894 that zoologists adopted uniform rules of nomenclature for use within a general system of classification (Fischer 1892, 1894).

3. We recognize that scholarly societies existed long before the 1830s, especially the Royal Society, founded in 1660, and the American Philosophical Society, founded in 1743 (Fowler 1975:18). These were generalist organizations, however, participated in by “leisured amateur” gentlemen scholars. While such individuals continued to be important in scholarly societies until about 1900, the thrust of the BAAS and AAAS and the societies linked to them from about 1840 on was toward professionalization and specialization, especially once teaching and research faculties were established in universities organized on the German model beginning in the 1860s.

4. Quetelet struggled, as did many others throughout several decades of the nineteenth century, to develop statistical tools to reduce or exclude the inherent uncertainty, and thereby increase the perceived reliability and replicability, of statistical data sets. But, as Mangello points out, it was precisely the *variation*, the *uncertainty*, in the data that proved to be important.

It was to be the talent of Francis Galton [1822–1911] that would recognize the value of measuring the variation which Quetelet hoped to exclude from the mathematical sciences. For Galton seized Quetelet’s neglected discovery and subsequently created a revolutionary approach to analyzing data (that is, the measurement of individual variation) that subsequently served as the foundation to modern-day statistical theory (1989:74).

Galton continued to develop the theory throughout his later work, as did Karl Pearson (1857–1936) in his work (Stigler 1986:265–361). Both contributed strongly to the uses of statistics in eugenics studies (Cowan 1972).

REFERENCES CITED

- Allen, D. E. 1987. The natural history society in Britain through the years. *Archives of Natural History* 14(3):243–59.
- . 1998. On parallel lines: Natural history and biology from the late Victorian period. *Archives of Natural History* 25(3):361–71.
- Baker, Lee D. 2000. Daniel G. Brinton’s success on the road to obscurity, 1890–1899. *Cultural Anthropology* 15(3):394–423.
- Barrow, John D. 1988. *The world within the world*. Oxford: Clarendon Press.
- Baudin, Nicolas. 1974. *The journal of Post Captain Nicolas Baudin, commander-in-chief of the corvettes “Geographe” and “Naturaliste,” 1800–1804*. Adelaide: Library Board of South Australia.
- Blanckaert, Claude. 1988. “On the origins of French ethnology: William Edwards and the doctrine of race,” in *Bones, bodies, behavior: Essays on biological anthropology*. Edited by G. W. Stocking, Jr., pp. 18–55. Madison: University of Wisconsin Press.

- Blumenbach, Johann F. 1865. *The anthropological treatises of Johann Friedrich Blumenbach*, translated from the 1840 German edition by T. Bendyshe. London: Published for the Anthropological Society of London by Longman, Green. (Originally published in 1775–1786)
- Boas, Franz. 1887. Museums of ethnology and their classification. *Science* 9:587–89.
- . 1896 The limitations of the comparative method in anthropology. *Science* 4: 901–8.
- . 1899 The cephalic index. *American Anthropologist* (old series) 11:448–61.
- . 1904 The history of anthropology. *Science* 20:513–24.
- Bouteiller, M. 1956 La Société des Observateurs de l'Homme, ancêtre de la Société d'Anthropologie de Paris. *Anthropological Society of Paris Bulletins and Memoirs* (10th series) 8:448–65.
- Brinton, Daniel G. 1892a. The nomenclature and teaching of anthropology. *American Anthropologist* (old series) 5:263–71.
- . 1892b. Proposed classification and international nomenclature of the anthropological sciences. *Proceedings of the American Association for the Advancement of Science* 41:257–58.
- . 1892c. *Anthropology: As a science and as a branch of university education in the United States*. Philadelphia: Privately printed.
- . 1895 The aims of anthropology. *Proceedings of the American Association for the Advancement of Science* 44:1–17.
- Cantor, George, Gowan Dawson, Graeme Gooday, Richard Noakes, Sally Shuttleworth, and Jonathan R. Topham. 2004. *Science in the nineteenth century periodical: Reading the magazine of nature*. Cambridge: Cambridge University Press.
- Chapman, William R. 1985. "Arranging ethnology: A. H. L. F. Pitt Rivers and the typological tradition," in *Objects and others: Essays on museums and material culture*. Edited by G. W. Stocking, Jr., pp. 15–48. Madison: University of Wisconsin Press.
- Chavannes, Alexandre André César. 1787. *Essai sur l'éducation intellectuelle avec le projet d'une science nouvelle*. Lausanne: I. Hignou.
- . 1788 *Anthropologie, ou science générale de l'homme*. Lausanne: I. Hignou.
- Cleland, John. 1870a. The lingering admirers of phrenology. *American Naturalist* 3(11):586–99.
- . 1870b. The significance of cranial characteristics in man. *American Naturalist* 4(10): 629–36.
- Cole, Douglas. 1999. *Franz Boas: The early years, 1858–1906*. Seattle: University of Washington Press.
- Collins, Randall. 1998. *The sociology of philosophies: A global theory of intellectual change*. Cambridge: Belknap Press of Harvard University Press.
- Cowan, Ruth S. 1972. Francis Galton's statistical ideas: The influence of eugenics. *Isis* 63:509–28.
- Crosby, Alfred W. 1997. *The measure of reality: Quantification and Western society, 1250–1600*. Cambridge: Cambridge University Press.
- Darnell, Regna. 1988. *Daniel Garrison Brinton: The "fearless critic" of Philadelphia*. University of Pennsylvania Publications in Anthropology 3. Philadelphia.
- . 1998. *And along came Boas: Continuity and revolution in Americanist anthropology*. Philadelphia and Amsterdam: John Benjamin.
- . 2001. *Invisible genealogies: A history of Americanist anthropology*. Lincoln: University of Nebraska Press.

- . 2003. "Toward consensus on the scope of anthropology: Daniel Garrison Brinton and the view from Philadelphia," in *Philadelphia and the development of American anthropology*. Edited by D. D. Fowler and D. R. Wilcox, pp. 21–35. Tuscaloosa: University of Alabama Press.
- Darnell, Regna, Michelle Hamilton, Robert L. A. Hancock, and Joshua Smith, eds. 2015. *Franz Boas papers, Vol. 1: Franz Boas as public intellectual—Theory, ethnography, activism*. Lincoln: University of Nebraska Press.
- Eriksen, Thomas H., and Finn S. Nielsen. 2013. *A history of anthropology*, second ed. London: Pluto Press.
- Farrand, Livingston. 1902. Proceedings of the American Ethnological Society for 1901. *American Anthropologist* 4:361–68.
- Fischer, Moritz, translator. 1892. Rules of nomenclature adopted by the International Zoological Congress held in Paris, France, 1889. *American Naturalist* 26:383–88.
- . 1894. Rules of nomenclature adopted by the International Zoological Congress held in Moscow, Russia, 1892. *American Naturalist* 28:929–33.
- Fowler, Don D. 1975. "Notes on inquiries in anthropology: A bibliographic essay," in *Toward a science of man: Essays in the history of anthropology*. Edited by T. H. H. Thoresen, pp. 15–32. The Hague: Mouton.
- . 2010. *A laboratory for anthropology: Science and romanticism in the American Southwest, 1846–1930*. Salt Lake City: University of Utah Press. (Originally published in 2000 by the University of New Mexico Press)
- . 2003. "A natural history of man: Reflections on anthropology, museums and science," in *Curators, collections and contexts: Anthropology at the Field Museum, 1893–2002*. Edited by Stephen E. Nash and Gary M. Feinman, pp. 11–21. *Fieldiana, Anthropology* (n.s.) 36(1525).
- Fowler, Don D., and Catherine S. Fowler. 1991. "The uses of natural man in natural history," in *Columbian consequences, Vol. 3: The Spanish borderlands in Pan-American perspective*. Edited by D. H. Thomas, pp. 37–71. Washington, DC: Smithsonian Institution Press.
- Fowler, Don D., and David R. Wilcox. 1999. "From Thomas Jefferson to the Pecos Conference: Changing anthropological agendas in the North American Southwest," in *Surveying the record: North American scientific exploration to 1930*. Edited by E. C. Carter II, pp. 197–223. *American Philosophical Society Memoirs* 231.
- Fox, Christopher, Roy Porter, and Robert Wokler. 1995. *Inventing human science: Eighteenth-century domains*. Berkeley and Los Angeles: University of California Press.
- Freed, Stanley A. 2012. *Anthropology unmasked: Museums, science, and politics in New York City*, 2 vols. Wilmington, OH: Orange Frazer Press.
- Gérando, Joseph-Marie, Baron de. 1883. Documents anthropologiques: L'ethnographie en 1800. *Revue d'Anthropologie* (2nd series) 6:152–82.
- . 1969 *The observation of savage peoples*, translated and edited by F. C. T. Moore. Berkeley: University of California Press. (Originally published in French in 1800)
- Garson, J. G. 1887. The international agreement on the classification and nomenclature of the cephalic index. *Journal of the Anthropological Institute of Great Britain and Ireland* 16(1):17–20.
- Gould, Stephen J. 1981. *The mismeasure of man*. New York: W.W. Norton.
- Haeckel, Ernst. 1879. *The evolution of man: A popular exposition of the principal points of human ontogeny and phylogeny*. New York: D. Appleton.

- Hall, Marie B. 1984. *All scientists now: The Royal Society in the nineteenth century*. Cambridge: Cambridge University Press.
- Hankins, Frank H. 1908. *Adolphe Quetelet as statistician*. New York: Columbia University Press.
- Harris, Marvin. 1968. *The rise of anthropological theory*. New York: T. Y. Crowell.
- Hervé, Georges. 1910. Les instructions anthropologiques de G. Cuvier pour le voyage de "Géographe" et du "Naturaliste" aux Terres Australes. *School of Anthropology of Paris Review* 20:289–302.
- Hicks, Dan. 2013. Four-field anthropology: Charter myths and time warps from St. Louis to Oxford. *Current Anthropology* 54(6):753–63.
- Hinsley, Curtis M. 2016. "The ironies of the fair, the uncertainties of anthropology," in *Coming of age in Chicago: The 1893 World's Fair and the coalescence of American anthropology*. Edited by C. M. Hinsley and D. R. Wilcox, pp. 489–95. Lincoln: University of Nebraska Press.
- Holmes, William H. 1902a. Classification and arrangement of the exhibits of an anthropological museum. *Science* (n.s.) 16(404):487–504
- . 1902b. Classification and arrangement of the exhibits of an anthropological museum. *Journal of the Anthropological Institute of Great Britain and Ireland* 32:353–72.
- . 1914. Areas of American culture characterization tentatively outlined as an aid in the study of the antiquities. *American Anthropologist* 16:413–46.
- Hrdlička, Aleš. 1899 The needs of American anthropologists. *American Naturalist* 33: 684–688.
- . 1925a. "The origin and antiquity of the American Indian," in *Smithsonian Institution Annual Report for 1924*, pp. 481–494. Washington, DC.
- . 1925b. *The old Americans*. Baltimore: Williams and Wilkins.
- . 1934. "Anthropological value of the skull," in *Essays presented to C. G. Seligman*. Edited by E. E. Evans-Pritchard, Raymond Firth, Bronislaw Malinowski, and Isaac Schapera, pp. 97–103. London: Kegan, Paul, Trench, Trubner.
- Hunt, James. 1863. Introductory address: On the study of anthropology. *The Anthropological Review* 1(1):1–20
- Jacknis, Ira. 1985. "Franz Boas and exhibits: On the limitation of the museum method of anthropology," in *Objects and others: Essays on museums and material culture*. Edited by G. W. Stocking, Jr. pp. 75–110. Madison: University of Wisconsin Press.
- . 2016. "Refracting images: Anthropological display at the Chicago World's Fair, 1893," in *Coming of age in Chicago: The 1893 World's Fair and the coalescence of American anthropology*. Edited by C. M. Hinsley and D. R. Wilcox, pp. 261–336. Lincoln: University of Nebraska Press.
- Kohlstedt, Sally G. 1976. *The formation of the American scientific community: The American Association for the Advancement of Science, 1848–1860*. Urbana: University of Illinois Press.
- Kroeber, A. L. 1931. "The culture-area and age-area concepts of Clark Wissler," in *Methods in social science, a case book*. Edited by S. A. Rice, pp. 248–65. Chicago: University of Chicago Press.
- Kuhn, Thomas. 1996. *The structure of scientific revolutions*, third ed. Chicago: University of Chicago Press.
- Lewis, Jason E., David DeGusta, Marc R. Meyer, Janet M. Monge, Alan E. Mann, and Ralph L. Holloway. 2011. The mismeasure of science: Stephen Jay Gould versus Samuel George Morton on skulls and bias. *PLoS Biology* 9(6):e1001071.

- Liddell, Henry G., and Robert Scott. 1940. *A Greek-English lexicon*, rev. ed. Oxford: Oxford University Press.
- Mangello, M. Eileen. 1989. Statistical regularity and determinism. *Journal of the History of the Behavioral Sciences* 25:73–76.
- Mason, Otis T. 1879. Notes on anthropology. *American Naturalist* 13(2):129–31.
- . 1880. Sketch of North American anthropology in 1879. *American Naturalist* 14(5): 348–56.
- . 1881a. Notes on anthropology. *American Naturalist* 15(4):331–36.
- . 1881b. Progress of anthropology in America during the year 1880. *American Naturalist* 15(8):616–25.
- . 1883. A scheme of anthropology. *Journal of the Anthropological Institute of Great Britain and Ireland* 12:440.
- . 1884a. Notes on anthropology. *American Naturalist* 18:645–50.
- . 1884b. Uniform craniometry. *American Naturalist* 18:839–42.
- . 1887. The occurrence of similar inventions in areas widely apart. *Science* 9:534–35.
- . 1890. Anthropology in Paris during the Exposition of 1889. *American Anthropologist*, o.s. 3:27–36.
- . 1894. “Ethnological exhibits of the Smithsonian Institution at the World Columbian Exposition,” in *Memoirs of the International Congress of Anthropology, Chicago, 1893*. Edited by C. S. Wake, pp. 206–16. Chicago: Shulte.
- . 1896. “Influence of environment upon human industries or arts,” in *Smithsonian Institution Annual Report for 1894–95*, pp. 639–65. Washington, DC.
- Meadows, John. 2004. *The Victorian scientist: The growth of a profession*. London: British Library.
- Meigs, J. Aitken. 1866. *Observations on the cranial forms of the American aborigines*. Philadelphia: Lippincott, Grambo.
- Meltzer, David J. 2015. *The great Paleolithic war: How science forged an understanding of America's Ice Age past*. Chicago: University of Chicago Press.
- Menard, Louis, Paul Reitter, and Chad Williams. 2017. *The rise of the research university: A sourcebook*. Chicago: University of Chicago Press.
- Milton, John R. 1981. The origin and development of the concept of the “laws of nature.” *Archives of European Sociology* 22:173–95.
- Mivart, St. George J. 1871. *Genesis of species*. London: Macmillan.
- . 1879a. The relations of animals and plants to time. *Contemporary Review* 37:99–122.
- . 1879b. The geography of living creatures. *Contemporary Review* 37:275–99.
- . 1880. The relations of living beings to one another. *Contemporary Review* 38:606–25.
- Morgan, Lewis Henry. 1871. *Systems of consanguinity and affinity of the human family*. Smithsonian Contributions to Knowledge 17. Washington, DC.
- . 1877. *Ancient society, or researches in the lines of human progress from savagery through barbarism to civilization*. New York: Henry Holt.
- . 1881. *Houses and house life of the American aborigines*. Contributions to North American Ethnology 4. Washington, DC: Government Printing Office.
- Morton, Samuel G. 1839. *Crania Americana, or a comparative view of the skulls of various aboriginal nations of North and South America*. Philadelphia: Dobson.

- . 1844. *Crania Aegyptiaca, or Observations on Egyptian ethnography derived from anatomy, history and the monuments*. Philadelphia: Pennington.
- Morus, Ivan R. 2007. Essay review. (Stop) Talking about Victorian science. *Annals of Science* 64:93–100.
- Nott, J. C., and George R. Gliddon. 1854. *Types of mankind, or ethnological researches based upon the ancient monuments, paintings, sculpture, and crania of races, and upon their natural, geographical, philological and Biblical history*. Philadelphia: Lippincott, Grambo.
- Oxford English Dictionary*. 1971. *The Compact Edition of the Oxford English Dictionary*. Oxford: Oxford University Press.
- Parezo, Nancy J., and Don D. Fowler. 2007. *Anthropology goes to the fair: The Louisiana Purchase Exposition of 1904*. Lincoln: University of Nebraska Press.
- Parezo, Nancy J., and Margaret A. Hardin. 1993. "In the realm of the museums," in *Hidden scholars: Women anthropologists and the Native American Southwest*. Edited by Nancy J. Parezo, pp. 270–93. Albuquerque: University of New Mexico Press.
- Porter, Theodore M. 1986. *The rise of statistical thinking, 1820–1900*. Princeton: Princeton University Press.
- Powell, John W. 1881. "Report of the director," in *First annual report of the Bureau of Ethnology, 1879–80*, pp. xi–xxxiii. Washington, DC: Government Printing Office.
- . 1887. Museums of ethnology and their classification. *Science* 9:612–14.
- . 1892a. "Indian linguistic families of America north of Mexico," in *Seventh annual report of the Bureau of Ethnology, 1885–86*, pp. 1–142. Washington, DC: Government Printing Office.
- . 1892b. Comments by Major Powell on D. C. Brinton's "The Nomenclature and Teaching of Anthropology." *American Anthropologist* (old series) 5(3):266–71.
- . 1898. "Report of the director: The five categories of human activities—esthetology, technology, sociology, philology and sophiology," in *Sixteenth annual report of the Bureau of American Ethnology, 1894–95*, pp. xv–xcix. Washington, DC: Government Printing Office.
- Prichard, James. 1843. *The natural history of man*. London: Hippolyte Baillier.
- Quetelet, L. Adolphe. 1835. *Sur l'homme et la développement de ses facultés, ou essai de physique sociale*. Paris: Bachelier.
- . 1842. *A treatise on man and the development of his faculties*. Edinburgh: William and Robert Chambers. (1969 facsimile edition, edited by S. Diamond, Gainesville: Scholar's Facsimiles and Reprints)
- Quinn, Stephen C. 2006. *Windows on nature: The great habitat dioramas of the American Museum of Natural History*. New York: American Museum of Natural History.
- Rudwick, Martin J. S. 2005. *Bursting the limits of time: The reconstruction of geohistory in the age of revolution*. Chicago: University of Chicago Press.
- Rydell, Robert W. 1984. *All the world's a fair*. Chicago: University of Chicago Press.
- Sahlins, Marshall. 1999. Two or three things that I know about culture. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* (n.s.) 5:399–421.
- Schiller, Francis. 1979. *Paul Broca, founder of French anthropology, explorer of the brain*. Berkeley: University of California Press.
- Sera-Shriar, Efran. 2013. Observing human difference: James Hunt, Thomas Henry Huxley, and competing disciplinary strategies in the 1860s. *Annals of Science* 70:461–91.

- Spencer, Frank. 1979. *Aleš Hrdlička, M.D., 1869–1943: A chronicle of the life and work of an American physical anthropologist*, 2 vols. PhD dissertation, University of Michigan, Ann Arbor.
- Steward, Julian H. 1955. *Theory of culture change*. Urbana: University of Illinois Press.
- . 1968. Cultural ecology. *International Encyclopedia of the Social Sciences* 4:337–44.
- Stigler, Stephen M. 1986. *The history of statistics: The measurement of uncertainty before 1900*. Cambridge: Belknap Press of Harvard University Press.
- Stocking, George W., Jr. 1971. What's in a name? The origins of the Royal Anthropological Institute (1837–1871). *Man: Journal of the Royal Anthropological Institute* 6:369–90.
- . 1973. "From chronology to ethnology: James Cowles Prichard and British anthropology, 1800–1850," in *Researches into the physical history of man, by James Cowles Prichard*. Edited by George W. Stocking, Jr., pp. ix–cxviii. Chicago: University of Chicago Press.
- . 1987 *Victorian anthropology*. New York: Free Press.
- , ed. 1974 *The shaping of American anthropology, 1883–1911: A Franz Boas reader*. New York: Basic Books.
- Swijtink, Zeno G. 1987. "The objectification of observation: Measurement and statistical methods in the nineteenth century," in *The probabilistic revolution, vol. 1: Ideas in history*. Edited by L. Krüger, L. Daston, and M. Heidelberger, pp. 261–86. Cambridge: MIT Press.
- Topinard, Paul. 1890. *Anthropology*. London: Chapman and Hall.
- . 1891. The Societe d'Anthropologie at Paris – A sketch of its organization and work. *American Naturalist* 25:73–85, 172–83.
- Tylor, Edward B. 1930. *Anthropology: An introduction to the study of man and civilization*, 2 vols. London: Watts & Co. (Originally published in 1881)
- Vermeulen, Han F. 1995. "Origin and institutionalization of ethnography and ethnology in Europe and the United States, 1771–1845," in *Field work and footnotes: Studies in the history of European anthropology*. Edited by H. F. Vermeulen and A. A. Roden, pp. 39–59. London and New York: Routledge.
- Whewell, William. 1967. *The philosophy of the inductive sciences, founded upon their history*. New York: Johnson Reprint. (Originally published in 1840)
- Wilson, Thomas. 1891. "Anthropology at the Paris Exposition in 1899," in *Annual Report of the United States National Museum for 1890*, pp. 641–80.
- Wissler, Clark. 1916. "Correlations between archaeological and culture areas in the American continents," in *Holmes anniversary volume: Anthropological essays*, pp. 481–90. New York: AMS Press.
- . 1917. *The American Indian: An introduction to the anthropology of the New World*. New York: Douglas C. McMurtie.
- . 1926. *The relation of nature to man in aboriginal America*. New York: Oxford University Press.